As filed with the Securities and Exchange Commission on April 1, 2020.

Registration Statement No. 333-237212

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

AMENDMENT NO. 1 TO FORM S-1 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

KEROS THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	2834	81-1173868
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

99 Hayden Avenue, Suite 120, Building E
Lexington, Massachusetts 02421
Tel: (617) 314-6297
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Jasbir Seehra
Chief Executive Officer
Keros Therapeutics, Inc.
99 Hayden Avenue, Suite 120, Building E
Lexington, Massachusetts 02421
Tel: (617) 314-6297
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Marc A. Recht **Ryan S. Sansom** **Brandon Fenn** **Esther Cho** **Cooley LLP** **500 Boylston Street** **Boston, Massachusetts 02116** **(617) 937-2300**	**Keith Regnante** **Chief Financial Officer** **Keros Therapeutics, Inc.** **99 Hayden Avenue, Suite 120, Building E** **Lexington, Massachusetts 02421** **(617) 314-6297**	**Peter N. Handrinos** **Nathan Ajiashvili** **Latham & Watkins LLP** **200 Clarendon Street** **Boston, Massachusetts 02116** **(617) 948-6000**

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer	☐	Accelerated Filer	☐
Non-Accelerated Filer	☒	Smaller Reporting Company	☒
		Emerging Growth Company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided in Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

TITLE OF SECURITIES BEING REGISTERED	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE (1)	AMOUNT OF REGISTRATION FEE (2)(3)
Common Stock, $0.0001 par value per share	$86,250,000	$11,196

(1) Estimated solely for purposes of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended. Includes the aggregate offering price of additional shares that the underwriters have an option to purchase.
(2) Calculated pursuant to Rule 457(o) under the Securities Act of 1933, as amended, based on an estimate of the proposed maximum aggregate offering price.
(3) The registration fee was previously paid.

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment that specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED APRIL 1, 2020

PRELIMINARY PROSPECTUS

5,000,000 Shares

Common Stock

We are offering 5,000,000 shares of common stock. This is our initial public offering of our common stock.

Prior to this offering, there has been no public market for our shares. We expect that the initial public offering price will be between $14.00 and $16.00 per share. We have applied to list our common stock on the Nasdaq Global Market under the symbol "KROS."

We are an "emerging growth company" under the federal securities laws and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and for future filings.

Investing in our common stock involves a high degree of risk. Before buying any shares, you should read carefully the discussion of the material risks of investing in our common stock under the heading "Risk Factors" starting on page 12 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the securities that may be offered under this prospectus, nor have any of these organizations determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public offering price	**$**	**$**
Underwriting discounts and commissions(1)	**$**	**$**
Proceeds, before expenses, to us	**$**	**$**

(1) We refer you to "Underwriting" beginning on page 174 for additional information regarding underwriting compensation.

Delivery of the shares of common stock is expected to be made on or about , 2020.

We have granted the underwriters an option for a period of 30 days to purchase an additional 750,000 shares of our common stock. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be $, and the total proceeds to us, before expenses, will be $.

Joint Book-Running Managers

Jefferies **SVB Leerink** **Piper Sandler**

Co-Manager

H.C. Wainwright & Co.

The date of this prospectus is , 2020.

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Through and including , 2020 (the 25th day after the date of this prospectus), all dealers effecting transactions in our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

We have not, and the underwriters have not, authorized anyone to provide any information or to make any representations other than those contained in this prospectus, any amendment or supplement to this prospectus or any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information

that others may give you. This prospectus is an offer to sell only the shares of common stock offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus, any amendment or supplement to this prospectus or any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside the United States.

PROSPECTUS SUMMARY

This summary highlights information contained in other parts of this prospectus. Because it is only a summary, it does not contain all of the information that you should consider before investing in our common stock and it is qualified in its entirety by, and should be read in conjunction with, the more detailed information appearing elsewhere in this prospectus. You should read the entire prospectus carefully, especially "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements before deciding to buy shares of our common stock. Unless the context requires otherwise, references in this prospectus to "Keros," "the company," "we," "us" and "our" refer to Keros Therapeutics, Inc.

Overview

We are a clinical-stage biopharmaceutical company focused on the discovery, development and commercialization of novel treatments for patients suffering from hematological and musculoskeletal disorders with high unmet medical need. We are a leader in understanding the role of the Transforming Growth Factor-Beta, or TGF-ß, family of proteins, which are master regulators of red blood cell and platelet production as well as of the growth, repair and maintenance of muscle and bone. We have leveraged this understanding and developed a discovery approach to generate large and small molecules to address diseases of these tissues. Targeting TGF-ß signaling pathways has been clinically proven to elicit robust changes in blood cells, muscle and bone, which we believe provides a precedent and strong rationale for our strategy. Our lead protein therapeutic product candidate, KER-050, is being developed for the treatment of low blood cell counts, or cytopenias, including anemia and thrombocytopenia, in patients with myelodysplastic syndromes, or MDS, and in patients with myelofibrosis. We have observed positive topline results in a Phase 1 clinical trial of KER-050, and we plan to initiate two Phase 2 clinical trials, one in patients with MDS and one in patients with myelofibrosis. Our lead small molecule product candidate, KER-047, is being developed for the treatment of anemia resulting from elevated levels of hepcidin, the key regulator of iron absorption and recycling, as well as for the treatment of fibrodysplasia ossificans progressiva, or FOP, a rare musculoskeletal disorder, and is currently in a Phase 1 clinical trial. Our third product candidate, KER-012, is being developed for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of pulmonary arterial hypertension, or PAH. We plan to progress KER-012 into a Phase 1 clinical trial in the second half of 2021. We believe these product candidates offer substantial opportunities for us to expand our development programs into related hematological and musculoskeletal disorders with high unmet medical need.

KER-050 is an engineered ligand trap comprised of a modified ligand-binding domain of the TGF-ß receptor known as activin receptor type IIA that is fused to the portion of the human antibody known as the Fc domain. KER-050 is designed to increase red blood cell and platelet production by inhibiting the signaling of a subset of the TGF-ß family of proteins to promote hematopoiesis. We believe KER-050 has the potential to provide benefit to patients suffering from red blood cell and platelet differentiation and maturation defects occurring across the spectrum from early through terminal stages of hematopoiesis, and consequently may be effective for many patients that have limited treatment options or are refractory to available therapies. We recently completed a Phase 1 clinical trial evaluating the safety, tolerability and pharmacokinetics of KER-050 in healthy post-menopausal women. Data from the single ascending dose portion of this trial demonstrated rapid and sustained increases in red blood cells and hemoglobin through Day 84 at the highest dose evaluated, increases in circulating immature red blood cells through Day 29 at the higher doses, increases in platelets of 30 x 10^9 cells/L or greater (a change that we believe would be considered clinically meaningful in patients with low platelet counts) at the highest dose evaluated, as well as favorable tolerability. We plan to commence a Phase 2 clinical trial in patients with MDS evaluating KER-050 for the treatment of cytopenias, including anemia and thrombocytopenia, in the second half of 2020. We also plan to commence a Phase 2 clinical trial evaluating KER-050 for the treatment of patients with myelofibrosis-associated cytopenias in 2021.

KER-047 is designed to selectively and potently inhibit activin receptor-like kinase-2, or ALK2, a TGF-ß receptor. We believe that KER-047 has the potential to ameliorate excessive ALK2 signaling, which is directly

implicated in genetically-defined anemias and musculoskeletal disorders where the transformation of soft tissue into bone, referred to as heterotopic ossification, leads to devastating immobility. We are developing KER-047 for the treatment of anemia resulting from high hepcidin levels as a direct consequence of elevated ALK2 signaling, including our initial target, iron-refractory iron deficiency anemia, or IRIDA. We are also developing KER-047 as a treatment for FOP, a rare genetic disease resulting from mutations in the ALK2 receptor that results in gain-of-function activity. In these patients, soft tissue, including muscles and tendons, develops normally, but remodels into bone after injury. KER-047 is currently being evaluated in a Phase 1 clinical trial in healthy volunteers. We expect to complete the Phase 1 clinical trial in mid-2020, and to subsequently report data from this trial in the second half of 2020. We expect to commence a Phase 2 clinical trial in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, in the first half of 2021 and a Phase 2 clinical trial in patients with FOP in the first half of 2021.

KER-012 is designed to bind to and inhibit the signaling of TGF-ß ligands, including activin A and activin B, to potentially increase bone mass. We believe that KER-012 has the potential to increase the signaling of bone morphogenic protein, or BMP, pathways through this inhibition of activin A and activin B signaling, and consequently treat diseases such as PAH that are associated with reduced BMP signaling due to inactivating mutations in the BMP receptors. We are developing KER-012 for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH. We have generated preclinical data that we believe demonstrated proof-of-mechanism of KER-012 for the treatment of such bone loss disorders and PAH. We plan to advance KER-012 into a Phase 1 clinical trial in the second half of 2021.

Our Biological Focus

Our strategy focuses on the role of members of the TGF-ß family of proteins in the development of blood cells, muscle and bone. Aged and damaged cells are routinely replaced by new cells in normally functioning organs. These new cells are derived from stem cells that have the ability to differentiate into cells with specialized function when appropriate signals are provided to maintain the homeostatic state of the tissue. Members of the TGF-ß family of proteins, including activins and bone morphogenetic proteins, provide the necessary signals for this process of self-renewal and repair.

We seek to address the limitations of current therapeutic approaches to treating diseases whose manifestations are linked to dysfunction of TGF-ß signaling pathways by:

- Leveraging our comprehensive insights into the TGF-ß signaling pathways to discover therapeutics to treat hematological and musculoskeletal disorders.
- Expanding our library of proprietary molecules that are engineered to induce desired biological effects, such as increased blood cell production, inhibit heterotopic ossification and increased muscle and bone mass.
- Engineering proprietary molecules to selectively target specific proteins in the TGF-ß signaling pathways to provide therapeutic benefit while potentially minimizing safety risks.
- Developing product candidates for the treatment of diseases where targeting the TGF-ß signaling pathways has clinical validation or biological rationale to improve our probability of success in the clinic.
- Targeting the TGF-ß family of proteins, which are highly conserved throughout evolution, permitting the use of animal models to potentially predict with high confidence the therapeutic benefit in patients.

Our Pipeline

The following table sets forth our product candidates, their current development stages and anticipated upcoming milestones.

Program	Asset	Phase of Development				Status	Next Milestones*
		Preclinical	Phase 1	Phase 2	Phase 3		
Hematology	KER-050 (therapeutic protein)	Myelodysplastic Syndrome (MDS)				Completed Phase 1 clinical trial	Initiate Phase 2 clinical trial: 2H2020
		Myelofibrosis (MF)					Initiate Phase 2 clinical trial: 2021
Musculoskeletal	KER-047 (small molecule)	Anemia from high hepcidin				Ongoing Phase 1 clinical trial	Complete Phase 1 clinical trial: mid-2020
		Fibrodysplasia Ossificans Progressiva (FOP)					
Preclinical Pipeline	KER-012 (therapeutic protein)	Pulmonary Arterial Hypertension				Ongoing preclinical studies	Initiate Phase 1 clinical trial: 2H2021
		Bone disorders					
Musculoskeletal	ActRII Variant	Metabolic disease	Novo Nordisk			Ongoing preclinical studies	

* Anticipated clinical milestones are subject to the impact of COVID-19 on our business.

We are developing KER-050 for the treatment of cytopenias that occur due to ineffective hematopoiesis, including anemia and thrombocytopenia, in patients with MDS and in patients with myelofibrosis. KER-050 is designed to benefit patients suffering from defects in red blood cell and platelet differentiation and maturation across the spectrum from early through terminal stages of hematopoiesis. Consequently, KER-050 may be effective for many patients that have limited treatment options or are refractory to available therapies.

We are developing KER-047 for the treatment of anemia resulting from high hepcidin levels. We believe KER-047 is a potent and selective inhibitor of ALK2, a receptor whose excessive signaling is the underlying cause of the elevated hepcidin levels that lead to low iron bioavailability and anemia in a broad range of diseases. Further, we are developing KER-047 as a treatment for FOP, a rare genetic disease resulting from mutations in the ALK2 receptor that result in gain-of-function activity.

We are developing KER-012 for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH. We believe KER-012 is a potent and selective inhibitor of certain TGF-ß ligands, including activin A and activin B, that are key regulators of bone remodeling that act to suppress bone growth. We believe that KER-012 has the potential to increase the signaling of BMP pathways through this inhibition of activin A and activin B signaling, and consequently treat diseases such as PAH that are associated with reduced BMP signaling due to inactivating mutations in the BMP receptors.

Market Overview

Our target markets include MDS-associated cytopenias, myelofibrosis-cytopenias, anemia resulting from elevated levels of hepcidin, such as IRIDA, FOP, osteoporosis, osteogenesis imperfecta and PAH.

MDS-Associated Cytopenias

In the United States, there are 60,000 to 170,000 patients with MDS and 15,000 to 20,000 new cases of MDS reported each year. Cytopenias in MDS are caused by defects occurring across the various stages of hematopoiesis, from the self-renewal of progenitor cells to differentiation in early through terminal stages. Anemia is the most frequent consequence of ineffective hematopoiesis in patients with MDS due to low red blood cell production, impacting 90% of MDS patients, approximately 40% of whom become transfusion dependent.

Another consequence is thrombocytopenia, a deficiency of platelets in the blood, which is impaired blood clotting that can cause bleeding. The prevalence of thrombocytopenia in patients with MDS has been reported at 40% to 65%. A deficiency of neutrophils in the blood, or neutropenia, also increases the risk of serious infections in patients with MDS and has been reported to affect approximately 20% of patients with MDS.

Myelofibrosis-Associated Cytopenias

Myelofibrosis is a relatively rare condition with an identified prevalence of 16,000 to 18,500 patients in the United States. Approximately 3,000 new patients are diagnosed with myelofibrosis each year, and the median age at diagnosis is approximately 60 years. Currently, there are limited therapeutic options to address the myelofibrosis-associated cytopenias. Within a year of diagnosis, 38% of patients with myelofibrosis are red blood cell transfusion dependent and eventually nearly all will develop transfusion dependence. Additionally, within a year of diagnosis, 26% of patients with myelofibrosis will develop thrombocytopenia and 51% will develop anemia. Approximately 45% of patients with myelofibrosis treated with JAK inhibitor ruxolitinib in a third-party Phase 3 clinical trial developed treatment-related grade 3 or 4 anemia.

IRIDA

The prevalence of IRIDA worldwide is estimated to be less than one person in 1,000,000. IRIDA was first described in 1981 with the observation that patients with anemia were refractory to treatment with oral iron. However, the association of mutations in the TMPRSS6 gene with IRIDA was not identified until 2008, and genetic testing for IRIDA is not widely available. Furthermore, because affected individuals usually have normal growth and development, IRIDA can be difficult to diagnose. All of these factors contribute to an inability to accurately determine the prevalence of IRIDA.

FOP

The International Fibrodysplasia Ossificans Progressiva Association estimates that there are 3,500 people worldwide with FOP, with approximately 800 patients identified. There are 285 known cases in the United States.

Osteoporosis

It is estimated that more than 200 million people worldwide, including approximately 30% of all post-menopausal women in the United States and Europe, suffer from osteoporosis. It is also estimated that approximately 50% of women and 20% of men over the age of 50 will suffer at least one osteoporosis-related fracture in their remaining lifetime.

Osteogenesis Imperfecta

Osteogenesis imperfecta affects approximately one out of every 10,000 to 20,000 people worldwide, while an estimated 25,000 to 50,000 people in the United States are living with the condition.

Pulmonary Arterial Hypertension

We estimate that in the United States there are 750 to 2,000 new cases of PAH each year and 10,000 to 20,000 individuals living with the condition.

Our Strategy

Our mission is to deliver significant clinical benefit to patients suffering from hematological and musculoskeletal diseases by developing differentiated product candidates that are designed to alter TGF-ß signaling pathways. The key elements of our strategy include:

- Rapidly advance the clinical development of KER-050 for the treatment of patients with MDS- and myelofibrosis-associated cytopenias.
- Rapidly advance the clinical development of KER-047 for the treatment of genetically-defined anemias and musculoskeletal disorders where heterotopic ossification leads to devastating immobility.
- Advance KER-012 into and through clinical development for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH.

- Pursue development and, if approved, commercialization of our product candidates in indications and regions where we believe we can maximize their value independently or through strategic collaborations.
- Leveraging our proprietary discovery approach and knowledge base to develop new therapeutics.

Our Team

We are led by a highly experienced management team and scientific advisory board who have more than 100 combined years of research and development on therapeutics in the TGF-ß family of proteins. Our team has collectively worked on marketed therapeutics such as Reblozyl, Tecfidera, Kalydeco and Waylivra, and led drug discovery and clinical development at companies including Acceleron Pharma Inc., Biogen Inc., Wyeth Pharmaceuticals Inc., Seres Therapeutics, Inc., Vertex Pharmaceuticals Incorporated and Akcea Therapeutics, Inc.

Recent Developments

On March 11, 2020, the World Health Organization declared the outbreak of a novel strain of coronavirus, COVID-19, as a global pandemic, which continues to spread throughout the United States, Australia and around the world. On March 23, 2020, the governor of Massachusetts ordered the closure of all non-essential businesses effective March 24, 2020, through April 7, 2020, which was subsequently extended through May 4, 2020. Because of the nature of our operations, we are currently considered to be an essential business so, to date, our operations have only been partially affected by this order. As we continue to actively advance all of our clinical programs, we are in close contact with our principal investigators and clinical sites, which are primarily located in Australia, and are assessing the impact of COVID-19 on our clinical trials, expected timelines and costs on an ongoing basis. In light of recent developments relating to the COVID-19 global pandemic, the primary focus of healthcare providers and hospitals is currently on fighting the virus. In addition, in response to the spread of COVID-19, we have closed our principal executive office with our administrative employees continuing their work outside of our office and have limited the number of staff in our laboratory. This partial disruption, even temporary, may severely impact our operations and overall business by delaying the progress of our research and development programs, including our planned preclinical studies and clinical trials, or by limiting our ability to recruit physicians or clinicians to run our clinical trials, enroll patients or conduct follow-up assessments in our clinical trials. See "*Risk Factors—The COVID-19 coronavirus could adversely impact our business, including our preclinical studies and clinical trials*" for more information regarding the potential impact of COVID-19 on our business and operations. We will continue to evaluate the impact of the COVID-19 pandemic on our business and expect to reevaluate the timing of our anticipated preclinical and clinical milestones as we learn more and the impact of COVID-19 on our industry becomes more clear.

Risks Associated with Our Business

Our business is subject to a number of risks. These risks are discussed more fully in the section titled "Risk Factors" immediately following this prospectus summary. You should read these risks before you invest in our common stock. In particular, risks associated with our business include, but are not limited to, the following:

- We have a limited operating history, have incurred net losses in every year since our inception and anticipate that we will continue to incur net losses in the future.
- Even if we consummate this offering, we will need substantial additional funding in order to complete the development and commence commercialization of our product candidates. Failure to obtain this necessary capital when needed may force us to delay, reduce or eliminate certain of our product development or research operations.
- We believe our current cash and cash equivalents will be sufficient to fund our business only for a limited amount of time, and if we are not able to raise additional funds, we may be unable to continue as a going concern.
- We are heavily dependent on the success of our product candidates, which are in early clinical development. If we are unable to advance our current or future product candidates through clinical

trials, obtain marketing approval and ultimately commercialize any product candidates we develop, or experience significant delays in doing so, our business will be materially harmed.

- All of our product candidates are in preclinical or early clinical development. Clinical trials are difficult to design and implement, and they involve a lengthy and expensive process with uncertain outcomes. We may experience delays in completing, or ultimately be unable to complete, the development and commercialization of KER-050, KER-047, KER-012 or any future product candidates.
- If we are unable to successfully commercialize any product candidate for which we receive regulatory approval, or experience significant delays in doing so, our business will be materially harmed.
- We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.
- Our success depends in part on our ability to protect our intellectual property. It is difficult and costly to protect our proprietary rights and technology, and we may not be able to ensure their protection.
- We rely, and expect to continue to rely, on third parties, including independent clinical investigators, contracted laboratories and contract research organizations, to conduct our preclinical studies and clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates and our business could be substantially harmed.
- We rely on third parties to supply and manufacture our product candidates, and we expect to continue to rely on third parties to manufacture our products, if approved. The development of such product candidates and the commercialization of any products, if approved, could be stopped, delayed or made less profitable if any such third party fails to provide us with sufficient quantities of product candidates or products or fails to do so at acceptable quality levels or prices or fails to maintain or achieve satisfactory regulatory compliance.
- Our future collaborations will be important to our business. If we are unable to enter into new collaborations, or if these collaborations are not successful, our business could be adversely affected.
- The COVID-19 coronavirus could adversely impact our business, including our preclinical studies and clinical trials.

Corporate Information

Keros Therapeutics, Inc. was originally incorporated under the laws of the State of Delaware under the name Keros Therapeutics, Inc. in December 2015. Our principal executive office is located at 99 Hayden Avenue, Suite 120, Building E, Lexington, Massachusetts 02421. Our telephone number is (617) 314-6297. Our website address is www.kerostx.com. Information contained in, or accessible through, our website does not constitute a part of, and is not incorporated into, this prospectus.

The Keros logo and the name Keros and other common law trademarks of Keros Therapeutics, Inc. appearing in this prospectus are the property of Keros Therapeutics, Inc. Solely for your convenience, trade names, trademarks and service marks contained in this prospectus may appear without the "®" or "™" symbols. Such references are not intended to indicate, in any way, that we will not assert, to the fullest extent possible under applicable law, our rights or the rights of the applicable licensor to those trade names, trademarks and service marks.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- being permitted to present in this prospectus only two years of audited financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;

- reduced disclosure about the compensation paid to our executive officers;
- not being required to submit to our stockholders advisory votes on executive compensation or golden parachute arrangements;
- an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act; and
- an exemption from new or revised financial accounting standards until they would apply to private companies and from compliance with any new requirements adopted by the Public Company Accounting Oversight Board requiring mandatory audit firm rotation.

We may take advantage of these exemptions for up to the last day of the fiscal year ending after the fifth anniversary of this offering or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (1) the last day of the fiscal year in which we have total annual gross revenues of $1.07 billion or more; (2) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (3) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (4) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, or the SEC. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of certain reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock.

We have elected to take advantage of the extended transition period to comply with new or revised accounting standards and to adopt certain of the reduced disclosure requirements available to emerging growth companies. As a result of the accounting standards election, we will not be subject to the same implementation timing for new or revised accounting standards as other public companies that are not emerging growth companies which may make comparison of our financials to those of other public companies more difficult. As a result of these elections, the information that we provide in this prospectus may be different than the information you may receive from other public companies in which you hold equity interests. In addition, it is possible that some investors will find our common stock less attractive as a result of these elections, which may result in a less active trading market for our common stock and higher volatility in our stock price.

THE OFFERING

Common stock offered by us	5,000,000 shares.
Common stock to be outstanding immediately after this offering	18,189,391 shares (or 18,939,391 shares if the underwriters exercise in full their option to purchase additional shares).
Option to purchase additional shares	We have granted the underwriters an option, exercisable for 30 days after the date of this prospectus, to purchase up to an additional 750,000 shares from us.
Use of proceeds	We estimate that we will receive net proceeds of approximately $67.2 million (or approximately $77.6 million if the underwriters exercise in full their option to purchase additional shares), based on an assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering, together with our existing cash and cash equivalents, to advance the clinical development of KER-050, including the initiation of two Phase 2 clinical trials, one in patients with MDS and one in patients with myelofibrosis, to advance the clinical development of KER-047, including the completion of our current Phase 1 clinical trial and the initiation of two Phase 2 clinical trials, one in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, and one in patients with FOP, and to advance KER-012 into clinical development, including the initiation of a Phase 1 clinical trial. We intend to use the remainder of the net proceeds to fund other research and development activities, including activities related to our proprietary discovery approach, working capital and general corporate purposes. See “Use of Proceeds” for additional information.
Risk factors	You should carefully read “Risk Factors” on page 11 in this prospectus for a discussion of factors that you should consider before deciding to invest in our common stock.
Proposed Nasdaq Global Market symbol	“KROS”

The number of shares of our common stock to be outstanding after the closing of this offering is based on 13,189,391 shares of our common stock (which includes 34,557 shares of restricted common stock subject to repurchase) outstanding as of December 31, 2019 and excludes:

- 1,164,017 shares of our common stock issuable upon the exercise of options outstanding as of December 31, 2019, at a weighted-average exercise price of $0.35 per share;
- 1,147,434 shares of our common stock issuable upon the exercise of options approved subsequent to December 31, 2019, to be granted contingent and effective upon the execution of the underwriting agreement for this offering, at an exercise price equal to the initial public offering price per share;
- 985,619 shares of our common stock reserved for future issuance under our 2017 Stock Incentive Plan, as amended, or 2017 Plan, as of December 31, 2019, which reflects an amendment effected in March 2020 to increase the number of authorized shares under the 2017 Plan by 921,531 shares;

- 1,002,874 shares of our common stock reserved for future issuance pursuant to our 2020 Equity Incentive Plan, or 2020 Plan, (which does not give effect to the grant of 1,147,434 shares of common stock issuable upon the exercise of stock options that will be granted contingent and effective upon the execution of the underwriting agreement for this offering) which will become effective upon the execution of the underwriting agreement related to this offering, as well as any shares underlying options outstanding under the 2017 Plan that expire or otherwise terminate prior to exercise after the effective date of the 2020 Plan and any shares reserved pursuant to provisions in our 2020 Plan that automatically increase the number of shares of common stock reserved for issuance under the 2020 Plan; and
- 182,341 shares of our common stock reserved for future issuance under our 2020 Employee Stock Purchase Plan, or ESPP, which will become effective upon the execution of the underwriting agreement related to this offering, as well as any shares reserved pursuant to provisions in the ESPP that automatically increase the number of shares of common stock reserved for issuance under the ESPP.

Unless otherwise indicated, this prospectus reflects and assumes the following:

- a one-for-2.1703 reverse stock split of our common stock to be effected prior to the closing of this offering;
- the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 10,725,129 shares of our common stock upon the closing of this offering, which includes the conversion of the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020;
- the filing and effectiveness of our amended and restated certificate of incorporation in Delaware, which will occur in connection with the closing of this offering;
- no exercise of the outstanding options referred to above after December 31, 2019; and
- no exercise by the underwriters of their option to purchase additional shares of our common stock.

SUMMARY CONSOLIDATED FINANCIAL DATA

The following tables set forth our summary consolidated financial data. We derived the summary consolidated statement of operations data for the years ended December 31, 2018 and 2019 and the summary consolidated balance sheet data as of December 31, 2019 from our audited consolidated financial statements included elsewhere in this prospectus.

When you read this summary consolidated financial data, it is important that you read it together with the historical consolidated financial statements and related notes to those statements, as well as the sections of this prospectus titled “Selected Consolidated Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” Our historical results are not necessarily indicative of the results to be expected in any future period.

	YEAR ENDED DECEMBER 31,	
	2018	2019
	(in thousands, expect share and per-share data)	
Consolidated Statement of Operations Data:		
Revenue:		
Research collaboration revenue	$ 10,000	$ 10,000
Total revenue	10,000	10,000
Operating expenses:		
Research and development	(10,111)	(17,379)
General and administrative	(1,580)	(3,184)
Total operating expenses	(11,691)	(20,563)
Loss from operations	(1,691)	(10,563)
Other income, net:		
Interest income, net	6	(8)
Research and development incentive income	370	558
Change in fair value of preferred stock tranche liability	(43)	(2,564)
Other income, net	280	241
Total other income (expense), net	613	(1,773)
Loss before income taxes	(1,078)	(12,336)
Income tax provision	(257)	—
Net loss	$ (1,335)	$ (12,336)
Net loss attributable to common stockholders—basic and diluted	$ (2,346)	$ (14,136)
Net loss per share attributable to common stockholders—basic and diluted	$ (1.08)	$ (6.08)
Weighted average common stock outstanding—basic and diluted	2,174,514	2,326,857
Pro forma net loss per share attributable to common stockholders—basic and diluted(1)		$ (1.39)
Pro forma weighted average common stock outstanding—basic and diluted(1)		8,882,168

(1) The information presented in this table does not give effect to our issuance and sale of 4,169,822 shares of Series C preferred stock in March 2020. See Note 12 to our consolidated financial statements appearing at the end of this prospectus for further details on the calculation of basic and diluted net loss per share attributable to common stockholders.

The following table presents our consolidated summary balance sheet data:

- on an actual basis as of December 31, 2019;
- on a pro forma basis to reflect (1) the issuance and sale of 4,169,822 shares of Series C preferred stock and the receipt of net proceeds of $55.8 million in March 2020 and (2) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 10,725,129 shares of our common stock upon the closing of this offering; and
- on a pro forma as adjusted basis to give further effect to our sale of 5,000,000 shares of our common stock in this offering at an assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	AS OF DECEMBER 31, 2019		
	ACTUAL	PRO FORMA	PRO FORMA AS ADJUSTED
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash and cash equivalents	$ 7,020	$ 62,839	$ 130,289
Working capital(1)	4,441	60,260	128,025
Total assets	10,955	66,774	133,609
Total liabilities	10,460	5,504	5,189
Convertible preferred stock	19,941	—	—
Total stockholders' (deficit) equity	(19,446)	61,270	128,419

(1) Working capital is defined as current assets less current liabilities.

The pro forma as adjusted information discussed above is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing. Each $1.00 increase or decrease in the assumed initial public offering price of $15.00 per share, the midpoint of the estimated price range set forth on the cover page of this prospectus, would increase or decrease each of cash and cash equivalents, working capital, total assets and total stockholders' equity by $4.7 million, assuming that the number of shares of our common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Each increase or decrease of 1.0 million shares in the number of shares of our common stock offered by us would increase or decrease each of cash and cash equivalents, working capital, total assets and total stockholders' equity by $14.0 million, assuming that the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our consolidated financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks Related to Our Financial Position and Need for Additional Capital

We have a limited operating history, have incurred net losses in every year since our inception and anticipate that we will continue to incur net losses in the future.

We are a clinical-stage biopharmaceutical company with a limited operating history. Since our inception in 2015, we have invested most of our resources in developing our product candidates, building our intellectual property portfolio, developing our supply chain, conducting business planning, raising capital and providing general and administrative support for these operations. Consequently, we have no meaningful operations upon which to evaluate our business and predictions about our future success or viability may not be as accurate as they could be if we had a longer operating history or a history of successfully developing and commercializing drug products. Investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effect or an acceptable safety profile, gain regulatory approval and become commercially viable. We have not yet demonstrated the ability to progress any product candidate through clinical trials, we have no products approved for commercial sale and we have not generated any revenue from product sales to date. We continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred losses in each period since our inception. For the years ended December 31, 2018 and 2019, we reported a net loss of $1.3 million and $12.3 million, respectively. As of December 31, 2019, we had an accumulated deficit of $19.7 million. We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase as we continue our research and development of, and seek regulatory approvals for, our lead protein therapeutic product candidate, KER-050, our lead small molecule product candidate, KER-047, our third product candidate, KER-012, and any future product candidates we may develop.

We anticipate that our expenses will increase substantially if, and as, we:

- initiate Phase 2 clinical trials of KER-050 evaluating the treatment of cytopenias, including anemia and thrombocytopenia, in patients with myelodysplastic syndrome, or MDS, in the second half of 2020, and myelofibrosis in 2021;
- complete our Phase 1 clinical trial of KER-047 in healthy volunteers;
- advance KER-012 into clinical development;
- continue the research and development of our other clinical- and preclinical-stage product candidates and discovery-stage programs;
- increase the amount of research and development activities to identify and develop product candidates using our proprietary discovery approach;
- make milestone, royalty or other payments under in-license or collaboration agreements;
- maintain, expand and protect our intellectual property portfolio;
- expand our operational, financial and management systems and increase personnel, including personnel to support our clinical development, manufacturing and commercialization efforts and our operations as a public company;
- establish a sales, marketing, medical affairs and distribution infrastructure to commercialize any products for which we may obtain marketing approval and intend to commercialize on our own or jointly with third parties;

- invest in or in-license other technologies; and
- experience any delays or encounter any issues with any of the above, including but not limited to failed studies, complex results, manufacturing challenges, safety issues or other regulatory challenges.

To become and remain profitable, we, our collaborators and any potential future collaborators must develop and eventually commercialize products with significant market potential. This will require us to be successful in a range of challenging activities, including completing preclinical studies and clinical trials, obtaining marketing approval for product candidates, manufacturing, marketing and selling products for which we may obtain marketing approval and satisfying any post-marketing requirements. We may never succeed in any or all of these activities and, even if we do, we may never generate revenue that is significant or large enough to achieve profitability. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our company also could cause you to lose all or part of your investment.

Even if we succeed in commercializing one or more of our product candidates, we will continue to incur substantial research and development and other expenditures to develop and market additional product candidates. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital.

Even if we consummate this offering, we will need substantial additional funding in order to complete the development and commence commercialization of our product candidates. Failure to obtain this necessary capital when needed may force us to delay, reduce or eliminate certain of our product development or research operations.

To date, we have funded our operations through private placements of equity securities, upfront and expense reimbursement payments received from our collaborators and interest income from the investment of our cash and cash equivalents. We expect our expenses to increase in connection with our ongoing activities, particularly as we initiate the Phase 2 clinical trials of KER-050, complete the Phase 1 clinical trial of KER-047, advance KER-012 into clinical development and initiate later-stage clinical development, and continue to research, develop and initiate clinical trials of any other future product candidates. In addition, if we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product manufacturing, marketing, sales and distribution. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or eliminate our product development programs or any future commercialization efforts.

We expect that our existing cash and cash equivalents, together with the proceeds from this offering, will enable us to fund our operating expenses and capital expenditure requirements into the second half of 2022. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect. Our future capital requirements for KER-050, KER-047, KER-012 or our other preclinical programs will depend on many factors, including:

- the progress, timing and completion of preclinical studies and clinical trials for our current or any future product candidates, as well as the associated costs, including any unforeseen costs we may incur as a result of preclinical study or clinical trial delays due to the COVID-19 pandemic or other causes;
- the timing and amount of milestone and royalty payments we are required to make or are eligible to receive under our license agreements with The General Hospital Corporation and Novo Nordisk A/S, as applicable;
- the number of potential new product candidates we identify and decide to develop;
- the need for additional or expanded pre-clinical studies and clinical trials beyond those that we plan to conduct with respect to our current and future product candidates;
- the costs involved in growing our organization to the size needed to allow for the research, development and potential commercialization of our current or any future product candidates;

- the costs involved in filing patent applications, maintaining and enforcing patents or defending against infringement or other claims raised by third parties;
- the maintenance of our existing license and collaboration agreements and the entry into new license and collaboration agreements;
- the time and costs involved in obtaining regulatory approval for our product candidates and any delays we may encounter as a result of evolving regulatory requirements or adverse results with respect to any of our product candidates;
- the effect of competing technological and market developments;
- the cost and timing of completion of commercial-scale outsourced manufacturing activities;
- the cost of establishing sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval in regions where we choose to commercialize our products on our own;
- the amount of revenues, if any, we may derive either directly or in the form of royalty payments from future sales of our product candidates, if approved; and
- market acceptance of any approved product candidates.

We do not have any committed external source of funds or other support for our development efforts and we cannot be certain that additional funding will be available on acceptable terms, or at all. Until we can generate sufficient product or royalty revenue to finance our cash requirements, which we may never do, we expect to finance our future cash needs through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing or distribution arrangements.

Our ability to raise additional funds will depend on financial, economic and market conditions and other factors, over which we may have no or limited control. Market volatility resulting from the COVID-19 pandemic or other factors could also adversely impact our ability to access capital as and when needed. If adequate funds are not available on commercially acceptable terms when needed, we may be forced to delay, reduce or terminate the development or commercialization of all or part of our research programs or product candidates or we may be unable to take advantage of future business opportunities.

Raising additional capital may cause dilution to holders of our common stock in this offering, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our operations with our existing cash and cash equivalents, the net proceeds from this offering and revenue from our collaborations. In order to further advance development of our product candidates, discover additional product candidates and pursue our other business objectives, however, we will need to seek additional funds.

We cannot guarantee that future financing will be available in sufficient amounts or on commercially reasonable terms, if at all. Moreover, the terms of any financing may adversely affect the holdings or the rights of holders of our common stock and the issuance of additional securities, whether equity or debt, by us, or the possibility of such issuance, may cause the market price of our common stock to decline. The sale of additional common stock or securities convertible or exchangeable into common stock would dilute all of our existing stockholders and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a holder of our common stock. The incurrence of indebtedness could result in increased fixed payment obligations and we may be required to agree to certain restrictive covenants, such as limitations on our ability to incur additional debt or declare dividends, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business If we raise additional capital through marketing and distribution arrangements or other collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish certain valuable rights to our product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable to us. We also could be required to seek collaborators for KER-050, KER-047, KER-012 or any future product candidate at an earlier stage than otherwise would be desirable or relinquish our rights to product candidates or technologies that we otherwise would seek to develop or commercialize ourselves. Further, any additional fundraising efforts may divert our management from its day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates.

If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of one or more of our product candidates or one or more of our other research and development initiatives. Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common stock to decline.

We believe our current cash and cash equivalents will be sufficient to fund our business only for a limited amount of time, and if we are not able to raise additional funds, we may be unable to continue as a going concern.

In Note 1 to our consolidated financial statements, we disclose that there is substantial doubt about our ability to continue as a going concern. Based on our current operating plan, not including the proceeds of the offering, we believe that our existing cash and cash equivalents will be sufficient to fund our operating expenses and capital expenditure requirements into the second quarter of 2020. This estimate is based on our current assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. In addition, the expected net proceeds of this offering will not be sufficient for us to fund any of our product candidates through regulatory approval, and we will need to raise substantial additional capital to complete the development and commercialization of our product candidates. We will continue to seek funds through equity or debt financings, collaborative or other arrangements with corporate sources, or through other sources of financing. Adequate additional funding may not be available to us on acceptable terms, or at all. Any failure to raise capital as and when needed could have a negative impact on our financial condition and on our ability to pursue our business plans and strategies. Further, if we cannot continue as a viable entity, our shareholders may lose some or all of their investment in us.

Risks Related to the Discovery, Development and Regulatory Approval of our Product Candidates

We are heavily dependent on the success of our product candidates, which are in early clinical development. If we are unable to advance our current or future product candidates through clinical trials, obtain marketing approval and ultimately commercialize any product candidates we develop, or experience significant delays in doing so, our business will be materially harmed.

Before obtaining marketing approval from regulatory authorities for the sale of our product candidates, we must conduct extensive clinical trials to demonstrate the safety and efficacy of the product candidates in humans. We are early in our product candidate development efforts, as both KER-050 and KER-047 are still in early-stage clinical trials and KER-012 is still in preclinical studies. Because KER-050 and KER-047 are our lead product candidates, if either KER-050 or KER-047 encounters safety or efficacy problems, development delays or regulatory issues or other problems, our development plans and business would be significantly harmed.

Our ability to generate product revenues, which we do not expect will occur for several years, if ever, will depend heavily on the successful development and eventual commercialization of KER-050, KER-047, KER-012 and any future product candidates we develop, which may never occur. KER-050, KER-047, KER-012 and any future product candidates we develop will require additional preclinical and clinical development, management of clinical, preclinical and manufacturing activities, marketing approval in the United States and other jurisdictions for specific indications for use, demonstrating effectiveness to pricing and reimbursement authorities, obtaining sufficient manufacturing supply for both clinical development and commercial production, building of a commercial organization and substantial investment and significant marketing efforts before we generate any revenues from product sales. The success of our current and future product candidates will depend on several factors, including the following:

- successful and timely completion of clinical trials and preclinical studies for which the U.S. Food and Drug Administration, or the FDA, or any comparable foreign regulatory authority agree with the design, endpoints or implementation;
- sufficiency of our financial and other resources to complete the necessary preclinical studies and clinical trials;
- receiving regulatory approvals or authorizations for conducting our planned clinical trials or future clinical trials;
- initiation and successful patient enrollment in, and completion of, additional clinical trials on a timely basis;

- our ability to demonstrate to the satisfaction of the FDA or any comparable foreign regulatory authority that the applicable product candidate is safe and effective as a treatment for our targeted indications or, in the case of an applicable product candidates which is regulated as a biological product, that the applicable product is safe, pure, and potent for our targeted indications;
- our ability to demonstrate to the satisfaction of the FDA or any comparable foreign regulatory authority that the applicable product candidate's risk-benefit ratio for its proposed indication is acceptable;
- timely receipt of marketing approvals for our product candidates from applicable regulatory authorities;
- the extent of any required post-marketing approval commitments to applicable regulatory authorities;
- establishing and scaling up, either alone or with third-party manufacturers, manufacturing capabilities of clinical supply for our clinical trials and commercial manufacturing, if any of our product candidates are approved;
- obtaining and maintaining patent and trade secret protection or regulatory exclusivity for our product candidates, both in the United States and internationally;
- successfully scaling a sales and marketing organization and launching commercial sales of our product candidates, if approved;
- acceptance of our product candidates' benefits and uses, if approved, by patients, the medical community and third-party payors;
- maintaining a continued acceptable safety profile of our product candidates following approval;
- effectively competing with companies developing and commercializing other therapies in the indications which our product candidates target;
- obtaining and maintaining healthcare coverage and adequate reimbursement from third-party payors; and
- enforcing and defending intellectual property rights and claims.

If we are not successful with respect to one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize KER-050, KER-047, KER-012 or any future product candidates we develop, which would materially harm our business. If we do not receive marketing approvals for our current and future product candidates, we may not be able to continue our operations.

All of our product candidates are in preclinical or early clinical development. Clinical trials are difficult to design and implement, and they involve a lengthy and expensive process with uncertain outcomes. We may experience delays in completing, or ultimately be unable to complete, the development and commercialization of KER-050, KER-047, KER-012 or any future product candidates.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process and our future clinical trial results may not be successful. We cannot guarantee that any of our ongoing and planned clinical trials will be conducted as planned or completed on schedule, if at all. Moreover, even if these trials are initiated or conducted on a timely basis, issues may arise that could result in the suspension or termination of such clinical trials.

To date, we have not completed any clinical trials required for the approval of any of our product candidates. Although we have completed our Phase 1 clinical trial of KER-050 and commenced our Phase 1 clinical trial of KER-047, each in healthy volunteers, we may experience delays in our ongoing clinical trials or preclinical studies and we do not know whether planned clinical trials will begin on time, need to be redesigned, enroll patients on time, have sufficient drug supply for our product candidates on a timely basis or be completed on schedule, if at all. A failure of one or more clinical trials can occur at any stage of testing, and our ongoing and future clinical trials may not be successful. We also may experience numerous unforeseen events during our clinical trials that could delay or prevent our ability to receive marketing approval or commercialize KER-050, KER-047, KER-012 or any future product candidates, including:

- delays in or failure to obtain regulatory authorizations to commence a trial;
- delays in reaching a consensus with regulatory agencies as to the design or implementation of our clinical trials;

- delays in or failure to reach agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- delays in or failure to obtain institutional review board, or IRB, approval at each site;
- delays in or failure to recruit a sufficient number of suitable patients to participate in a trial;
- failure to have patients complete a trial or return for post-treatment follow-up;
- clinical sites deviating from trial protocol or dropping out of a trial;
- delays in adding new clinical trial sites;
- failure to manufacture sufficient quantities of our product candidates for use in clinical trials in a timely manner;
- occurrence of adverse events associated with the product candidate that are viewed to outweigh its potential benefits, or safety or tolerability concerns that could cause us or our collaborators, as applicable, to suspend or terminate a trial if we or our collaborators find that the participants are being exposed to unacceptable health risks;
- failure to perform clinical trials in accordance with the FDA's or any other regulatory authority's good clinical practices, or GCP, requirements, or regulatory guidelines in other countries;
- changes in regulatory requirements, policies and guidelines;
- failure of our third-party research contractors to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- delays in establishing the appropriate dosage levels in clinical trials;
- the quality or stability of our product candidates falling below acceptable standards; and
- business interruptions resulting from geo-political actions, including war and terrorism, an outbreak of a contagious disease, such as the COVID-19 pandemic, or natural disasters including earthquakes, typhoons, floods and fires.

In addition, disruptions caused by the COVID-19 pandemic may increase the likelihood that we encounter such difficulties or delays in initiating, enrolling, conducting or completing our planned and ongoing preclinical studies and clinical trials, as applicable. We could also encounter delays if a clinical trial is suspended or terminated by us, the IRBs of the institutions in which such trials are being conducted, or the FDA or comparable foreign regulatory authorities, or recommended for suspension or termination by the Data Safety Monitoring Board for such trial. A suspension or termination may be imposed due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or comparable foreign regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product or treatment, failure to establish or achieve clinically meaningful trial endpoints, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates. Further, the FDA or comparable foreign regulatory authorities may disagree with our clinical trial design and our interpretation of data from clinical trials, or may change the requirements for approval even after they have reviewed and commented on the design for our clinical trials.

Our product development costs will increase if we experience delays in clinical testing or marketing approvals. We do not know whether any of our clinical trials will begin as planned, will need to be restructured or will be completed on schedule, or at all. Significant clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates and may allow our competitors to bring products to market before we do, potentially impairing our ability to successfully commercialize our product candidates and harming our business and results of operations. Any delays in our clinical development programs may harm our business, financial condition and results of operations significantly.

Our clinical trials may fail to demonstrate substantial evidence of the safety and efficacy or safety, purity and potency of our product candidates or any future product candidates, which would prevent or delay or limit the scope of regulatory approval and commercialization.

To obtain the requisite regulatory approvals to market and sell any of our product candidates, including KER-050, KER-047, KER-012 and any other future product candidates, we must demonstrate through extensive preclinical studies and clinical trials that our investigational drug products, such as KER-047, are safe and effective for use in each targeted indication, and in the case of our product candidates regulated as biological products, such as KER-050, that the product candidate is safe, pure and potent for use in its targeted indication. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical development process. Most product candidates that begin clinical trials are never approved by regulatory authorities for commercialization. We may be unable to establish clinical endpoints that applicable regulatory authorities would consider clinically meaningful, and a clinical trial can fail at any stage of testing. Further, the process of obtaining regulatory approval is expensive, often takes many years following the commencement of clinical trials and can vary substantially based upon the type, complexity and novelty of the product candidates involved, as well as the target indications, patient population and regulatory agency. Prior to obtaining approval to commercialize KER-050, KER-047 and any future product candidates in the United States or abroad, we, our collaborators or our potential future collaborators must demonstrate with substantial evidence from adequate and well-controlled clinical trials, and to the satisfaction of the FDA or comparable foreign regulatory authorities, that such product candidates are safe and effective for their intended uses.

Clinical trials that we conduct may not demonstrate the efficacy and safety necessary to obtain regulatory approval to market our product candidates. In some instances, there can be significant variability in safety or efficacy results between different clinical trials of the same product candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations, changes in and adherence to the clinical trial protocols and the rate of dropout among clinical trial participants. If the results of our ongoing or future clinical trials are inconclusive with respect to the efficacy of our product candidates, if we do not meet the clinical endpoints with statistical and clinically meaningful significance, or if there are safety concerns associated with our product candidates, we may be delayed in obtaining marketing approval, if at all. Additionally, any safety concerns observed in any one of our clinical trials in our targeted indications could limit the prospects for regulatory approval of our product candidates in those and other indications.

Even if the trials are successfully completed, clinical data are often susceptible to varying interpretations and analyses, and we cannot guarantee that the FDA or comparable foreign regulatory authorities will interpret the results as we do, and more trials could be required before we submit our product candidates for approval. We cannot guarantee that the FDA or comparable foreign regulatory authorities will view our product candidates as having efficacy even if positive results are observed in clinical trials. Moreover, results acceptable to support approval in one jurisdiction may be deemed inadequate by another regulatory authority to support regulatory approval in that other jurisdiction. To the extent that the results of the trials are not satisfactory to the FDA or comparable foreign regulatory authorities for support of a marketing application, approval of KER-050, KER-047, KER-012 and any future product candidates may be significantly delayed, or we may be required to expend significant additional resources, which may not be available to us, to conduct additional trials in support of potential approval of our product candidates. Even if regulatory approval is secured for a product candidate, the terms of such approval may limit the scope and use of the specific product candidate, which may also limit its commercial potential.

The results of preclinical studies and early-stage clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials. Initial success in our ongoing clinical trials may not be indicative of results obtained when these trials are completed or in later-stage trials.

The results of nonclinical and preclinical studies and clinical trials may not be predictive of the results of later-stage clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials. Furthermore, there can be no assurance that any of our clinical trials will ultimately be successful or support further clinical development of any of our product candidates. There is a high failure rate for product candidates proceeding through clinical trials. Many companies in the biotechnology and pharmaceutical industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in early-stage development and we cannot be certain that we will not

face similar setbacks. These setbacks have been caused by, among other things, preclinical findings made while clinical trials were underway, or safety or efficacy observations made in preclinical studies and clinical trials, including previously unreported adverse events. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials nonetheless failed to obtain FDA approval. Any such setbacks in our clinical development could have a material adverse effect on our business, financial condition and results of operations.

Additionally, some of the clinical trials we conduct may include open-label trials conducted at a limited number of clinical sites on a limited number of patients. An "open-label" clinical trial is one where both the patient and investigator know whether the patient is receiving the investigational product candidate or either an existing approved product or placebo. Most typically, open-label clinical trials test only the investigational product candidate and sometimes may do so at different dose levels. Open-label clinical trials are subject to various limitations that may exaggerate any therapeutic effect as patients in open-label clinical trials are aware when they are receiving treatment. Open-label clinical trials may be subject to a "patient bias" where patients perceive their symptoms to have improved merely due to their awareness of receiving an experimental treatment. Moreover, patients selected for early-stage clinical trials often include the most severe sufferers and their symptoms may have been bound to improve notwithstanding the new treatment. In addition, open-label clinical trials may be subject to an "investigator bias" where those assessing and reviewing the physiological outcomes of the clinical trials are aware of which patients have received treatment and may interpret the information of the treated group more favorably given this knowledge. Given that open-label Phase 2 clinical trials are planned for KER-050, the results from these clinical trials may not be predictive of future clinical trial results with these or other product candidates for which we include an open-label clinical trial when studied in a controlled environment with a placebo or active control.

Our product candidates may be associated with serious adverse, undesirable or unacceptable side effects or other properties or safety risks, which may delay or halt their clinical development, or prevent marketing approval. If such side effects are identified during the development of our product candidates or following approval we may suspend or abandon our development of such product candidates, the commercial profile of any approved label may be limited, or we may be subject to other significant negative consequences following marketing approval.

Undesirable side effects that may be caused by our product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. While our lead product candidates, KER-050 and KER-047, have generally been well tolerated in our preclinical studies and clinical trials to date, the results from future preclinical studies and clinical trials, including of KER-012 and our other product candidates, may identify safety concerns or other undesirable properties of our product candidates.

The results of our planned Phase 2 clinical trials of KER-050, our ongoing Phase 1 clinical trial of KER-047, our planned Phase 1 clinical trial of KER-012 and future clinical trials of these and other product candidates may show that our product candidates cause undesirable or unacceptable side effects or even death. In such an event, our trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of or deny approval of our product candidates for any or all targeted indications. The drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and results of operations significantly.

Moreover, if our product candidates are associated with undesirable side effects in preclinical studies or clinical trials or have characteristics that are unexpected, we may elect to abandon their development or limit their development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective, which may limit the commercial expectations for the product candidate, if approved.

Additionally, adverse developments in clinical trials of pharmaceutical and biopharmaceutical products conducted by others may cause the FDA or other regulatory oversight bodies to suspend or terminate our clinical trials or to change the requirements for approval of any of our product candidates.

Additionally, if any of our product candidates receives marketing approval and we or others later identify undesirable or unacceptable side effects caused by such products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw approvals of such product and require us to take our approved product off the market;
- regulatory authorities may require the addition of labeling statements, specific warnings, a contraindication or field alerts to physicians and pharmacies;
- regulatory authorities may require a medication guide outlining the risks of such side effects for distribution to patients, or that we implement a risk evaluation and mitigation strategy, or REMS, plan to ensure that the benefits of the product outweigh its risks;
- we may be required to change the way the product is administered, conduct additional clinical trials or change the labeling of the product;
- we may be subject to limitations on how we may promote the product;
- sales of the product may decrease significantly;
- we may be subject to litigation or product liability claims; and
- our reputation may suffer.

Any of these events could prevent us, our collaborators or our potential future partners from achieving or maintaining market acceptance of the affected product or could substantially increase commercialization costs and expenses, which in turn could delay or prevent us from generating significant revenue from the sale of our product candidates, if approved.

We may find it difficult to enroll patients in our clinical trials, which could delay or prevent us from proceeding with, or otherwise adversely affect, clinical trials of our product candidates.

Identifying and qualifying patients to participate in clinical trials of our product candidates is critical to our success. The timely completion of our clinical trials in accordance with their protocols depends, among other things, on our ability to recruit a sufficient number of eligible patients to participate and remain in the trial until its conclusion. Patients may be unwilling to participate in our clinical trials because of negative publicity from adverse events related to novel therapeutic approaches, competitive clinical trials for similar patient populations, the existence of current treatments or for other reasons, including the ongoing COVID-19 pandemic. Any delays related to patient enrollment could result in increased costs, delays in advancing our product candidates, delays in testing the effectiveness of our product candidates or termination of the clinical trials altogether. We may not be able to identify, recruit and enroll a sufficient number of patients, or those with the required or desired characteristics, to complete our clinical trials in a timely manner. Patient enrollment and trial completion is affected by many factors, including the:

- size and nature of the patient population and process for identifying patients;
- proximity and availability of clinical trial sites for prospective patients;
- eligibility and exclusion criteria for the trial;
- design of the clinical trial;
- safety profile, to date, of the product candidate under study;
- perceived risks and benefits of the product candidate under study;
- perceived risks and benefits of our approach;
- approval of competing product candidates currently under investigation for the treatment of similar diseases or conditions, or competing clinical trials for similar product candidates or targeting patient populations meeting our patient eligibility criteria;
- severity of the disease under investigation;
- degree of progression of the patient's disease at the time of enrollment;
- ability to obtain and maintain patient consent;
- risk that enrolled patients will drop out before completion of the trial;

- patient referral practices of physicians; and
- ability to adequately monitor patients during and after treatment.

Enrollment risks are heightened with respect to indications that are rare or orphan diseases, which may limit the pool of patients that may be enrolled in our planned clinical trials. For example, we are developing KER-047 for the treatment of fibrodysplasia ossificans progressiva, or FOP, which is a rare genetic disease, affecting an estimated 3,500 people worldwide. As a result, we may encounter difficulties enrolling subjects in our clinical trials evaluating KER-047 for the treatment of FOP due, in part, to the small size of this patient population. In addition, our clinical trials will compete with other clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition will reduce the number and types of patients available to us, because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors. Since the number of qualified clinical investigators is limited, we expect to conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the number of patients who are available for our clinical trials in such clinical trial site.

Delays in patient enrollment may result in increased costs or may affect the timing or outcome of our future clinical trials, which could prevent completion of these trials and adversely affect our ability to advance the development of our product candidates.

Interim, topline and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publish interim, topline or preliminary data from our clinical trials. Preliminary and interim data from our clinical trials may change as more patient data become available. Preliminary or interim data from our clinical trials are not necessarily predictive of final results. Preliminary and interim data are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues, more patient data become available and we issue our final clinical trial report. Interim, topline and preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, preliminary, topline and interim data should be viewed with caution until the final data are available. Material adverse changes in the final data compared to the interim data could significantly harm our business prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate or product, if any, and our company in general. In addition, the information we choose to publicly disclose regarding a particular preclinical study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is the material or otherwise appropriate information to include in our disclosure, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding a particular product, if any, product candidate or our business. If the preliminary and interim data that we report differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for, and commercialize, our product candidates may be harmed, which could harm our business, operating results, prospects or financial condition.

Preclinical development is uncertain. Our preclinical programs may experience delays or may never advance to clinical trials, which would adversely affect our ability to obtain regulatory approvals or commercialize these programs on a timely basis or at all, which would have an adverse effect on our business

Before we can commence clinical trials for any product candidate, we must complete extensive preclinical studies that support any future Investigational New Drug, or IND, applications in the United States, or similar applications in other jurisdictions. We have not interacted with or submitted any IND to the FDA and all of our clinical trials have, to date, been conducted in Australia. Conducting preclinical testing is a lengthy, time-consuming and expensive process and delays associated with product candidates for which we are directly conducting preclinical testing and studies may cause us to incur additional operating expenses. While we are conducting a Phase 1 clinical trial for KER-047, and plan to initially conduct Phase 2 clinical trials for KER-050, outside of the United States, we cannot

be certain of the timely completion or outcome of our preclinical testing and studies for our other product candidates and cannot predict if the FDA will accept our proposed clinical programs or if the outcome of our preclinical testing and foreign clinical trials will ultimately support the further development of our other product candidates. As a result, we cannot be sure that we will be able to submit INDs or similar applications for our preclinical programs on the timelines we expect, if at all, and we cannot be sure that submission of INDs or similar applications will result in the FDA or comparable foreign regulatory authorities allowing clinical trials to begin.

The regulatory approval processes of the FDA and comparable foreign regulatory authorities are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.

The time required to obtain approval by the FDA and comparable foreign regulatory authorities is unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, approval policies, laws or regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for any product candidate and it is possible that none of our existing product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval.

Our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe and effective as a treatment for our targeted indications, or, in the case of a product candidate regulated as a biological product, that the product candidate is safe, pure and potent for its proposed indication;
- the population studied may not be sufficiently broad or representative to assure safety or efficacy in the population for which we seek approval;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials;
- the FDA or comparable foreign regulatory authorities may require additional preclinical studies or clinical trials beyond those that we currently anticipate;
- the data collected from clinical trials of our product candidates may not be sufficient to support the submission of a New Drug Application, or NDA, or a Biologics License Application, or BLA, as applicable, to the FDA or other submission or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may find deficiencies with or fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA or any comparable foreign regulatory authorities or the laws they enforce may significantly change in a manner rendering our clinical data insufficient for approval.

This lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market any of our product candidates, which would significantly harm our business, financial condition and results of operations. The FDA and comparable foreign regulatory authorities have substantial discretion in the approval process, and determining when or whether regulatory approval will be obtained for any of our product candidates. Even if we believe the data collected from clinical trials of our product candidates are promising, such data may not be sufficient to support approval by the FDA or comparable foreign regulatory authorities.

Separately, in response to the COVID-19 pandemic, on March 10, 2020, the FDA announced its intention to postpone most inspections of foreign manufacturing facilities and products through April 2020. On March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic and provide guidance regarding the conduct of clinical trials. If global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews or other regulatory activities, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

In addition, even if we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may not approve the price we intend to charge for our products, if any, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates.

The FDA and any comparable foreign regulatory authorities may not accept data from trials conducted in locations outside of their jurisdiction.

We are presently conducting clinical development solely in Australia and may choose to conduct additional international clinical trials in the future. We have not interacted with or submitted any IND to the FDA. The acceptance of study data by the FDA or any comparable foreign regulatory authority from clinical trials conducted outside of their respective jurisdictions may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the United States population and United States medical practice, (ii) the trials are performed by clinical investigators of recognized competence and pursuant to compliance with current GCP requirements and (iii) the FDA is able to validate the data through an on-site inspection or other appropriate mean. Additionally, the FDA's clinical trial requirements, including the adequacy of the patient population studied and statistical powering, must be met. In addition, such foreign trials are subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any applicable foreign regulatory authority will accept data from trials conducted outside of its applicable jurisdiction. If the FDA or any applicable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which would be costly and time-consuming and delay aspects of our business plan, and which may result in our product candidates not receiving approval for commercialization in the applicable jurisdiction.

Even if we receive regulatory approval of a product candidate, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with such product candidate.

If any of our product candidates are approved, they will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, conduct of post-marketing studies and submission of safety, efficacy and other post-market information, including both federal and state requirements in the United States and requirements of comparable foreign regulatory authorities. In addition, we will be subject to continued compliance with current Good Manufacturing Practices, or cGMPs, and GCP requirements for any clinical trials that we conduct post-approval.

Manufacturers and manufacturers' facilities are required to comply with extensive FDA and comparable foreign regulatory authority requirements, including ensuring that quality control and manufacturing procedures conform to cGMP regulations. As such, we and our contract manufacturers will be subject to continual review and inspections to assess compliance with cGMP and adherence to commitments made in any NDA or BLA, other marketing application, and previous responses to inspection observations. Accordingly, we and others with whom we work must continue to expend time, money, and effort in all areas of regulatory compliance, including manufacturing, production and quality control.

Any regulatory approvals that we receive for our product candidates may be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for

potentially costly post-marketing testing, including Phase 4 clinical trials and surveillance to monitor the safety and efficacy of the product candidate. The FDA may also require a REMS program as a condition of approval of our product candidates, which could entail requirements for long-term patient follow-up, a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or a comparable foreign regulatory authority approves our product candidates, we will have to comply with requirements including submissions of safety and other post-marketing information and reports and registration.

The FDA may impose consent decrees or withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with our product candidates, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of our products, withdrawal of the product from the market or voluntary or mandatory product recalls;
- fines, warning letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of license approvals;
- product seizure or detention or refusal to permit the import or export of our product candidates; and
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising, and promotion of products that are placed on the market. Products may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses and a company that is found to have improperly promoted off-label uses may be subject to significant liability including, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe, in their independent professional medical judgment, legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined companies from engaging in off-label promotion. The FDA and other regulatory agencies have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA approved labeling.

The holder of an NDA or BLA must submit new or supplemental applications and obtain approval for certain changes to the approved product, product labeling, or manufacturing process. We could also be asked to conduct post-marketing clinical trials to verify the safety and efficacy of our products in general or in specific patient subsets. If original marketing approval was obtained via the accelerated approval pathway, we could be required to conduct a successful post-marketing clinical trial to confirm clinical benefit for our products. An unsuccessful post-marketing study or failure to complete such a study could result in the withdrawal of marketing approval.

The policies of the FDA and of comparable foreign regulatory authorities may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

If approved, our investigational products regulated as biologics, including KER-050 and KER-012, may face competition from biosimilars approved through an abbreviated regulatory pathway.

We are developing KER-050 for the treatment of cytopenias, including anemia and thrombocytopenia, in patients with MDS and myelofibrosis, and KER-012 for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH, both of which we anticipate will be regulated as a biological product. The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively the ACA, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity, and potency of the other company's product. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation, and meaning are subject to uncertainty.

We believe that any of our product candidates approved as a biological product under a BLA should qualify for the 12-year period of exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider our investigational medicines to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of litigation. Moreover, the extent to which a biosimilar, once licensed, will be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

If competitors are able to obtain marketing approval for biosimilars referencing our products, our products may become subject to competition from such biosimilars, with the attendant competitive pressure and consequences.

We may become exposed to costly and damaging liability claims, either when testing our product candidates in the clinic or at the commercial stage, and our product liability insurance may not cover all damages from such claims.

We are exposed to potential product liability and professional indemnity risks that are inherent in the research, development, manufacturing, marketing and use of biopharmaceutical products. Currently, we have no products that have been approved for commercial sale; however, the current and future use of product candidates by us and our collaborators in clinical trials, and the potential sale of any approved products in the future, may expose us to liability claims. These claims might be made by patients who use the product, healthcare providers, pharmaceutical companies, our collaborators or others selling such products. Any claims against us, regardless of their merit, could be difficult and costly to defend and could materially adversely affect the market for our product candidates or any prospects for commercialization of our product candidates. Although the clinical trial process is designed to identify and assess potential side effects, it is always possible that a product, even after regulatory approval, may exhibit unforeseen side effects. If any of our product candidates were to cause adverse side effects during clinical trials or after approval of the product candidate, we may be exposed to substantial liabilities. Physicians and patients may not comply with any warnings that identify known potential adverse effects and patients who should not use our product candidates. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our products due to negative public perception;
- injury to our reputation;
- withdrawal of clinical trial participants or difficulties in recruiting new trial participants;
- initiation of investigations by regulators;
- costs to defend or settle the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;

- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenues from product sales; and
- the inability to commercialize any of our product candidates, if approved.

Although we believe we maintain adequate product liability insurance for our product candidates, it is possible that our liabilities could exceed our insurance coverage. We intend to expand our insurance coverage to include the sale of commercial products if we obtain marketing approval for any of our product candidates. However, we may not be able to maintain insurance coverage at a reasonable cost or obtain insurance coverage that will be adequate to satisfy any liability that may arise. If a successful product liability claim or series of claims is brought against us for uninsured liabilities or in excess of insured liabilities, our assets may not be sufficient to cover such claims and our business operations could be impaired.

Should any of the events described above occur, this could have a material adverse effect on our business, financial condition and results of operations.

Due to our limited resources and access to capital, we must, and have in the past decided to, prioritize development of certain product candidates over other potential product candidates. These decisions may prove to have been wrong and may adversely affect our ability to develop our own programs, our attractiveness as a commercial partner and may ultimately have an impact on our commercial success.

Because we have limited resources and access to capital to fund our operations, we must decide which product candidates to pursue and the amount of resources to allocate to each. Our decisions concerning the allocation of research, collaboration, management and financial resources toward particular proprietary molecules in our library, product candidates or therapeutic areas may not lead to the development of viable commercial products and may divert resources away from better opportunities. Similarly, our decisions to delay, terminate or collaborate with third parties in respect of certain product development programs may also prove not to be optimal and could cause us to miss valuable opportunities. If we make incorrect determinations regarding the market potential of our product candidates or misread trends in the biopharmaceutical industry, in particular for our lead product candidates, KER-050, KER-047, as well as for KER-012, our business, financial condition and results of operations could be materially adversely affected.

We may seek orphan drug designation for product candidates we develop, and we may be unsuccessful or may be unable to maintain the benefits associated with orphan drug designation, including the potential for market exclusivity.

As part of our business strategy, we may seek orphan drug designation for any product candidates we develop, and we may be unsuccessful. While we have not made a determination regarding whether we intend to seek orphan drug designation for any of our product candidates at this time, we may do so in the future. Regulatory authorities in some jurisdictions, including the United States, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act in the United States, the FDA may designate a drug as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually in the United States, or a patient population greater than 200,000 in the United States where there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the United States. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards certain clinical trial costs, tax advantages and user-fee waivers.

Generally in the United States, if a drug with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the drug is entitled to a period of marketing exclusivity, which precludes the FDA from approving another marketing application for the same drug and indication for seven years, except in limited circumstances.

Even if we obtain orphan drug exclusivity for any of our product candidates, that exclusivity may not effectively protect the product candidate from competition because different therapies can be approved for the same condition and the same therapies can be approved for different conditions but used off-label. Even after an orphan drug is approved, the FDA can subsequently approve the same drug for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care. In addition, a designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. Moreover, orphan drug exclusive marketing

rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition. Orphan drug designation neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process. While we may seek orphan drug designation for applicable indications for our current and any future product candidates, we may never receive such designations. Even if we do receive such designations, there is no guarantee that we will enjoy the benefits of those designations.

Risks Related to Commercialization of Our Product Candidates

If we are unable to successfully commercialize any product candidate for which we receive regulatory approval, or experience significant delays in doing so, our business will be materially harmed.

If we are successful in obtaining marketing approval from applicable regulatory authorities for KER-050, KER-047, KER-012 or any other product candidate, our ability to generate revenues from any such products will depend on our success in:

- launching commercial sales of such products, whether alone or in collaboration with others;
- receiving approved labels with claims that are necessary or desirable for successful marketing, and that do not contain safety or other limitations that would impede our ability to market such products;
- creating market demand for such products through marketing, sales and promotion activities;
- hiring, training, and deploying a sales force or contracting with third parties to commercialize such products in the United States;
- creating strategic collaborations with, or offering licenses to, third parties to promote and sell such products in foreign markets where we receive marketing approval;
- manufacturing such products in sufficient quantities and at acceptable quality and cost to meet commercial demand at launch and thereafter;
- establishing and maintaining agreements with wholesalers, distributors, and group purchasing organizations on commercially reasonable terms;
- maintaining patent and trade secret protection and regulatory exclusivity for such products;
- achieving market acceptance of such products by patients, the medical community, and third-party payors;
- achieving coverage and adequate reimbursement from third-party payors for such products;
- patients' willingness to pay out-of-pocket in the absence of such coverage and adequate reimbursement from third-party payors;
- effectively competing with other therapies; and
- maintaining a continued acceptable safety profile of such products following launch.

To the extent we are not able to do any of the foregoing, our business, financial condition, results of operations, stock price and prospects will be materially harmed.

We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.

The biopharmaceutical industry is characterized by intense competition and rapid innovation. Our competitors may be able to develop other compounds or drugs that are able to achieve similar or better results. Our potential competitors include major multinational pharmaceutical companies, established biotechnology companies, specialty pharmaceutical companies and universities and other research institutions. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff and experienced marketing and manufacturing organizations and well-established sales forces. Smaller or early-stage companies may also prove to be significant competitors, particularly as they develop novel approaches to treating disease indications that our product candidates are also focused on treating. Established pharmaceutical companies may also invest heavily to accelerate discovery and development of novel therapeutics or to in-license novel therapeutics that could make the product candidates that we develop obsolete. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Competition may increase further as a result of advances in the commercial applicability of

technologies and greater availability of capital for investment in these industries. Our competitors, either alone or with collaborative partners, may succeed in developing, acquiring or licensing on an exclusive basis drug or biologic products that are more effective, safer, more easily commercialized or less costly than our product candidates or may develop proprietary technologies or secure patent protection that we may need for the development of our technologies and products. We believe the key competitive factors that will affect the development and commercial success of our product candidates are efficacy, safety, tolerability, reliability, convenience of use, price and reimbursement.

We compete in the segments of the biotechnology, pharmaceutical and other related industries that develop and market therapies for the treatment of hematological and musculoskeletal disorders. There are many other companies, including large biotechnology and pharmaceutical companies, that have commercialized and/or are developing therapies for the same therapeutic areas that our product candidates target. For example, FibroGen Inc. and Astellas Pharma Inc. are developing product candidates for the treatment of anemia, and Acceleron Pharma Inc. and Bristol-Myers Squibb Company are both developing product candidates targeting diseases associated with MDS and myelofibrosis, including chronic anemia. Sierra Oncology, Inc. is developing momelotinib as a treatment for myelofibrosis.

Other companies that are developing product candidates that are designed to target the TGF-ß signaling pathways include Scholar Rock Holding Corporation, Biogen Inc. and Regeneron Pharmaceuticals, Inc.

There are currently no approved drugs for the treatment of FOP. However, Ipsen, through its subsidiary Clementia Pharmaceuticals Inc. and pursuant to a collaboration with Blueprint Medicines Corporation, as well as Regeneron Pharmaceuticals, Inc. and BioCryst Pharmaceuticals, Inc. are developing product candidates for the treatment of FOP that are intended to work, at least in part, through inhibition of the ALK2 signaling pathway.

We anticipate that we will continue to face intense and increasing competition as new treatments enter the market and advanced technologies become available. There can be no assurance that our competitors are not currently developing, or will not in the future develop, products that are equally or more effective or are more economically attractive than any of our current or future product candidates. Competing products may gain faster or greater market acceptance than our products, if any, and medical advances or rapid technological development by competitors may result in our product candidates becoming non-competitive or obsolete before we are able to recover our research and development and commercialization expenses. If we or our product candidates do not compete effectively, it may have a material adverse effect on our business, financial condition and results of operations.

We do not have a sales or marketing infrastructure and have no experience in the sale or marketing of biopharmaceutical products. To achieve commercial success for any approved product, we must develop or acquire a sales and marketing organization, outsource these functions to third parties or enter into strategic collaborations.

We may decide to establish our own sales and marketing capabilities and promote our product candidates if and when regulatory approval has been obtained in the United States or in other jurisdictions. There are risks involved if we decide to establish our own sales and marketing capabilities or enter into arrangements with third parties to perform these services. Even if we establish sales and marketing capabilities, we may fail to launch our products effectively or to market our products effectively since we have no experience in the sales and marketing of biopharmaceutical products. In addition, recruiting and training a sales force is expensive and time consuming and could delay any product launch. In the event that any such launch is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel. Factors that may inhibit our efforts to commercialize our products on our own include:

- our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to or educate adequate numbers of physicians on the benefits of our products;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines;

- unforeseen costs and expenses associated with creating an independent sales and marketing organization; and
- costs of marketing and promotion above those anticipated by us.

If we enter into arrangements with third parties to perform sales and marketing services, our product revenues or the profitability of these product revenues to us could be lower than if we were to market and sell any products that we develop ourselves. Such collaborative arrangements with partners may place the commercialization of our products outside of our control and would make us subject to a number of risks including that we may not be able to control the amount or timing of resources that our collaborative partner devotes to our products or that our collaborator's willingness or ability to complete its obligations, and our obligations under our arrangements may be adversely affected by business combinations or significant changes in our collaborator's business strategy. In addition, we may not be successful in entering into arrangements with third parties to sell and market our products or may be unable to do so on terms that are favorable to us. Acceptable third parties may fail to devote the necessary resources and attention to sell and market our products effectively.

If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we may not be successful in commercializing our products, if any, which in turn would have a material adverse effect on our business, financial condition and results of operations.

Even if a product candidate we develop receives marketing approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success. The revenues that we generate from their sales may be limited, and we may never become profitable.

We have never commercialized a product candidate for any indication. Even if our product candidates are approved by the appropriate regulatory authorities for marketing and sale, they may not gain acceptance among physicians, patients, third-party payors and others in the medical community. If any product candidates for which we obtain regulatory approval does not gain an adequate level of market acceptance, we could be prevented from or significantly delayed in achieving profitability. Market acceptance of our product candidates by the medical community, patients and third-party payors will depend on a number of factors, some of which are beyond our control. For example, physicians are often reluctant to switch their patients and patients may be reluctant to switch from existing therapies even when new and potentially more effective or safer treatments enter the market.

Efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may not be successful. If any of our product candidates are approved but do not achieve an adequate level of market acceptance, we could be prevented from or significantly delayed in achieving profitability. The degree of market acceptance of any product for which we receive marketing approval will depend on a number of factors, including:

- the clinical indications for which our product candidates are approved;
- physicians, hospitals and patients considering our product candidates as a safe and effective treatment;
- the potential and perceived advantages of our product candidates over alternative treatments;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the FDA or comparable foreign regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA or comparable foreign regulatory authorities;
- the timing of market introduction of our product candidates in relation to other potentially competitive products;
- the cost of our product candidates in relation to alternative treatments;
- the amount of upfront costs or training required for physicians to administer our product candidates;
- the availability of coverage and adequate reimbursement from third-party payors and government authorities;
- the willingness of patients to pay out-of-pocket in the absence of comprehensive coverage and reimbursement by third-party payors and government authorities;

- the relative convenience and ease of administration, including as compared to alternative treatments and competitive therapies;
- the effectiveness of our sales and marketing efforts and distribution support; and
- the presence or perceived risk of potential product liability claims.

Enacted and future healthcare legislation may increase the difficulty and cost for us to progress our clinical programs and obtain marketing approval of and commercialize our product candidates and may affect the prices we may set.

In the United States and other jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes and proposed changes to the healthcare system that could affect our future results of operations. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs and improve the quality of healthcare. For example, in March 2010, the ACA was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers. Among the provisions of the ACA, those of greatest importance to the pharmaceutical and biotechnology industries include the following:

- an annual, non-deductible fee payable by any entity that manufactures or imports certain branded prescription drugs and biologic agents (other than those designated as orphan drugs), which is apportioned among these entities according to their market share in certain government healthcare programs;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- a licensure framework for follow on biologic products;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research; and
- establishment of a Center for Medicare & Medicaid Innovation at the Centers for Medicare & Medicaid Services, or CMS, to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

Since its enactment, there have been judicial, Congressional and executive branch challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. While Congress has not passed comprehensive repeal legislation, it has enacted laws that modify certain provisions of the ACA such as removing penalties, starting January 1, 2019, for not complying with the ACA's individual mandate to carry health insurance, delaying the implementation of certain ACA-mandated fees and increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D. In addition, the 2020 federal spending package permanently eliminated, effective January 1, 2020, the ACA-mandated "Cadillac" tax on high-cost employer-sponsored health coverage and medical device tax and, effective January 1, 2021, also eliminates the health insurer tax. On December 14, 2018, a U.S. District Court Judge in Texas ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act, or the Tax Act. Additionally, on December 18, 2019, the U.S. Court of Appeals for the 5th Circuit ruled that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. It is unclear how this decision, future decisions and subsequent appeals and other efforts to repeal and replace the ACA will impact the ACA and our business.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. In August 2011, the Budget Control Act of 2011, among other things, led to aggregate reductions of Medicare payments to providers of 2% per fiscal year. These reductions went into effect in April 2013 and, due to subsequent legislative amendments to the statute will remain in effect through 2029 unless additional action is taken by Congress. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover

overpayments to providers from three to five years. These new laws or any other similar laws introduced in the future may result in additional reductions in Medicare and other health care funding, which could negatively affect our customers and accordingly, our financial operations.

Moreover, payment methodologies may be subject to changes in healthcare legislation and regulatory initiatives. For example, CMS may develop new payment and delivery models, such as bundled payment models. In addition, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several U.S. Congressional inquiries and proposed and enacted federal legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare and review the relationship between pricing and manufacturer patient programs. The Trump administration's budget proposal for fiscal year 2020 contains further drug price control measures that could be enacted during the 2020 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, on May 11, 2018, President Trump laid out his administration's "Blueprint" to lower drug prices and reduce out-of-pocket costs of prescription drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. The Department of Health and Human Services, or HHS, has already started soliciting feedback on some of these measures and, at the same time, has implemented others under its existing authority. For example, in May 2019, CMS issued a final rule to allow Medicare Advantage Plans the option to use step therapy for Part B drugs beginning January 1, 2020. This final rule codified CMS's policy change that was effective January 1, 2019. Although some of these and other may require additional authorization to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. We expect that additional U.S. federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that the U.S. federal government will pay for healthcare products and services, which could result in reduced demand for our product candidates or additional pricing pressures.

Individual states in the United States have also increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, results of operations, financial condition and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for our product candidates or put pressure on our product pricing.

In markets outside of the United States, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies.

We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action in the United States or any other jurisdiction. If we or any third parties we may engage are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we or such third parties are not able to maintain regulatory compliance, our product candidates may lose any regulatory approval that may have been obtained and we may not achieve or sustain profitability.

Disruptions at the FDA, the SEC and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire and retain key leadership and other personnel, otherwise prevent new products and services from being developed, approved or commercialized in a timely manner or at all, or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, statutory, regulatory and policy changes, and other events that may otherwise affect the FDA's ability to perform routine functions. Average review times at the agency have fluctuated in recent years as a result. In addition,

government funding of the Securities and Exchange Commission, or the SEC, and other government agencies on which our operations may rely, including those that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, in recent years, including in 2018 and 2019, the U.S. government shut down several times and certain regulatory agencies, such as the FDA and the SEC, had to furlough critical employees and stop critical activities. Separately, in response to the COVID-19 pandemic, on March 10, 2020 the FDA announced its intention to postpone most inspections of foreign manufacturing facilities and products through April 2020. On March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic or issue guidance materially affecting the conduct of clinical trials. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Further, upon completion of this offering and in our operations as a public company, future government shutdowns or delays could impact our ability to access the public markets and obtain necessary capital in order to properly capitalize and continue our operations.

Our business operations and current and future relationships with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers may be subject to applicable healthcare regulatory laws, which could expose us to penalties.

Our business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers, may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which we conduct our operations, including how we research, market, sell and distribute our product candidates, if approved. Such laws include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or providing any remuneration (including any kickback, bribe, or certain rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease, order or recommendation of, any good, facility, item or service, for which payment may be made, in whole or in part, under U.S. federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. federal civil and criminal false claims laws, including the civil False Claims Act, which can be enforced by private individuals on behalf of the government through civil whistleblower or qui tam actions, and civil monetary penalties laws prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, to the U.S. federal government, claims for payment or approval that are false or fraudulent, knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim, or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the U.S. federal government. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act;
- the U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created additional federal civil and criminal liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services. Similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITEC, and their implementing regulations, which impose certain obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually

identifiable health information without appropriate authorization by covered entities subject to the rule, such as health plans, healthcare clearinghouses and certain healthcare providers as well as their business associates, independent contractors of a covered entity that perform certain services involving the use or disclosure of individually identifiable health information;

- the Federal Food, Drug, and Cosmetic Act, which prohibits, among other things, the adulteration or misbranding of drugs, biologics and medical devices;
- the U.S. Public Health Service Act, which prohibits, among other things, the introduction into interstate commerce of a biological product unless a biologics license is in effect for that product;
- the U.S. Physician Payments Sunshine Act and its implementing regulations, which require certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program, with specific exceptions, to report annually to CMS information related to certain payments and other transfers of value made in the prior year to physicians, as defined under such law, teaching hospitals and, beginning in 2022, certain other healthcare providers, as well as ownership and investment interests held by such healthcare providers and their immediate family members; and
- analogous U.S. state laws and regulations, including: state anti-kickback and false claims laws, which may apply to our business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payor, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state and local laws and regulations that require drug manufacturers to file reports relating to drug pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities; state and local laws that require the registration of pharmaceutical sales representatives; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

In addition, our activities are also subject to certain federal and state consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers.

Ensuring that our internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations, agency guidance or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of the laws described above or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, such as Medicare and Medicaid or similar programs in other countries or jurisdictions, integrity oversight and reporting obligations to resolve allegations of non-compliance, disgorgement, imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of our operations. If any of the physicians or other providers or entities with whom we expect to do business are found to not be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs and imprisonment, which could affect our ability to operate our business. Further, defending against any such actions can be costly, time-consuming and may require significant personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired.

If the market opportunities for our product candidates are smaller than we believe they are, even assuming approval of a product candidate, our business may suffer.

Our projections of both the number of people who are affected by disease within our potential target indications, as well as the subset of these people who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including the scientific literature, healthcare utilization databases and market research, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these diseases. The number of patients may turn

out to be lower than expected. Likewise, the potentially addressable patient population for each of our product candidates may be limited or may not be amenable to treatment with our product candidates, and new patients may become increasingly difficult to identify or gain access to, which would adversely affect our business, financial condition and results of operations.

Any product candidates we develop may become subject to unfavorable third-party coverage and reimbursement practices, as well as pricing regulations.

The availability and extent of coverage and adequate reimbursement by third-party payors, including government health administration authorities, private health coverage insurers, managed care organizations and other third-party payors is essential for most patients to be able to afford expensive treatments. Sales of any of our product candidates that receive marketing approval will depend substantially, both in the United States and internationally, on the extent to which the costs of our product candidates will be covered and reimbursed by third-party payors. If reimbursement is not available, or is available only to limited levels, we may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us to establish or maintain pricing sufficient to realize an adequate return on our investment. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we may not successfully commercialize any product candidate for which we obtain marketing approval.

There is significant uncertainty related to third-party payor coverage and reimbursement of newly approved products. In the United States, for example, principal decisions about reimbursement for new products are typically made by the CMS. CMS decides whether and to what extent a new product will be covered and reimbursed under Medicare, and private third-party payors often follow CMS's decisions regarding coverage and reimbursement to a substantial degree. However, one third-party payor's determination to provide coverage for a product candidate does not assure that other payors will also provide coverage for the product candidate. As a result, the coverage determination process is often time-consuming and costly. This process will require us to provide scientific and clinical support for the use of our products to each third-party payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Further, such payors are increasingly challenging the price, examining the medical necessity and reviewing the cost effectiveness of medical product candidates. There may be especially significant delays in obtaining coverage and reimbursement for newly approved drugs. Third-party payors may limit coverage to specific product candidates on an approved list, known as a formulary, which might not include all FDA-approved drugs for a particular indication. We may need to conduct expensive pharmaco-economic studies to demonstrate the medical necessity and cost effectiveness of our products. Nonetheless, our product candidates may not be considered medically necessary or cost effective. We cannot be sure that coverage and reimbursement will be available for any product that we commercialize and, if reimbursement is available, what the level of reimbursement will be.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost containment initiatives in Europe, Canada and other countries has and will continue to put pressure on the pricing and usage of therapeutics such as our product candidates. In many countries, particularly the countries of the European Union, medical product prices are subject to varying price control mechanisms as part of national health systems. In these countries, pricing negotiations with governmental authorities can take considerable time after a product receives marketing approval. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. In general, product prices under such systems are substantially lower than in the United States. Other countries allow companies to fix their own prices for products, but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our product candidates. Accordingly, in markets outside the United States, the reimbursement for our products may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenue and profits.

If we are unable to establish or sustain coverage and adequate reimbursement for any future product candidates from third-party payors, the adoption of those products and sales revenue will be adversely affected, which, in turn, could adversely affect the ability to market or sell those product candidates, if approved. Coverage policies and third-party payor reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Risks Related to Our Intellectual Property

Our success depends in part on our ability to protect our intellectual property. It is difficult and costly to protect our proprietary rights and technology, and we may not be able to ensure their protection.

Our commercial success will depend in large part on obtaining and maintaining patent, trademark and trade secret protection of our proprietary technologies and our product candidates, their respective components, formulations, combination therapies, methods used to manufacture them and methods of treatment, as well as successfully defending these patents against third-party challenges. Our ability to stop unauthorized third parties from making, using, selling, offering to sell or importing our product candidates is dependent upon the extent to which we have rights under valid and enforceable patents that cover these activities. If we are unable to secure and maintain patent protection for any product or technology we develop, or if the scope of the patent protection secured is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to commercialize any product candidates we may develop may be adversely affected.

The patenting process is expensive and time-consuming, and we may not be able to file, prosecute and maintain all necessary or desirable patent applications at a reasonable cost or in a timely manner. In addition, we may not pursue, obtain or maintain patent protection in all relevant markets. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, in some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology that we license from or license to third parties and are reliant on our licensors or licensees. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries. Even if the patents do successfully issue, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing around our claims. If the breadth or strength of protection provided by the patent applications we hold with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market our product candidates under patent protection would be reduced.

Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our product candidates. Furthermore, for United States applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third party or instituted by the United States Patent and Trademark Office, or USPTO, to determine who was the first to invent any of the subject matter covered by the patent claims of our applications.

We cannot be certain that we are the first to invent the inventions covered by pending patent applications and, if we are not, we may be subject to priority disputes. We may be required to disclaim part or all of the term of certain patents or all of the term of certain patent applications. There may be prior art of which we are not aware that may affect the validity or enforceability of a patent claim, and we may be subject to a third-party preissuance submission of prior art to the USPTO. There also may be prior art of which we are aware, but which we do not believe affects the validity or enforceability of a claim, which may, nonetheless, ultimately be found to affect the validity or

enforceability of a claim. No assurance can be given that if challenged, our patents would be declared by a court to be valid or enforceable or that even if found valid and enforceable, a competitor's technology or product would be found by a court to infringe our patents. We may analyze patents or patent applications of our competitors that we believe are relevant to our activities, and consider that we are free to operate in relation to our product candidates, but our competitors may achieve issued claims, including in patents we consider to be unrelated, which block our efforts or may potentially result in our product candidates or our activities infringing such claims. The possibility exists that others will develop products which have the same effect as our products on an independent basis which do not infringe our patents or other intellectual property rights, or will design around the claims of patents that we have had issued that cover our products.

Recent or future patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. Under the enacted Leahy-Smith America Invents Act, or America Invents Act, enacted in 2013, the United States moved from a "first to invent" to a "first-to-file" system. Under a "first-to-file" system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to a patent on the invention regardless of whether another inventor had made the invention earlier. The America Invents Act includes a number of other significant changes to U.S. patent law, including provisions that affect the way patent applications are prosecuted, redefine prior art and establish a new post-grant review system. The effects of these changes are currently unclear as the USPTO only recently developed new regulations and procedures in connection with the America Invents Act and many of the substantive changes to patent law, including the "first-to-file" provisions, only became effective in March 2013. In addition, the courts have yet to address many of these provisions and the applicability of the act and new regulations on specific patents discussed herein have not been determined and would need to be reviewed. However, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- others may be able to make or use compounds or cells that are similar to the biological compositions of our product candidates but that are not covered by the claims of our patents;
- the active biological ingredients in our current product candidates will eventually become commercially available in biosimilar drug products, and no patent protection may be available with regard to formulation or method of use;
- we or our licensors, as the case may be, may fail to meet our obligations to the U.S. government in regards to any in-licensed patents and patent applications funded by U.S. government grants, leading to the loss of patent rights;
- we or our licensors, as the case may be, might not have been the first to file patent applications for these inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies;
- it is possible that our pending patent applications will not result in issued patents;
- it is possible that there are prior public disclosures that could invalidate our or our licensors' patents, as the case may be, or parts of our or their patents;
- it is possible that others may circumvent our owned or in-licensed patents;
- it is possible that there are unpublished applications or patent applications maintained in secrecy that may later issue with claims covering our products or technology similar to ours;
- the laws of foreign countries may not protect our or our licensors', as the case may be, proprietary rights to the same extent as the laws of the United States;
- the claims of our owned or in-licensed issued patents or patent applications, if and when issued, may not cover our product candidates;
- our owned or in-licensed issued patents may not provide us with any competitive advantages, may be narrowed in scope, or be held invalid or unenforceable as a result of legal challenges by third parties;

- the inventors of our owned or in-licensed patents or patent applications may become involved with competitors, develop products or processes which design around our patents, or become hostile to us or the patents or patent applications on which they are named as inventors;
- it is possible that our owned or in-licensed patents or patent applications omit individual(s) that should be listed as inventor(s) or include individual(s) that should not be listed as inventor(s), which may cause these patents or patents issuing from these patent applications to be held invalid or unenforceable;
- we have engaged in scientific collaborations in the past, and will continue to do so in the future. Such collaborators may develop adjacent or competing products to ours that are outside the scope of our patents;
- we may not develop additional proprietary technologies for which we can obtain patent protection;
- it is possible that product candidates or diagnostic tests we develop may be covered by third parties' patents or other exclusive rights; or
- the patents of others may have an adverse effect on our business.

We depend on intellectual property licensed from third parties and termination of any of these licenses could result in the loss of significant rights, which would harm our business.

We are dependent on patents, know-how and proprietary technology, both our own and licensed from others. Any termination of these licenses could result in the loss of significant rights and could harm our ability to commercialize our product candidates. See "Business—License and Collaboration Agreements" for additional information regarding our license agreements.

Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues; whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates, and what activities satisfy those diligence obligations; and
- the inventorship or ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners.

In addition, intellectual property license agreements are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license, as we are for intellectual property that we own, which are described below. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer.

If we fail to comply with our obligations under our patent license with a third party, we could lose license rights that are important to our business.

We are a party to a license agreement pursuant to which we in-license key patent and patent applications for our product candidates. These existing licenses impose various diligence, milestone payment, royalty, insurance and other obligations on us. If we fail to comply with these obligations, our licensor may have the right to terminate the license, in which event we would not be able to develop or market the products covered by such licensed intellectual property. Termination of these agreements or reduction or elimination of our rights under these agreements, or

restrictions on our ability to freely assign or sublicense our rights under such agreements when it is in the interest of our business to do so, may impede, delay or prohibit the further development or commercialization of one or more product candidates that rely on such agreements.

We may have limited control over the maintenance and prosecution of these in-licensed patents and patent applications, activities or any other intellectual property that may be related to our in-licensed intellectual property. For example, we cannot be certain that such activities by our licensor have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to patent protection, we rely heavily upon know-how and to some extent trade secret protection, as well as non-disclosure agreements and invention assignment agreements with our employees, consultants and third-parties, to protect our confidential and proprietary information, especially where we do not believe patent protection is appropriate or obtainable. In addition to contractual measures, we try to protect the confidential nature of our proprietary information using physical and technological security measures. Such measures may not, for example, in the case of misappropriation of a trade secret by an employee or third party with authorized access, provide adequate protection for our proprietary information. Our security measures may not prevent an employee or consultant from misappropriating our trade secrets and providing them to a competitor, and recourse we take against such misconduct may not provide an adequate remedy to protect our interests fully. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive, and time-consuming, and the outcome is unpredictable. In addition, trade secrets may be independently developed by others in a manner that could prevent legal recourse by us. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any such information was independently developed by a competitor, our competitive position could be harmed.

In addition, courts outside the United States are sometimes less willing to protect trade secrets. If we choose to go to court to stop a third party from using any of our trade secrets, we may incur substantial costs. These lawsuits may consume our time and other resources even if we are successful. Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees and consultants, third parties may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose our technology.

Thus, we may not be able to meaningfully protect our trade secrets. It is our policy to require our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements provide that all confidential information concerning our business or financial affairs developed or made known to the individual or entity during the course of the party's relationship with us is to be kept confidential and not disclosed to third parties except in specific circumstances. In the case of employees, the agreements provide that all inventions conceived by the individual, and which are related to our current or planned business or research and development or made during normal working hours, on our premises or using our equipment or proprietary information, are our exclusive property. In addition, we take other appropriate precautions, such as physical and technological security measures, to guard against misappropriation of our proprietary technology by third parties. We have also adopted policies and conduct training that provides guidance on our expectations, and our advice for best practices, in protecting our trade secrets.

Third-party claims of intellectual property infringement may prevent or delay our product discovery and development efforts.

Our commercial success depends in part on our ability to develop, manufacture, market and sell our product candidates and use our proprietary technologies without infringing the proprietary rights of third parties. There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including interference, derivation, *inter partes* review, post grant review, and reexamination proceedings before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions. We may be exposed to, or threatened with, future

litigation by third parties having patent or other intellectual property rights alleging that our product candidates and/or proprietary technologies infringe their intellectual property rights. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our product candidates. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to our product candidates and programs. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may give rise to claims of infringement of the patent rights of others. Moreover, it is not always clear to industry participants, including us, which patents cover various types of drugs, products or their methods of use or manufacture. Thus, because of the large number of patents issued and patent applications filed in our fields, there may be a risk that third parties may allege they have patent rights encompassing our product candidates, technologies or methods.

If a third-party claims that we infringe its intellectual property rights, we may face a number of issues, including, but not limited to:

- infringement and other intellectual property claims which, regardless of merit, may be expensive and time-consuming to litigate and may divert our management's attention from our core business;
- substantial damages for infringement, which we may have to pay if a court decides that the product candidate or technology at issue infringes on or violates the third party's rights, and, if the court finds that the infringement was willful, we could be ordered to pay treble damages and the patent owner's attorneys' fees;
- a court prohibiting us from developing, manufacturing, marketing or selling our product candidates, or from using our proprietary technologies, unless the third party licenses its product rights to us, which it is not required to do;
- if a license is available from a third party, we may have to pay substantial royalties, upfront fees and other amounts, and/or grant cross-licenses to intellectual property rights for our products; and
- redesigning our product candidates or processes so they do not infringe, which may not be possible or may require substantial monetary expenditures and time.

Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, results of operations, financial condition and prospects.

Third parties may assert that we are employing their proprietary technology without authorization. Generally, conducting clinical trials and other development activities in the United States is protected under the Safe Harbor exemption as set forth in 35 U.S.C. § 271. If and when KER-050, KER-047, KER-012 or another one of our product candidates is approved by the FDA, that certain third party may then seek to enforce its patent by filing a patent infringement lawsuit against us. While we do not believe that any claims of such patent that could otherwise materially adversely affect commercialization of our product candidates, if approved, are valid and enforceable, we may be incorrect in this belief, or we may not be able to prove it in a litigation. In this regard, patents issued in the United States by law enjoy a presumption of validity that can be rebutted only with evidence that is "clear and convincing," a heightened standard of proof. There may be third-party patents of which we are currently unaware with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of our product candidates, constructs or molecules used in or formed during the manufacturing process, or any final product itself, the holders of any such patents may be able to block our ability to commercialize the product candidate unless we obtained a license under the applicable patents, or until such patents expire or they are finally determined to be held invalid or unenforceable. Similarly, if any third-party patent were held by a court of competent jurisdiction to cover aspects of our formulations, processes for manufacture or

methods of use, the holders of any such patent may be able to block our ability to develop and commercialize the product candidate unless we obtained a license or until such patent expires or is finally determined to be held invalid or unenforceable. In either case, such a license may not be available on commercially reasonable terms or at all. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, or at all, our ability to commercialize our product candidates may be impaired or delayed, which could in turn significantly harm our business. Even if we obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates.

Parties making claims against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our product candidates. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Even if such a license is available, it may be non-exclusive, which could result in our competitors gaining access to the same intellectual property. Furthermore, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize our product candidates, which could harm our business significantly.

Lastly, we may need to indemnify our customers and distributors against claims relating to the infringement of intellectual property rights of third parties related to our product candidates, including KER-050, KER-047 and KER-012. Third parties may assert infringement claims against our customers or distributors. These claims may require us to initiate or defend protracted and costly litigation on behalf of our customers or distributors, regardless of the merits of these claims. If any of these claims succeed, we may be forced to pay damages on behalf of our customers, suppliers or distributors, or may be required to obtain licenses for the product candidates or services they use. If we cannot obtain all necessary licenses on commercially reasonable terms, our customers may be forced to stop using our products or services.

Third parties may assert that our employees or consultants have wrongfully used or disclosed confidential information or misappropriated trade secrets.

As is common in the biotechnology and pharmaceutical industries, we employ individuals who were previously employed at universities or other biopharmaceutical or pharmaceutical companies, including our competitors or potential competitors. Although no claims against us are currently pending, and although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of a former employer or other third parties. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and, if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. This type of litigation or proceeding could substantially increase our operating losses and reduce our resources available for development activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other intellectual property related proceedings could adversely affect our ability to compete in the marketplace.

We may not be successful in obtaining or maintaining necessary rights to develop any future product candidates on acceptable terms.

Because our programs may involve additional product candidates that may require the use of proprietary rights held by third parties, the growth of our business may depend in part on our ability to acquire, in-license or use these proprietary rights.

Our product candidates may also require specific formulations to work effectively and efficiently and these rights may be held by others. We may develop products containing our compounds and pre-existing pharmaceutical compounds. We may be required by the FDA or comparable foreign regulatory authorities to provide a companion diagnostic test or tests with our product candidates. These diagnostic test or tests may be covered by intellectual property rights held by others. We may be unable to acquire or in-license any compositions, methods of use, processes or other third-party intellectual property rights from third parties that we identify as necessary or important to our business operations. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all, which would harm our business. We may need to cease use of the compositions or methods covered by such third-party intellectual property rights, and may need to seek to develop alternative approaches that do not infringe on such intellectual property rights which may entail additional costs and development delays, even if we were able to develop such alternatives, which may not be feasible. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology.

Additionally, we sometimes collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. In certain cases, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Regardless of such option, we may be unable to negotiate a license within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to others, potentially blocking our ability to pursue our program. If we are unable to successfully obtain rights to required third-party intellectual property or to maintain the existing intellectual property rights we have, we may have to abandon development of such program and our business and financial condition could suffer.

The licensing and acquisition of third-party intellectual property rights is a competitive area, and companies, which may be more established, or have greater resources than we do, may also be pursuing strategies to license or acquire third-party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. More established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities. There can be no assurance that we will be able to successfully complete such negotiations and ultimately acquire the rights to the intellectual property surrounding the additional product candidates that we may seek to acquire.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that one or more of our patents is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable, or interpreted narrowly and could put our patent applications at risk of not issuing. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business.

We may choose to challenge the patentability of claims in a third party's U.S. patent by requesting that the USPTO review the patent claims in an *ex-parte* re-exam, *inter partes* review or post-grant review proceedings. These proceedings are expensive and may consume our time or other resources. We may choose to challenge a third party's patent in patent opposition proceedings in the foreign patent offices. The costs of these opposition proceedings could be substantial, and may consume our time or other resources. If we fail to obtain a favorable result at the USPTO or other patent office then we may be exposed to litigation by a third party alleging that the patent may be infringed by our product candidates or proprietary technologies.

In addition, because some patent applications in the United States may be maintained in secrecy until the patents are issued, patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, and publications in the scientific literature often lag behind actual discoveries, we cannot be certain that others have not filed patent applications for technology covered by our owned and in-licensed issued patents or our pending applications, or that we or, if applicable, a licensor were the first to invent the technology. Our competitors may have filed, and may in the future file, patent applications covering our products or technology similar to ours. Any such patent application may have priority over our owned and in-licensed patent applications or patents, which could require us to obtain rights to issued patents covering such technologies. If another party has filed a U.S. patent application on inventions similar to those owned by or in-licensed to us, we or, in the case of in-licensed technology, the licensor may have to participate in an interference proceeding declared by the USPTO to determine priority of invention in the United States. If we or one of our licensors is a party to an interference proceeding involving a U.S. patent application on inventions owned by or in-licensed to us, we may incur substantial costs, divert management's time and expend other resources, even if we are successful.

Interference proceedings provoked by third parties or brought by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could result in a loss of our current patent rights and could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms or at all. Litigation or interference proceedings may result in a decision adverse to our interests and, even if we are successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent, alone or with our licensors, misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the United States.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent application process and following the issuance of a patent. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Noncompliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court or the USPTO.

If we or one of our licensing partners initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate, as applicable, is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace, and there are numerous grounds upon which a third-party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post grant review, and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). Such proceedings could result in revocation or amendment to our patents in such a way that they no

longer cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we, our patent counsel and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, or if we are otherwise unable to adequately protect our rights, we would lose at least part, and perhaps all, of the patent protection on our product candidates. Such a loss of patent protection could have a material adverse impact on our business and our ability to commercialize or license our technology and product candidates.

Moreover, the patents included in our patent portfolio may expire before, or soon after, our first product achieves marketing approval in the United States or foreign jurisdictions. For example, the patents related to novel ALK2 inhibitors in the patent family that we license from The General Hospital Corporation are expected to expire in April 2038, without taking into account any possible patent term adjustments or extensions. Upon the expiration of our current or future owned or licensed patents, we may lose the right to exclude others from practicing these inventions. The expiration of these patents could also have a similar material adverse effect on our business, results of operations, financial condition and prospects. We own pending patent applications covering our proprietary technologies or our product candidates that if issued as patents are expected to expire from 2037 through 2039, without taking into account any possible patent term adjustments or extensions. However, we cannot be assured that the USPTO or relevant foreign patent offices will grant any of these patent applications.

Changes in patent law in the U.S. and in ex-U.S. jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. Changes in either the patent laws or interpretation of the patent laws in the United States or in ex-U.S. jurisdictions could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. In addition, the United States has recently enacted and is currently implementing wide-ranging patent reform legislation. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the case *Amgen Inc. v. Sanofi,* the Federal Circuit held that a well-characterized antigen is insufficient to satisfy the written description requirement of certain claims directed to a genus of antibodies that are solely defined by function; and in the case of *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.,* the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. We cannot predict how these decisions or any future decisions by the courts, the U.S. Congress or the USPTO may impact the value of our patents. Similarly, any adverse changes in the patent laws of other jurisdictions could have a material adverse effect on our business and financial condition.

Some of our in-licensed intellectual property that was discovered through government-funded programs may be subject to federal regulation such as "march-in" rights, certain reporting requirements and a preference for U.S. industry. Compliance with such regulations may limit our exclusive rights, subject us to expenditure of resources with respect to reporting requirements and limit our ability to contract with foreign manufacturers.

At least one of our in-licensed patent cases related to our KER-047 product candidate has been funded in part by the U.S. government and, therefore, is subject to certain federal regulations pursuant to the Bayh-Dole Act of 1980, or the Bayh-Dole Act, and it is possible that additional patent filings we may choose to in-license in the future may also be subject to similar regulations. In particular, the federal government retains a "nonexclusive, nontransferable, irrevocable, paid-up license" for its own benefit to inventions produced with its financial assistance. The Bayh-Dole Act also provides federal agencies with "march-in rights." March-in rights allow the government, in specified circumstances, to require the contractor or successors in title to the patent to grant a "nonexclusive, partially exclusive, or exclusive license" to a "responsible applicant or applicants." If the patent owner refuses to do so, the government may grant the license itself. Intellectual property discovered under government-funded programs are also subject to certain reporting requirements, compliance with which may require us or our licensors to expend

substantial resources. Such intellectual property is also subject to a preference for U.S. industry, which may limit our ability to contract with foreign product manufacturers for products covered by such intellectual property. Moreover, we sometimes collaborate with academic institutions to accelerate our preclinical research or development. While it is our policy to avoid engaging our university partners in projects in which there is a risk that federal funds may be commingled, we cannot be sure that any co-developed intellectual property will be free from government rights pursuant to the Bayh-Dole Act. Further, we may choose to license intellectual property in the future that may be subject to government rights pursuant to the Bayh-Dole Act. If, in the future, we co-own or license in technology which is critical to our business that is developed in whole or in part with federal funds subject to the Bayh-Dole Act, our ability to enforce or otherwise exploit patents covering such technology may be adversely affected.

We have limited foreign intellectual property rights and may not be able to protect our intellectual property rights throughout the world.

We have limited intellectual property rights outside the United States. Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as do federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or any of our licensors are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations and prospects may be adversely affected. Also, competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection but where enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have any issued patents and our patent claims or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to biopharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products against third parties in violation of our proprietary rights generally. The initiation of proceedings by third parties to challenge the scope or validity of our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

We may incur substantial costs as a result of litigation or other proceedings relating to patents, and we may be unable to protect our rights to our products and technology.

If we or our licensors choose to go to court to stop a third party from using the inventions claimed in our owned or in-licensed patents, that third party may ask the court to rule that the patents are invalid and/or should not be enforced against that third party. These lawsuits are expensive and would consume time and other resources even if we or they, as the case may be, were successful in stopping the infringement of these patents. In addition, there is a risk that the court will decide that these patents are not valid and that we or they, as the case may be, do not have the right to stop others from using the inventions.

There is also the risk that, even if the validity of these patents is upheld, the court will refuse to stop the third party on the ground that such third party's activities do not infringe our owned or in-licensed patents. In addition, the

U.S. Supreme Court has recently changed some legal principles that affect patent applications, granted patents and assessment of the eligibility or validity of these patents. As a consequence, issued patents may be found to contain invalid claims according to the newly revised eligibility and validity standards. Some of our owned or in-licensed patents may be subject to challenge and subsequent invalidation or significant narrowing of claim scope in proceedings before the USPTO, or during litigation, under the revised criteria which could also make it more difficult to obtain patents.

We, or our licensors, may not be able to detect infringement against our owned or in-licensed patents, as the case may be, which may be especially difficult for manufacturing processes or formulation patents. Even if we or our licensors detect infringement by a third party of our owned or in-licensed patents, we or our licensors, as the case may be, may choose not to pursue litigation against or settlement with the third party. If we, or our licensors, later sue such third party for patent infringement, the third party may have certain legal defenses available to it, which otherwise would not be available except for the delay between when the infringement was first detected and when the suit was brought. Such legal defenses may make it impossible for us or our licensors to enforce our owned or in-licensed patents, as the case may be, against such third party.

If another party questions the patentability of any of our claims in our owned or in-licensed U.S. patents, the third-party can request that the USPTO review the patent claims such as in an *inter partes* review, *ex parte* re-exam or post-grant review proceedings. These proceedings are expensive and may result in a loss of scope of some claims or a loss of the entire patent. In addition to potential USPTO review proceedings, we may become a party to patent opposition proceedings in foreign patent offices, where either our owned or in-licensed foreign patents are challenged.

In the future, we may be involved in similar proceedings challenging the patent rights of others, and the outcome of such proceedings is highly uncertain. An adverse determination in any such proceeding could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or products and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights. The costs of these opposition or similar proceedings could be substantial, and may result in a loss of scope of some claims or a loss of the entire patent. An unfavorable result at the USPTO or other patent office may result in the loss of our right to exclude others from practicing one or more of our inventions in the relevant country or jurisdiction, which could have a material adverse effect on our business.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions such as patent term adjustments and/or extensions, may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent life has expired, we may be open to competition from competitive products, including biosimilars. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

If we do not obtain patent term extension and data exclusivity for any product candidates we may develop, our business may be materially harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of any product candidates we may develop, one or more of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Action of 1984 Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent extension term of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. However, we may not be granted an extension because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or

otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations, and prospects could be materially harmed. Further, for our licensed patents, we may not have the right to control prosecution, including filing with the USPTO, of a petition for patent term extension under the Hatch-Waxman Act. Thus, if one of our licensed patents is eligible for patent term extension under the Hatch-Waxman Act, we may not be able to control whether a petition to obtain a patent term extension is filed, or obtained, from the USPTO.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. At times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trade names or trademarks that incorporate variations of our unregistered trade names or trademarks. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be adversely affected.

Risks Related to Our Reliance on Third Parties

We rely, and expect to continue to rely, on third parties, including independent clinical investigators, contracted laboratories and CROs, to conduct our preclinical studies and clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates and our business could be substantially harmed.

We have relied upon and plan to continue to rely upon third parties, including independent clinical investigators, contracted laboratories and third-party CROs, to conduct our preclinical studies and clinical trials in accordance with applicable regulatory requirements and to monitor and manage data for our ongoing preclinical and clinical programs. We rely on these parties for execution of our preclinical studies and clinical trials, and control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our studies and trials is conducted in accordance with the applicable protocol, legal and regulatory requirements and scientific standards, and our reliance on these third parties does not relieve us of our regulatory responsibilities. We and our third-party contractors and CROs are required to comply with good laboratory practices, or GLPs, as applicable, and GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible, reproducible and accurate and that the rights, integrity, and confidentiality of trial participants are protected. Regulatory authorities enforce these GLPs and GCPs through periodic inspections of laboratories conducting GLP studies, trial sponsors, principal investigators and trial sites. If we, our investigators or any of our CROs or contracted laboratories fail to comply with applicable GLPs and GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional preclinical studies or clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our preclinical studies or clinical trials comply with applicable GLP or GCP regulations. In addition, our clinical trials must be conducted with product, including biologic product, produced in compliance with applicable cGMP regulations. Our failure to comply with these regulations may require us to repeat preclinical studies or clinical trials, which would delay the regulatory approval process.

Further, these laboratories, investigators and CROs are not our employees and we will not be able to control, other than by contract, the amount of resources, including time, which they devote to our product candidates and clinical trials. If independent laboratories, investigators or CROs fail to devote sufficient resources to the development of our product candidates, or if their performance is substandard, it may delay or compromise the prospects for approval and commercialization of any product candidates that we develop. In addition, the use of third-party service

providers requires us to disclose our proprietary information to these parties, which could increase the risk that this information will be misappropriated.

Our CROs have the right to terminate their agreements with us in the event of an uncured material breach. In addition, some of our CROs have an ability to terminate their respective agreements with us if it can be reasonably demonstrated that the safety of the subjects participating in our clinical trials warrants such termination, if we make a general assignment for the benefit of our creditors or if we are liquidated.

The COVID-19 pandemic and government measures taken in response have also had a significant impact on our CROs, and we expect that they will face further disruption which may affect our ability to initiate and complete our preclinical studies and clinical trials.

There is a limited number of third-party service providers that specialize or have the expertise required to achieve our business objectives. If any of our relationships with these third-party laboratories, CROs or clinical investigators terminate, we may not be able to enter into arrangements with alternative laboratories, CROs or investigators or to do so in a timely manner or on commercially reasonable terms. If laboratories, CROs or clinical investigators do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our preclinical or clinical protocols, regulatory requirements or for other reasons, our preclinical or clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. As a result, our results of operations and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenues could be delayed.

Switching or adding additional laboratories or CROs (or investigators) involves additional cost and requires management time and focus. In addition, there is a natural transition period when a new laboratory or CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Though we carefully manage our relationships with our contracted laboratories and CROs, there can be no assurance that we will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and results of operations.

In addition, clinical investigators may serve as scientific advisors or consultants to us from time to time and may receive cash or equity compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or the FDA concludes that the financial relationship may have affected the interpretation of the preclinical study or clinical trial, the integrity of the data generated at the applicable preclinical study or clinical trial site may be questioned and the utility of the preclinical study or clinical trial itself may be jeopardized, which could result in the delay or rejection by the FDA. Any such delay or rejection could prevent us from commercializing our clinical-stage product candidate or any future product candidates.

We rely on third parties to supply and manufacture our product candidates, and we expect to continue to rely on third parties to manufacture our products, if approved. The development of such product candidates and the commercialization of any products, if approved, could be stopped, delayed or made less profitable if any such third party fails to provide us with sufficient quantities of product candidates or products or fails to do so at acceptable quality levels or prices or fails to maintain or achieve satisfactory regulatory compliance.

We do not currently have the infrastructure or capability internally to manufacture our product candidates for use in the conduct of our preclinical studies and clinical trials or for commercial supply, if our products are approved. We rely on, and expect to continue to rely on, contract manufacturing organizations, or CMOs. Any replacement of our CMOs could require significant effort and expertise because there may be a limited number of qualified CMOs. This could be particularly problematic where we rely on a single-source supplier, as is currently the case for the manufacture of each of KER-050 and KER-047.

Reliance on third-party providers may expose us to more risk than if we were to manufacture our product candidates ourselves. We are dependent on our CMOs for the production of our product candidates in accordance with relevant regulations, such as cGMP, which includes, among other things, quality control, quality assurance and the maintenance of records and documentation. Moreover, many of the third parties with whom we contract may also

have relationships with other commercial entities, including our competitors, for whom they may also be conducting product development activities that could harm our competitive position.

If we were to experience an unexpected loss of supply of or if any supplier were unable to meet our demand for any of our product candidates, we could experience delays in our research or planned clinical trials or commercialization. For example, the extent to which the COVID-19 pandemic impacts our ability to procure sufficient supplies for the development of our product candidates will depend on the severity and duration of the spread of the virus, and the actions undertaken to contain COVID-19 or treat its effects. We could be unable to find alternative suppliers of acceptable quality, in the appropriate volumes and at an acceptable cost. Moreover, our suppliers are often subject to strict manufacturing requirements and rigorous testing requirements, which could limit or delay production. The long transition periods necessary to switch manufacturers and suppliers, if necessary, could significantly delay our clinical studies and the commercialization of our products, if approved, which could materially adversely affect our business, financial condition and results of operation.

In complying with the applicable manufacturing regulations of the FDA and comparable foreign regulatory authorities, we and our third-party suppliers must spend significant time, money and effort in the areas of design and development, testing, production, record-keeping and quality control to assure that the products meet applicable specifications and other regulatory requirements. The facilities used by our contract manufacturers to manufacture our product candidates are subject to review by the FDA pursuant to inspections that will be conducted after we submit our NDA or BLA to the FDA. We do not control the manufacturing process of, and are completely dependent on, our contract manufacturing partners for compliance with cGMP requirements for manufacture of drug and biologic products. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or others, we will not be able to secure or maintain regulatory approval for our product candidates manufactured at these manufacturing facilities. In addition, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory agency does not approve these facilities for the manufacture of our product candidates or if any agency withdraws its approval in the future, we and they may need to find alternative manufacturing facilities, which would negatively impact the ability to develop, obtain regulatory approval for or market our product candidates, if approved. The failure of our manufacturers to comply with regulatory requirements could also result in an enforcement action against us, including the seizure of products and shutting down of production. If any of our third-party suppliers fails to comply with cGMP or other applicable manufacturing regulations, our ability to develop and commercialize the products could suffer significant interruptions. We face risks inherent in relying on a single CMO, as any disruption, such as a fire, natural hazards or vandalism at the CMO could significantly interrupt our manufacturing capability. All of our CMOs currently do not have alternative production plans in place or disaster-recovery facilities available. In case of a disruption, we will have to establish alternative manufacturing sources. This would require substantial capital on our part, which we may not be able to obtain on commercially acceptable terms or at all. Additionally, we would likely experience months of manufacturing delays as the CMO builds or locates replacement facilities and seeks and obtains necessary regulatory approvals. If this occurs, we will be unable to satisfy manufacturing needs on a timely basis, if at all.

Our future collaborations will be important to our business. If we are unable to enter into new collaborations, or if these collaborations are not successful, our business could be adversely affected.

A part of our strategy is to strategically evaluate and, as deemed appropriate, enter into additional strategic collaborations in the future when strategically attractive, including potentially with major biotechnology or pharmaceutical companies. We have limited capabilities for product development and do not yet have any capability for commercialization. Accordingly, we may enter into collaborations with other companies to provide us with important technologies and funding for our programs and technology. If we fail to enter into or maintain collaborations on reasonable terms or at all, our ability to develop our existing or future research programs and product candidates could be delayed, the commercial potential of our product could change and our costs of development and commercialization could increase. Furthermore, we may find that our programs require the use of intellectual property rights held by third parties, and the growth of our business may depend in part on our ability to acquire or in-license these intellectual property rights.

Any future collaborations we enter into may pose a number of risks, including, but not limited to, the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew development or commercialization programs or license arrangements based on clinical trial results, changes in the collaborators' strategic focus or available funding, or external factors, such as a strategic transaction that may divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products and product candidates if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- collaborators may fail to comply with applicable regulatory requirements regarding the development, manufacture, distribution or marketing of a product candidate or product;
- collaborators with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such product or products;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or terminations of the research, development or commercialization of product candidates, might lead to additional responsibilities for us with respect to product candidates, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;
- if a collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate the development or commercialization of any product candidate licensed to it by us; and
- collaborations may be terminated by the collaborator, and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable product candidates.

If our collaborations do not result in the successful discovery, development and commercialization of product candidates or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under such collaboration. All of the risks relating to product development, regulatory approval and commercialization described in this prospectus also apply to the activities of our therapeutic collaborators.

Additionally, if one of our collaborators terminates its agreement with us, we may find it more difficult to attract new collaborators and our perception in the business and financial communities could be adversely affected.

We face significant competition in seeking appropriate collaborative partners. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon an assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. These factors may include the design or results of preclinical studies or clinical trials, the

likelihood of regulatory approval, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of any uncertainty with respect to our ownership of technology (which can exist if there is a challenge to such ownership regardless of the merits of the challenge) and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us.

We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization, reduce the scope of any sales or marketing activities or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop product candidates or bring them to market and generate product revenue.

If we engage in future acquisitions or strategic collaborations, this may increase our capital requirements, dilute our stockholders, cause us to incur debt or assume contingent liabilities and subject us to other risks.

From time to time, we may evaluate various acquisition opportunities and strategic collaborations, including licensing or acquiring complementary products, intellectual property rights, technologies or businesses. Any potential acquisition or strategic collaboration may entail numerous risks, including:

- increased operating expenses and cash requirements;
- the assumption of additional indebtedness or contingent liabilities;
- the issuance of our equity securities;
- assimilation of operations, intellectual property and products of an acquired company, including difficulties associated with integrating new personnel;
- the diversion of our management's attention from our existing programs and initiatives in pursuing such a strategic merger or acquisition;
- retention of key employees, the loss of key personnel and uncertainties in our ability to maintain key business relationships;
- risks and uncertainties associated with the other party to such a transaction, including the prospects of that party and their existing products or product candidates and marketing approvals; and
- our inability to generate revenue from acquired technology and/or products sufficient to meet our objectives in undertaking the acquisition or even to offset the associated acquisition and maintenance costs.

In addition, if we undertake acquisitions or pursue collaborations in the future, we may issue dilutive securities, assume or incur debt obligations, incur large one-time expenses and acquire intangible assets that could result in significant future amortization expense. Moreover, we may not be able to locate suitable acquisition opportunities, and this inability could impair our ability to grow or obtain access to technology or products that may be important to the development of our business.

Risks Related to Our Employee Matters, Managing Our Growth and Other Risks Relating to Our Operations

We are highly dependent on our key personnel, including our Chief Executive Officer, Chief Scientific Officer and Chief Medical Officer. If we are not successful in attracting, motivating and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract, motivate and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our management and particularly on the services of our scientific personnel including Jasbir Seehra, Ph.D., our Chief Executive Officer, Jennifer Lachey, Ph.D., our Chief Scientific Officer, and Claudia Ordonez, M.D., our Chief Medical Officer. We believe that their drug discovery and development experience and overall biopharmaceutical company management experience would be difficult to replace. Any of our executive officers could leave our employment at any time, as all of our employees are "at-will" employees. The loss of the services of

our key personnel and any of our other executive officers, key employees, and scientific and medical advisors, and our inability to find suitable replacements, could result in delays in our research and development objectives and harm our business.

Recruiting and retaining qualified employees, consultants and advisors for our business, including scientific and technical personnel, also will be critical to our success. Competition for skilled personnel is intense and the turnover rate can be high. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies and academic institutions for skilled individuals. In addition, failure to succeed in preclinical studies, clinical trials or applications for marketing approval may make it more challenging to recruit and retain qualified personnel. The inability to recruit, or the loss of services of certain executives, key employees, consultants or advisors, may impede the progress of our research, development and commercialization objectives and have a material adverse effect on our business, financial condition, results of operations and prospects.

We will need to grow the size of our organization, and we may experience difficulties in managing this growth.

As of December 31, 2019, we had 23 full-time employees, including 17 employees engaged in research and development and six employees engaged in management or general and administrative activities. As our clinical development and commercialization plans and strategies develop, and as we transition into operating as a public company, we expect we will need additional managerial, operational, sales, marketing, financial, legal and other personnel. Future growth would impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our development efforts effectively, including the clinical and FDA review process for KER-050, KER-047, KER-012 and any future product candidates, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to commercialize KER-050, KER-047, KER-012 and any other product candidates we develop will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services. The services include substantially all aspects of clinical trial management and manufacturing. We cannot assure you that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain marketing approval of KER-050, KER-047, KER-012 and our other product candidates or otherwise advance our business. We cannot assure you that we will be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all.

If we are not able to effectively expand our organization by hiring qualified new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize KER-050, KER-047, KER-012 and our other product candidates and, accordingly, may not achieve our research, development and commercialization goals.

Our internal computer systems, or those used by our contract research organizations, or other contractors or consultants, may fail or suffer security breaches.

Despite the implementation of security measures, our internal computer systems and those of our future CROs and other contractors and consultants are vulnerable to damage or unauthorized access or use resulting from computer viruses, malware, cyber-attacks or cyber-intrusions over the Internet, denial or degradation of service attacks, ransomware, hacking, phishing and other social engineering attacks, attachments to emails, persons inside our organization or persons with access to systems inside our organization. While we have not experienced any such

material system failure or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs, our business operations, and the privacy or confidentiality of the information that we maintain. For example, the loss of preclinical or clinical data could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data.

The costs to respond to a security breach and/or to mitigate any security vulnerabilities that may be identified could be significant, our efforts to address these problems may not be successful, and these problems could result in unexpected interruptions, delays, cessation of service, negative publicity, and other harm to our business and our competitive position. Any security breach affecting us, our partners or our industry, whether real or perceived, could harm our reputation, erode confidence in the effectiveness of our security measures and lead to regulatory scrutiny. Likewise, we may rely on third parties for the manufacture of our product candidates and to conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could face governmental reporting obligations, incur liability and the further development and commercialization of our product candidates could be delayed.

Failure to comply with health and data protection laws and regulations could lead to government enforcement actions, including civil or criminal penalties, private litigation and adverse publicity and could negatively affect our operating results and business.

We and any potential collaborators may be subject to or affected by federal, state and foreign data protection laws and regulations, such as laws and regulations that address privacy and data security. In the United States, numerous federal and state laws and regulations, including federal and state health information privacy laws, state data breach notification laws, and federal and state consumer protection laws, including Section 5 of the Federal Trade Commission Act, that govern the collection, use, disclosure and protection of health information and other personal information could apply to our operations or the operations of our collaborators. In addition, we may obtain health information from third parties, including research institutions from which we obtain clinical trial data, that are subject to privacy and security requirements under HIPAA, as amended by HITECH. Depending on the facts and circumstances, we could be subject to civil, criminal and administrative penalties if we knowingly obtain, use or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA.

In addition, certain state and foreign laws govern the privacy and security of health information in certain circumstances, some of which are more stringent than U.S. federal law and many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. For instance, the California Consumer Privacy Act of 2018 (CCPA), which became effective on January 1, 2020, gives California residents expanded rights to access and require deletion of their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA authorizes private lawsuits to recover statutory damages for certain data breaches. Although the CCPA exempts some data regulated by HIPAA and certain data regarding clinical trials, the CCPA, to the extent applicable to our business and operations, may increase our compliance costs and potential liability with respect to other personal information we maintain about California residents. Other privacy legislation has been proposed at the federal and state levels, which, if enacted, could adversely affect our business. In Europe, the European Union General Data Protection Regulation (2016/679), or GDPR, went into effect in May 2018 and introduces strict requirements for processing the personal data of European Union data subjects. The GDPR may apply to the company to the extent it processes the personal data of European Union data subjects. Companies that must comply with the GDPR face increased compliance obligations and risk, including more robust regulatory enforcement of data protection requirements and potential fines for noncompliance of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater.

Compliance with U.S. and foreign data protection laws and regulations could require us to take on more onerous obligations in our contracts, increase our costs of legal compliance, restrict our ability to collect, use and disclose data, or in some cases, impact our or our partners' or suppliers' ability to operate in certain jurisdictions. Failure to comply with these laws and regulations could result in government investigations and/or enforcement actions (which could include civil, criminal and administrative penalties), private litigation and/or adverse publicity and could

negatively affect our operating results and business. Moreover, clinical trial subjects, employees and other individuals about whom we or our potential collaborators obtain personal information, as well as the providers who share this information with us, may limit our ability to collect, use and disclose the information. Claims that we have violated individuals' privacy rights, failed to comply with data protection laws, or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

Our employees, independent contractors, vendors, principal investigators, CROs and consultants may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk that our employees, independent contractors, vendors, principal investigators, CROs and consultants may engage in fraudulent conduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violate the regulations of the FDA and comparable foreign regulatory authorities, including those laws requiring the reporting of true, complete and accurate information to such authorities; healthcare fraud and abuse laws and regulations in the United States and abroad; or laws that require the reporting of financial information or data accurately. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Activities subject to these laws also involve the improper use of information obtained in the course of clinical trials or creating fraudulent data in our preclinical studies or clinical trials, which could result in regulatory sanctions and cause serious harm to our reputation. We intend to adopt, prior to the completion of this offering, a code of conduct applicable to all of our employees, but it is not always possible to identify and deter misconduct by employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. Additionally, we are subject to the risk that a person could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, imprisonment, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations, any of which could adversely affect our ability to operate our business, financial condition and results of operations.

We conduct certain research and development operations through our Australian wholly-owned subsidiary. If we lose our ability to operate in Australia, or if our subsidiary is unable to receive the research and development incentive payment allowed by Australian regulations, our business and results of operations could suffer.

In October 2018, we formed a wholly-owned Australian subsidiary, Keros Therapeutics Australia Pty Ltd, to conduct various preclinical studies and clinical trials for our product candidates in Australia. Due to the geographical distance and lack of employees currently in Australia, as well as our lack of experience operating in Australia, we may not be able to efficiently or successfully monitor our clinical activities in Australia, including conducting preclinical studies and clinical trials. Furthermore, we have no assurance that the results of any clinical trials that we conduct for our product candidate in Australia will be accepted by the FDA or comparable foreign regulatory authorities for development and commercialization approvals.

In addition, current Australian tax regulations provide for a refundable research and development incentive payment equal to 43.5% of qualified expenditures. We expect to receive incentive payments of approximately $0.9 million during 2020 for research expenditures made during 2018 and 2019. If our subsidiary loses its ability to operate in Australia, or if we are ineligible or unable to receive the research and development incentive payment, or the Australian government significantly reduces or eliminates the incentive program, our business and results of operation may be adversely affected.

A variety of risks are associated with operating our business internationally which could materially adversely affect our business.

We conduct certain research and development operations in Australia and may conduct certain future clinical trials outside of the United States. Additionally, while we have not taken any steps to enter into any non-U.S. markets, we may do so in the future. Accordingly, we are subject to risks related to operating in foreign countries, including:

- different standards of care in various countries that could complicate the evaluation of our product candidates;
- different United States and foreign drug import and export rules;
- reduced protection for intellectual property rights in certain countries;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration, and labor laws for employees living or traveling abroad;
- compliance with the FCPA and other anti-corruption and anti-bribery laws;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad;
- different payor reimbursement regimes, governmental payors or patient self-pay systems and price controls;
- potential liability resulting from development work conducted by foreign partners;
- business interruptions resulting from natural disasters, outbreaks of contagious diseases, such as COVID-19, or geopolitical actions, including war and terrorism, or systems failure including cybersecurity breaches; and
- compliance with evolving and expansive foreign data privacy laws, such as the GDPR.

The COVID-19 coronavirus could adversely impact our business, including our preclinical studies and clinical trials.

In December 2019, a novel strain of coronavirus, COVID-19, was reported to have surfaced in Wuhan, China. Since then, the COVID-19 coronavirus has spread to multiple countries, including the United States and Australia, where we have planned or ongoing preclinical studies and clinical trials. On March 11, 2020, the World Health Organization declared the outbreak of COVID-19 as a global pandemic. On March 23, 2020, the governor of Massachusetts ordered the closure of all non-essential businesses effective March 24, 2020, through April 7, 2020, which was subsequently extended through May 4, 2020. Because of the nature of our operations, we are currently considered to be an essential business so, to date, our operations have only been partially affected by this order. The outbreak and government measures taken in response have also had a significant impact, both direct and indirect, on businesses and commerce, as worker shortages have occurred; supply chains have been disrupted; facilities and production have been suspended; and demand for certain goods and services, such as medical services and supplies, has spiked, while demand for other goods and services, such as travel, has fallen. In response to the spread of COVID-19, we have closed our principal executive office with our administrative employees continuing their work outside of our office and limited the number of staff in any given research and development laboratory. If the COVID-19 coronavirus continues to spread in the United States and Australia, we may experience disruptions that could severely impact our business, preclinical studies and clinical trials, including:

- delays in receiving approval from local regulatory authorities to initiate our planned clinical trials;
- delays or difficulties in enrolling patients in our clinical trials;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators and clinical site staff;
- delays in clinical sites receiving the supplies and materials needed to conduct our clinical trials, including interruption in global shipping that may affect the transport of clinical trial materials;
- changes in local regulations as part of a response to the COVID-19 coronavirus outbreak which may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs, or to discontinue the clinical trials altogether;

- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel imposed or recommended by federal or state governments, employers and others, or interruption of clinical trial subject visits and study procedures, the occurrence of which could affect the integrity of clinical trial data;
- risk that participants enrolled in our clinical trials will acquire COVID-19 while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events;
- interruptions in preclinical studies due to restricted or limited operations at our research and development laboratory facility;
- delays in necessary interactions with local regulators, ethics committees and other important agencies and contractors due to limitations in employee resources or forced furlough of government employees;
- limitations in employee resources that would otherwise be focused on the conduct of our clinical trials, including because of sickness of employees or their families or the desire of employees to avoid contact with large groups of people;
- refusal of the FDA to accept data from clinical trials in these affected geographies; and
- interruption or delays to our sourced discovery and clinical activities.

The COVID-19 pandemic continues to rapidly evolve. The extent to which the outbreak impacts our business, preclinical studies and clinical trials will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the pandemic, travel restrictions and social distancing in the United States, Australia and other countries, business closures or business disruptions and the effectiveness of actions taken in the United States, Australia and other countries to contain and treat the disease.

We are subject to certain U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions and other trade laws and regulations. We can face serious consequences for violations.

We are presently conducting clinical development solely in Australia and may choose to conduct additional international clinical trials in the future. The U.S. Foreign Corrupt Practices Act, or FCPA, prohibits companies and their employees and third-party intermediaries from paying, offering, promising or authorizing others to pay or offer anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with certain accounting provisions requiring the company to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls. The FCPA presents particular challenges in the pharmaceutical industry, because, in many countries, hospitals are owned and operated by the government, and doctors and other hospital employees are considered foreign officials. We can be held liable for the corrupt or other illegal activities of our employees, representatives, contractors, business partners and agents, even if we do not explicitly authorize or have actual knowledge of such activities. Noncompliance with the FCPA and anti-corruption laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and/or debarment from contracting with certain persons, the loss of export privileges, reputational harm, adverse media coverage and other collateral consequences. If any subpoenas or investigations are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, results of operations and financial condition could be materially harmed.

In addition, our products may be subject to export controls, trade sanctions laws and regulations. Governmental regulation of the import or export of our products, or our failure to obtain any required import or export authorization for our products, when applicable, could harm our international sales and adversely affect our revenue. Compliance with applicable regulatory requirements regarding the export of our products may create delays in the introduction of our products in international markets or, in some cases, prevent the export of our products to some countries

altogether. Furthermore, U.S. export control laws and economic sanctions prohibit the shipment of certain products and services to countries, governments, and persons targeted by U.S. sanctions. If we fail to comply with export and import regulations and such economic sanctions, penalties could be imposed, including fines and/or denial of certain export privileges. Moreover, any new export or import restrictions, new legislation or shifting approaches in the enforcement or scope of existing regulations, or in the countries, persons, or products targeted by such regulations, could result in decreased use of our products by, or in our decreased ability to export our products to, existing or potential customers with international operations. Any decreased use of our products or limitation on our ability to export or sell our products would likely adversely affect our business.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our research and development activities involve the use of biological and hazardous materials and produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials, which could cause an interruption of our commercialization efforts, research and development efforts and business operations, environmental damage resulting in costly clean-up and liabilities under applicable laws and regulations governing the use, storage, handling and disposal of these materials and specified waste products. Although we believe that the safety procedures utilized by our third-party manufacturers for handling and disposing of these materials generally comply with the standards prescribed by these laws and regulations, we cannot guarantee that this is the case or eliminate the risk of accidental contamination or injury from these materials. In such an event, we may be held liable for any resulting damages and such liability could exceed our resources and state or federal or other applicable authorities may curtail our use of certain materials and/or interrupt our business operations. Furthermore, environmental laws and regulations are complex, change frequently and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance. In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials or other work-related injuries, this insurance may not provide adequate coverage against potential liabilities. We do not carry specific biological waste or hazardous waste insurance coverage, workers compensation or property and casualty and general liability insurance policies that include coverage for damages and fines arising from biological or hazardous waste exposure or contamination.

The December 2017 tax reform law could adversely affect our business and financial condition.

On December 22, 2017, the Tax Act was enacted and significantly revised the Internal Revenue Code of 1986, as amended, or the Code. The Tax Act, among other things, contained significant changes to U.S. federal corporate income taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted taxable income (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss, or NOL, carrybacks (in each case applicable to net operating losses, or NOLs, arising in taxable years beginning after December 31, 2017), one-time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many other business deductions and credits, including the reduction of the business tax credit for certain clinical testing expenses incurred in the testing of certain drugs for rare diseases or conditions generally known as "orphan drugs." On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security, or CARES, Act was signed into law. The CARES Act changes certain provisions of the Tax Act. Under the CARES Act, NOLs arising in taxable years beginning after December 31, 2017 and before January 1, 2021 may be carried back to each of the five taxable years preceding the tax year of such loss, but NOLs arising in taxable years beginning after December 31, 2020 may not be carried back. In addition, the CARES Act eliminates the limitation on the deduction of NOLs to 80% of current year taxable income for taxable years beginning before January 1,

2021, and increases the amount of interest expense that may be deducted to 50% of adjusted taxable income for taxable years beginning in 2019 or 2020. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the Tax Act, as modified by the CARES Act, is uncertain and our business, financial conditions, results of operations and growth prospects could be materially and adversely affected. In addition, it is uncertain if and to what extent various states will conform to the Tax Act, as modified by the CARES Act. The impact of the Tax Act, as modified by the CARES Act, on holders of our common stock is also uncertain and could be adverse. We urge our stockholders to consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

Our ability to use our net operating loss carryforwards and certain tax credit carryforwards may be subject to limitation.

As of December 31, 2019, we had $11.5 million of U.S. federal, $11.1 million of state and $4.3 million of foreign NOL carryforwards. Under the Tax Act, as modified by the CARES Act, federal NOLs incurred in taxable years beginning after December 31, 2017 can be carried forward indefinitely, but the deductibility of federal NOLs in taxable years beginning after December 31, 2020, is limited.

Our NOL carryforwards are subject to review and possible adjustment by the U.S. and state tax authorities. In addition, under Sections 382 and 383 of the Code and corresponding provisions of state law, if a corporation undergoes an “ownership change,” which is generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period, the corporation’s ability to use its pre-change NOL carryforwards and R&D credits to offset its post-change income may be limited. This could limit the amount of NOLs or R&D credit carryforwards that we can utilize annually to offset future taxable income or tax liabilities. Subsequent ownership changes and changes to the U.S. tax rules in respect of the utilization of NOLs and R&D credits carried forward may further affect the limitation in future years. In addition, at the state level, there may be periods during which the use of NOLs is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed.

Additionally, we have not undertaken a study on our determination of our U.S. R&D credits. Consequently, our U.S. R&D credits may change, and in any event are subject to review and adjustment by the tax authorities.

Risks Related to Our Common Stock and this Offering

No public market for our common stock currently exists, and we do not know whether an active, liquid and orderly trading market will develop for our common stock, or what the market price of our common stock will be, and as a result it may be difficult for you to sell your shares of our common stock.

Prior to this offering there has been no public market for shares of our common stock. Although we intend to list our common stock on the Nasdaq Global Market, an active trading market for our shares may never develop or be sustained following this offering. The initial public offering price of our common stock will be determined through negotiations between us and the underwriters. This initial public offering price may not be indicative of the market price of our common stock after this offering. In the absence of an active trading market for our common stock, investors may not be able to sell their common stock at or above the initial public offering price or at the time that they would like to sell. An inactive trading market may also impair our ability to raise capital to continue to fund operations by selling shares and may impair our ability to enter into collaborations or acquire other companies or technologies using our shares as consideration.

Our quarterly operating results may fluctuate significantly or may fall below the expectations of investors or securities analysts, each of which may cause our stock price to fluctuate or decline.

We expect our operating results to be subject to quarterly fluctuations. Our net loss and other operating results will be affected by numerous factors, including:

- variations in the level of expense related to the ongoing development of our product candidates and preclinical development programs;
- results of preclinical studies and future clinical trials, or the addition or termination of future clinical trials or funding support by us, or current or future collaborators or licensing partners;
- our execution of any collaboration, licensing or similar arrangements, and the timing of payments we may make or receive under existing or future arrangements or the termination or modification of any such existing or future arrangements;

- any intellectual property infringement lawsuit or opposition, interference or cancellation proceeding in which we may become involved;
- additions and departures of key personnel;
- strategic decisions by us, such as acquisitions, divestitures, spin-offs, joint ventures, strategic investments or changes in business strategy;
- if any of our product candidates receives regulatory approval, the terms of such approval and market acceptance and demand for such product candidates; and
- regulatory developments affecting our product candidates.

If our quarterly operating results fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially. Furthermore, any quarterly fluctuations in our operating results may, in turn, cause the price of our common stock to fluctuate substantially. We believe that quarterly comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of our future performance.

The market price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock in this offering.

Our stock price is likely to be volatile. The stock market in general, and the markets for pharmaceutical, biopharmaceutical and biotechnology stocks in particular, have experienced extreme price and volume fluctuations that have been often unrelated or disproportionate to the operating performance of the issuer. As a result of this volatility, you may not be able to sell your common stock at or above the initial public offering price. The market price for our common stock may be influenced by many factors, including:

- results of preclinical studies and clinical trials of KER-050, KER-047, KER-012 and any other product candidate we may develop or those of our competitors;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- commencement or termination of collaboration, licensing or similar arrangements for our development programs;
- announcements by our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations or capital commitments;
- failure or discontinuation of any of our development programs;
- results of clinical trials of product candidates of our competitors;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to the development of KER-050, KER-047, KER-012 and any other product candidate we may develop;
- variations in our financial results or those of companies that are perceived to be similar to us;
- announcements or expectations of additional financing efforts by us;
- sales of our common stock by us, our insiders or other stockholders;
- expiration of market stand-off or lock-up agreements;
- recommendations and changes in estimates or recommendations by securities analysts, if any, that cover our stock;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, political, and market conditions and overall fluctuations in the financial markets in the United States and abroad; and
- investors' general perception of us and our business.

In addition, the trading prices for common stock of other biopharmaceutical and biotechnology companies have been highly volatile as a result of the COVID-19 pandemic. The COVID-19 outbreak continues to rapidly

evolve. The extent to which the outbreak may impact our business, preclinical studies and clinical trials will depend on future developments, which are highly uncertain and cannot be predicted with confidence.

These and other market and industry factors may cause the market price and demand for our common stock to fluctuate substantially, regardless of our actual operating performance, which may limit or prevent investors from selling their shares at or above the price paid for the shares and may otherwise negatively affect the liquidity of our common stock.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against public companies following declines in the market prices of their securities. This risk is especially relevant for biopharmaceutical companies, which have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and our resources, which could harm our business.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

You will suffer immediate and substantial dilution with respect to the common stock you purchase in this offering. Based on an assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and that the underwriters do not exercise their option to acquire additional common stock in this offering, purchasers of common stock in this offering will experience immediate dilution of $7.37 per share, representing the difference between our pro forma as adjusted net tangible book value per share after giving effect to this offering and the assumed initial public offering price, and, following the completion of this offering, investors purchasing common stock in this offering will have contributed 51.2% of the total amount invested by stockholders since inception but will only own 27.5% of the shares of common stock outstanding. In the past, we have issued options to purchase common stock at prices significantly below the initial public offering price. To the extent these outstanding securities are ultimately exercised, investors purchasing common stock in this offering will sustain further dilution. See "Dilution" for a more detailed description of the dilution to new investors in the offering.

We have broad discretion in how we use the proceeds of this offering and may not use these proceeds effectively, which could affect our results of operations and cause our stock price to decline.

We will have considerable discretion in the application of the net proceeds of this offering. We intend to use the net proceeds from this offering, together with our existing cash and cash equivalents, to advance the clinical development of KER-050, including the initiation of two Phase 2 clinical trials, one in patients with MDS and one in patients with myelofibrosis, to advance the clinical development of KER-047, including the completion of our current Phase 1 clinical trial and the initiation of two Phase 2 clinical trials, one in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, and one in patients with FOP, to advance KER-012 into clinical development, including the initiation of a Phase 1 clinical trial, and the remainder to fund other research and development activities, including activities related to our proprietary discovery approach, working capital and general corporate purposes. See "Use of Proceeds." As a result, investors will be relying upon management's judgment with only limited information about our specific intentions for the use of the balance of the net proceeds of this offering. We may use the net proceeds for purposes that do not yield a significant return or any return at all for our stockholders. In addition, pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.

You should not rely on an investment in our common stock to provide dividend income. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders will therefore be limited to the appreciation of their stock, which may never occur, as the only way to realize any return on their investment.

Our executive officers, directors, and stockholders and their affiliates who beneficially own more than 5% of our common stock will continue to exercise significant influence over our company after this offering, which will limit your ability to influence corporate matters and could delay or prevent a change in corporate control.

Based upon the 13,189,391 shares of our common stock outstanding as of December 31, 2019, and after giving effect to the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate

of 10,725,129 shares of our common stock upon the closing of this offering, which includes the conversion of the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020, and the sale of 5,000,000 shares in this offering, immediately following the completion of this offering, the existing holdings of our executive officers, directors, and stockholders and their affiliates who beneficially own more than 5% of our common stock will represent beneficial ownership, in the aggregate, of approximately 56.5% of our outstanding common stock, assuming no exercise of the underwriters' option to acquire additional common stock in this offering. As a result, these stockholders, if they act together, will be able to exercise significant influence over our management and affairs and the outcome of matters submitted to our stockholders for approval, including the election of directors and any sale, merger, consolidation, or sale of all or substantially all of our assets. These stockholders acquired their shares of common stock at prices per share that were substantially less than the per share price of the shares of common stock being sold in this offering, these stockholders may have interests with respect to their common stock that are different from those of investors in this offering, and the concentration of voting power among these stockholders may have an adverse effect on the price of our common stock. In addition, this concentration of ownership might adversely affect the market price of our common stock by:

- delaying, deferring or preventing a change of control of our company;
- impeding a merger, consolidation, takeover or other business combination involving our company; or
- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of our company.

See "Principal Stockholders" in this prospectus for more information regarding the ownership of our outstanding common stock by our executive officers, directors, principal stockholders and their respective affiliates.

Conflicts of interest may arise because some members of our board of directors are representatives of our principal stockholders.

Certain of our principal stockholders or their affiliates are venture capital funds or other investment vehicles that could invest in entities that directly or indirectly compete with us. As a result of these relationships, conflicts may arise between the interests of the principal stockholders or their affiliates and the interests of other stockholders, and members of our board of directors that are representatives of such principal stockholders may not be disinterested in such conflicts. Neither the principal stockholders nor the representatives of the principal stockholders on our board of directors, by the terms of our amended and restated certificate of incorporation, are required to offer us any transaction opportunity of which they become aware and could take any such opportunity for themselves or offer it their other affiliates, unless such opportunity is expressly offered to them solely in their capacity as members of our board of directors.

Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up, stand-off and other legal restrictions on resale discussed in this prospectus lapse, the market price of our common stock could decline. Based upon the number of shares of common stock, on an as-converted basis, outstanding as of December 31, 2019 and the sale of 5,000,000 shares in this offering, upon the completion of this offering, we will have outstanding a total of 18,189,391 shares of common stock, assuming no exercise of the underwriters' option to purchase an additional 750,000 shares. Of these shares, the 5,000,000 shares sold by us in this offering will be freely tradable without restriction in the public market immediately following this offering unless purchased by our "affiliates." Under the Securities Act of 1933, as amended, or the Securities Act, an "affiliate" of an issuer is a person who directly or indirectly controls, is controlled by or is under common control with that issuer. The remaining 13,189,391 shares are currently restricted under securities laws or as a result of lock-up or other agreements, but will be able to be sold after this offering as described in "Shares Eligible for Future Sale." The representatives of the underwriters for this offering may release stockholders from their lock-up agreements with the underwriters at any time and without notice, which would allow for earlier sales of shares in the public market.

Upon completion of this offering, 3,107,811 shares of common stock that are either subject to outstanding options or reserved for future issuance under our equity incentive plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements described above and

applicable securities laws. We plan to register under the Securities Act all 3,107,811 of these shares that we may issue under our equity incentive plans. Once we register these shares, they can be freely sold in the public market upon issuance and once vested, subject to volume limitations applicable to affiliates and the lock-up agreements described above. If any of the additional shares of common stock described above are sold, or if it is perceived that they will be sold, in the public market, the market price of our common stock could decline.

After the completion of this offering and the conversion of all outstanding shares of our convertible preferred stock, including the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020, into shares of our common stock, the holders of 11,885,550 shares of our common stock, or their permitted transferees, will be entitled to rights with respect to the registration of their shares under the Securities Act, subject to the lock-up agreements described above. See "Description of Capital Stock—Registration Rights." Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares purchased by affiliates. Any sales of securities by these stockholders could have a material adverse effect on the market price of our common stock.

If securities analysts do not publish research or reports about our business or if they publish negative evaluations of our stock, the price of our stock could decline.

The trading market for our common stock will rely, in part, on the research and reports that industry or financial analysts publish about us or our business. We may never obtain research coverage by industry or financial analysts. If no or few analysts commence coverage of us, the trading price of our stock would likely decrease. Even if we do obtain analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our stock, the price of our stock could decline. If one or more of these analysts cease to cover our stock, we could lose visibility in the market for our stock, which, in turn, could cause our stock price to decline.

In making your investment decision, you should not rely on a recent online news article about us. The article, which is set forth in Appendix A to this prospectus, should not be considered in isolation and you should make your investment decision only after reading this entire prospectus carefully.

Information about us, our business strategy and product candidates was included in a March 2020 online news article published by BioWorld. The text of the interview contains information derived from an interview of Jasbir Seehra, our Chief Executive Officer. The article includes statements attributed to Dr. Seehra, and presents certain statements about us in isolation, including statements about the safety of KER-047, in a manner that presents such statements as forward-looking information, and does not contain all of the information included in this prospectus, including the risks and uncertainties described in this section. For example, the article states that a Phase 2 "bid will kick off in myelofibrosis next year" for KER-050. However, the timing of initiation of our Phase 2 clinical trial evaluating the treatment of patients with myelofibrosis-associated cytopenias is a forward-looking statement, and is subject to the risks and uncertainties described in this prospectus. See, for example, the risk factors titled "*All of our product candidates are in preclinical or early clinical development. Clinical trials are difficult to design and implement, and they involve a lengthy and expensive process with uncertain outcomes. We may experience delays in completing, or ultimately be unable to complete, the development and commercialization of KER-050, KER-047, KER-012 or any future product candidates*" and "*We may find it difficult to enroll patients in our clinical trials, which could delay or prevent us from proceeding with, or otherwise adversely affect, clinical trials of our product candidates*." Accordingly, the article, the text of which is set forth in Appendix A to this prospectus, should not be considered in isolation, and you should make your investment decision only after reading this entire prospectus carefully.

Investors should also be aware of the following clarifications with respect to the content of the article:

- The article states that a Phase 2 "investigation of MDS is starting in the first half of 2020, with data due toward the end of the year." While we intended to commence a Phase 2 clinical trial in patients with MDS evaluating KER-050 for the treatment of cytopenias, including anemia and thrombocytopenia, in the first half of 2020 as of the date of the BioWorld article, due to the COVID-19 pandemic, we currently expect to commence this Phase 2 clinical trial in the second half of 2020. Additionally, we believe it is premature to comment on the expected timing for release of data related to this trial. See, for example, the risk factors titled "*All of our product candidates are in preclinical or early clinical development. Clinical trials are difficult to design and implement, and they involve a lengthy and expensive process with uncertain outcomes. We may experience delays in completing, or ultimately be unable to complete, the development and*

commercialization of KER-050, KER-047, KER-012 or any future product candidates" and "*We may find it difficult to enroll patients in our clinical trials, which could delay or prevent us from proceeding with, or otherwise adversely affect, clinical trials of our product candidates*"; and

- The article states that "we believe we have a very safe molecule that can provide benefit," with regards to KER-047. KER-047 is currently being evaluated in a Phase 1 clinical trial in healthy volunteers to, among other things, evaluate the safety profile of KER-047, and accordingly, the FDA has not determined if KER-047 is safe. See, for example, the risk factors titled "*Our clinical trials may fail to demonstrate substantial evidence of the safety and efficacy or safety, purity and potency of our product candidates or any future product candidates, which would prevent or delay or limit the scope of regulatory approval and commercialization*" and "*Our product candidates may be associated with serious adverse, undesirable or unacceptable side effects or other properties or safety risks, which may delay or halt their clinical development, or prevent marketing approval. If such side effects are identified during the development of our product candidates or following approval we may suspend or abandon our development of such product candidates, the commercial profile of any approved label may be limited, or we may be subject to other significant negative consequences following marketing approval*."

We will incur significantly increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an emerging growth company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq Stock Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, we expect these rules and regulations to substantially increase our legal and financial compliance costs and to make some activities more time consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain sufficient coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers. The increased costs may require us to reduce costs in other areas of our business or increase the prices of our services. Moreover, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

We are an "emerging growth company" and a "smaller reporting company" and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies or smaller reporting companies will make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including (i) not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, (ii) reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements and (iii) exemptions from the requirements of holding nonbinding advisory stockholder votes on executive compensation and stockholder approval of any golden parachute payments not approved previously. In addition, as an emerging growth company, we are only required to provide two years of audited financial statements and two years of selected financial data in this prospectus. Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to take advantage of the benefits of this extended transition period. Our financial statements may therefore not be comparable to those of companies that comply with such new or revised accounting standards. Until the date that we are no longer an "emerging growth company" or affirmatively and irrevocably opt out of the exemption provided by Section 7(a)(2)(B) of the Securities Act, upon issuance of a new or revised accounting standard that applies to our financial statements and that has a different effective date for public and private companies, we will disclose the date on which adoption is required for non-emerging growth companies and the date on which we will adopt the recently issued accounting standard.

We could be an emerging growth company until the last day of our fiscal year following the fifth anniversary of the completion of this offering, although circumstances could cause us to lose that status earlier, including if we are deemed to be a “large accelerated filer,” which occurs when the market value of our common stock that is held by non-affiliates equals or exceeds $700.0 million as of the prior June 30, or if we have total annual gross revenue of $1.07 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31, or if we issue more than $1.0 billion in non-convertible debt during any three-year period before that time, in which case we would no longer be an emerging growth company immediately. Even after we no longer qualify as an emerging growth company, we may still qualify as a “smaller reporting company,” which would allow us to take advantage of many of the same exemptions from disclosure requirements, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in this prospectus and in our periodic reports and proxy statements.

We cannot predict if investors will find our common stock less attractive because we may rely on the exemptions and reduced disclosure obligations applicable to emerging growth companies and smaller reporting companies. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our share price may be more volatile.

If we fail to maintain proper and effective internal controls over financial reporting our ability to produce accurate and timely financial statements could be impaired.

Pursuant to Section 404 of the Sarbanes-Oxley Act, our management will be required to report upon the effectiveness of our internal control over financial reporting beginning with the annual report for our fiscal year ending December 31, 2021. When we lose our status as an “emerging growth company” and a “smaller reporting company,” our independent registered public accounting firm will be required to attest to the effectiveness of our internal control over financial reporting. The rules governing the standards that must be met for management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. To comply with the requirements of being a reporting company under the Securities Exchange Act of 1934, as amended, or the Exchange Act, we will need to implement additional financial and management controls, reporting systems and procedures and hire additional accounting and finance staff.

We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations or cash flows. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness or significant deficiency in our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by the Nasdaq Stock Market, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

Upon the completion of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. We must design our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. For example, our directors or executive officers could inadvertently fail to disclose a new relationship or arrangement causing us to fail to make a required related party transaction disclosure. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

Provisions in our corporate charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and our amended and restated bylaws that will become effective upon the completion of this offering may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions also could limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, because our board of directors is responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Among other things, these provisions:

- establish a classified board of directors such that not all members of the board are elected at one time;
- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- limit the manner in which stockholders can remove directors from the board;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to our board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- prohibit our stockholders from calling a special meeting of our stockholders;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a stockholder rights plan, or so-called “poison pill,” that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; and
- require the approval of the holders of at least 66 2/3% of the votes that all our stockholders would be entitled to cast to amend or repeal certain provisions of our charter or bylaws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns 15% or more of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired 15% or more of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. These provisions could discourage potential acquisition proposals and could delay or prevent a change in control transaction. They could also have the effect of discouraging others from making tender offers for our common stock, including transactions that may be in your best interests. These provisions may also prevent changes in our management or limit the price that investors are willing to pay for our stock.

Our amended and restated certificate of incorporation will designate the Court of Chancery of the State of Delaware as the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation, which will become effective immediately prior to the completion of this offering, will provide that the Court of Chancery of the State of Delaware (or, if and only if the Court of Chancery of the State of Delaware lacks subject matter jurisdiction, any state court located within the State of Delaware or, if and only if all such state courts lack subject matter jurisdiction, the federal district court for the District of Delaware) will be the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or other employees to us or our stockholders;
- any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws;
- any action or proceeding to interpret, apply, enforce or determine the validity of our certificate of incorporation or our bylaws; and

- any action asserting a claim against us or any of our directors, officers or other employees governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the U.S. federal courts have exclusive jurisdiction.

In addition, our amended and restated certificate of incorporation provides that the federal district courts of the United States will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, unless we consent in writing to the selection of an alternative forum.

These exclusive-forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage these types of lawsuits. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. For example, the Court of Chancery of the State of Delaware recently determined that a provision stating that U.S. federal district courts are the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act is not enforceable. However, on March 18, 2020, this decision was ultimately overturned by the Delaware Supreme Court. If a court were to find the exclusive-forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. These forward-looking statements are contained principally in the sections of this prospectus titled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business,” but are also contained elsewhere in this prospectus. In some cases, you can identify forward-looking statements by the words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “objective,” “ongoing,” “plan,” “predict,” “project,” “potential,” “should,” “will,” or “would,” or the negative of these terms, or other comparable terminology intended to identify statements about the future. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus, we caution you that these statements are based on a combination of facts and factors currently known by us and our expectations of the future, about which we cannot be certain.

These forward-looking statements include statements about:

- the timing of initiation for our two Phase 2 clinical trials for our lead protein therapeutic product candidate, KER-050;
- the timing of completion of our ongoing Phase 1 clinical trial and the timing of initiation for future clinical trials for our lead small molecule product candidate, KER-047;
- the timing of initiation of our Phase 1 clinical trial for our third product candidate, KER-012;
- our ability to receive the required regulatory approvals and clearances to successfully market and sell our products in the United States and certain other countries;
- our ability to successfully advance our pipeline of additional product candidates;
- our ability to develop sales and marketing capabilities;
- the rate and degree of market acceptance of any products we are able to commercialize;
- our ability to develop sales and marketing capabilities;
- the effects of increased competition as well as innovations by new and existing competitors in our market;
- our ability to obtain funding for our operations;
- our ability to establish and maintain collaborations;
- our ability to effectively manage our anticipated growth;
- our ability to maintain, protect and enhance our intellectual property rights and proprietary technologies;
- our ability to operate our business without infringing the intellectual property rights and proprietary technology of third parties;
- costs associated with defending intellectual property infringement, product liability and other claims;
- regulatory developments in the United States, Australia and other foreign countries;
- risks associated with the COVID-19 pandemic, which may adversely impact our business, preclinical studies and clinical trials;
- our ability to attract and retain qualified employees;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act;
- statements regarding future revenue, hiring plans, expenses, capital expenditures, capital requirements and stock performance;
- our expected use of proceeds of this offering; and
- the future trading prices of our common stock and the impact of securities analysts’ reports on these prices.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions described under the section titled “Risk Factors” and elsewhere in this prospectus. We also operate in a very competitive and rapidly

changing environment. New risks emerge from time to time and it is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in, or implied by, any forward-looking statements. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances described in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements contained in this prospectus.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance, events, circumstances or achievements reflected in the forward-looking statements will ever be achieved or occur. Except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

INDUSTRY AND MARKET DATA

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties as well as our own estimates of potential market opportunities. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We believe that these third-party sources and estimates are reliable, but have not independently verified them. Our estimates of the potential market opportunities for our product candidates include several key assumptions based on our industry knowledge, industry publications, third-party research and other surveys, which may be based on a small sample size and may fail to accurately reflect market opportunities. While we believe that our internal assumptions are reasonable, no independent source has verified such assumptions.

In addition, projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate is necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section of this prospectus titled “Risk Factors” and elsewhere in this prospectus. These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

USE OF PROCEEDS

We estimate that the net proceeds to us from this offering will be approximately $67.2 million, or approximately $77.6 million if the underwriters exercise in full their option to purchase additional shares from us, in each case after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us and based on an assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus.

Each $1.00 increase or decrease in the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease the net proceeds to us from this offering by approximately $4.7 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions payable by us. We may also increase or decrease the number of shares we are offering. Each 1,000,000 share increase or decrease in the number of shares offered by us would increase or decrease the net proceeds to us from this offering by approximately $14.0 million, assuming that the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions payable by us.

We intend to use the net proceeds of this offering, together with our existing cash and cash equivalents, as follows:

- approximately $8.1 million to advance the clinical development of KER-050, including the initiation of two Phase 2 clinical trials, one in patients with MDS and one in patients with myelofibrosis;
- approximately $13.1 million to advance the clinical development of KER-047, including the completion of our current Phase 1 clinical trial and the initiation of two Phase 2 clinical trials, one in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, and one in patients with FOP;
- approximately $5.3 million to advance KER-012 into clinical development, including the initiation of a Phase 1 clinical trial; and
- the remainder to fund other research and development activities, including activities related to our proprietary discovery approach, working capital and general corporate purposes.

We may also use a portion of the remaining net proceeds to in-license, acquire or invest in complementary businesses, technologies, products or assets. However, we have no current commitments or obligations to do so.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and prevailing business conditions, which could change in the future as such plans and conditions evolve. Predicting the cost necessary to develop product candidates can be difficult, and the amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development, the status of and results from preclinical studies and clinical trials, any collaborations that we may enter into with third parties and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

Based on our current plans, we believe that our existing cash and cash equivalents, together with the net proceeds from this offering, will enable us to fund our operating expenses and capital expenditure requirements into the second half of 2022. The expected net proceeds from this offering will not be sufficient for us to fund any of our product candidates through regulatory approval, and we will need to raise substantial additional capital to complete the development and commercialization of our product candidates. For additional information regarding our potential capital requirements, see “Risk Factors.”

DIVIDEND POLICY

We have never declared or paid any dividends on our capital stock. We currently intend to retain all available funds and any future earnings for the operation and expansion of our business and, therefore, we do not anticipate declaring or paying cash dividends in the foreseeable future. The payment of dividends will be at the discretion of our board of directors and will depend on our results of operations, capital requirements, financial condition, prospects, contractual arrangements, any limitations on payment of dividends present in any future debt agreements and other factors that our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and our capitalization as of December 31, 2019:

- on an actual basis;
- on a pro forma basis, to reflect (1) the issuance and sale of 4,169,822 shares of Series C preferred stock and the receipt of net proceeds of $55.8 million in March 2020, (2) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 10,725,129 shares of our common stock upon the closing of this offering and (3) the filing of our amended and restated certificate of incorporation, which will be filed in connection with this offering; and
- on a pro forma as adjusted basis to reflect (1) the pro forma items described immediately above and (2) the sale of 5,000,000 shares of common stock in this offering at an assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The information below is illustrative only, and our capitalization following the closing of this offering will depend on the actual initial public offering price and other terms of the offering determined at the pricing of this offering.

You should read this table together with the sections of this prospectus titled “Selected Consolidated Financial Data,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and the related notes appearing elsewhere in this prospectus.

	AS OF DECEMBER 31, 2019		
	ACTUAL	PRO FORMA	PRO FORMA AS ADJUSTED[1]
	(In thousands, except share and per share data)		
Cash and cash equivalents	$ 7,020	$ 62,839	$ 130,289
Preferred stock tranche liability	$ 4,956	$ —	$ —
Convertible preferred stock:			
Series A preferred stock, $0.0001 par value per share; 10,000,000 shares authorized, 4,607,652 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	9,891	—	—
Series A-1 preferred stock, $0.0001 par value per share; 800,000 shares authorized, 368,612 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	944	—	—
Series B-1 preferred stock, $0.0001 par value per share; 3,427,004 shares authorized, 1,579,043 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	9,106	—	—
Series B-2 preferred stock, $0.0001 par value per share; 3,062,891 shares authorized, no shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	—	—	—
Stockholders’ (deficit) equity:			
Common stock, $0.0001 par value per share; 27,000,000 shares authorized, 2,429,705 shares issued and outstanding, actual; 35,000,000 shares authorized, 13,189,391 shares issued and outstanding, pro forma; and 200,000,000 shares authorized, 18,189,391 shares issued and outstanding, pro forma as adjusted	1	3	3
Preferred stock, $0.0001 par value per share; no shares authorized, issued or outstanding, actual; 10,000,000 shares authorized, no shares issued or outstanding, pro forma and pro forma as adjusted	—	—	—
Additional paid-in capital	203	80,917	148,066
Accumulated deficit	(19,650)	(19,650)	(19,650)
Total stockholders’ (deficit) equity	(19,446)	61,270	128,419
Total capitalization	$ 495	$ 61,270	$ 128,419

(1) The pro forma as adjusted information set forth above is illustrative only and will change based on the actual initial public offering price and other terms of this offering determined at pricing. Each $1.00 increase or decrease in the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' (deficit) equity and total capitalization by approximately $4.7 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions payable by us. We may also increase or decrease the number of shares we are offering. Each 1,000,000 share increase or decrease in the number of shares offered by us would increase or decrease pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' (deficit) equity and total capitalization by approximately $14.0 million, assuming that the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions payable by us.

The number of shares of our common stock shown as issued and outstanding in the table above is based on 13,189,391 shares of our common stock (which includes 34,557 shares of restricted common stock subject to repurchase and the conversion of the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020) outstanding as of December 31, 2019 and excludes:

- 1,164,017 shares of our common stock issuable upon the exercise of options outstanding as of December 31, 2019, at a weighted-average exercise price of $0.35 per share;
- 1,147,434 shares of our common stock issuable upon the exercise of options approved subsequent to December 31, 2019, to be granted contingent and effective upon the execution of the underwriting agreement for this offering, at an exercise price equal to the initial public offering price per share;
- 985,619 shares of our common stock reserved for future issuance under our 2017 Stock Incentive Plan, as amended, or 2017 Plan, as of December 31, 2019, which reflects an amendment effected in March 2020 to increase the number of authorized shares under the 2017 Plan by 921,531 shares;
- 1,002,874 shares of our common stock reserved for future issuance pursuant to our 2020 Equity Incentive Plan, or 2020 Plan, (which does not give effect to the grant of 1,147,434 shares of common stock issuable upon the exercise of stock options that will be granted contingent and effective upon the execution of the underwriting agreement for this offering) which will become effective upon the execution of the underwriting agreement related to this offering, as well as any shares underlying options outstanding under the 2017 Plan that expire or otherwise terminate prior to exercise after the effective date of the 2020 Plan and any shares reserved pursuant to provisions in our 2020 Plan that automatically increase the number of shares of common stock reserved for issuance under the 2020 Plan; and
- 182,341 shares of our common stock reserved for future issuance under our 2020 Employee Stock Purchase Plan, or ESPP, which will become effective upon the execution of the underwriting agreement related to this offering, as well as any shares reserved pursuant to provisions in the ESPP that automatically increase the number of shares of common stock reserved for issuance under the ESPP.

DILUTION

If you invest in our common stock, your interest will be diluted to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock immediately after the closing of this offering.

Our historical net tangible book value as of December 31, 2019 was $(20.1) million, or $(8.25) per share of common stock. Our historical net tangible book value is the amount of our total tangible assets less our liabilities and preferred stock, which is not included within stockholders' deficit. Historical net tangible book value per share is our historical net tangible book value divided by the number of shares of common stock outstanding as of December 31, 2019.

Our pro forma net tangible book value as of December 31, 2019 was $60.7 million, or $4.60 per share of common stock. Pro forma net tangible book value per share is our pro forma net tangible book value divided by the total number of shares of common stock (which includes 34,557 shares of restricted common stock subject to repurchase) outstanding as of December 31, 2019, after giving effect to (1) the issuance and sale of 4,169,822 shares of Series C preferred stock and the receipt of net proceeds of $55.8 million in March 2020 and (2) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 10,725,129 shares of our common stock upon the closing of this offering.

Our pro forma as adjusted net tangible book value is our pro forma net tangible book value, after giving further effect to the sale of 5,000,000 shares of common stock in this offering at an assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Our pro forma as adjusted net tangible book value as of December 31, 2019 was $138.8 million, or $7.63 per share of common stock. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $3.03 per share to our existing stockholders and an immediate dilution of $7.37 per share to new investors participating in this offering. We determine dilution per share to new investors by subtracting pro forma as adjusted net tangible book value per share after this offering from the assumed initial public offering price per share paid by new investors.

The following table illustrates this dilution on a per share basis to new investors:

Assumed initial public offering price per share		$15.00
Historical net tangible book value per share as of December 31, 2019	$ (8.25)	
Increase per share attributable to the pro forma adjustments described above	12.85	
Pro forma net tangible book value per share as of December 31, 2019	4.60	
Increase in pro forma net tangible book value per share attributed to new investors purchasing shares from us in this offering	3.03	
Pro forma as adjusted net tangible book value per share after giving effect to this offering		7.63
Dilution per share to new investors participating in this offering		$ 7.37

The dilution information discussed above is illustrative only and will change based on the actual initial public offering price and other terms of this offering determined at pricing. Each $1.00 increase or decrease in the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease the pro forma as adjusted net tangible book value per share by $0.26 per share and the dilution per share to investors participating in this offering by $0.74 per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us. We may also increase or decrease the number of shares we are offering. Each 1,000,000 share increase in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase the pro forma as adjusted net tangible book

value per share by $0.33 and decrease the dilution per share to investors participating in this offering by $0.33, assuming the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us. Each 1,000,000 share decrease in the number of shares offered by us, as set forth on the cover page of this prospectus, would decrease the pro forma as adjusted net tangible book value per share after this offering by $0.37 and increase the dilution per share to new investors participating in this offering by $0.37, assuming the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us.

If the underwriters exercise in full their option to purchase an additional 750,000 shares of our common stock in this offering, the pro forma as adjusted net tangible book value would increase to $7.88 per share, representing an immediate increase to existing stockholders of $3.28 per share and the dilution per share to new investors participating in this offering would be $7.12 per share, assuming the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us.

The following table summarizes as of December 31, 2019, on the pro forma as adjusted basis described above, the number of shares of our common stock, the total consideration and the average price per share (1) paid to us by our existing stockholders and (2) to be paid by investors purchasing our common stock in this offering at an assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	SHARES PURCHASED		TOTAL CONSIDERATION		WEIGHTED-AVERAGE PRICE PER SHARE
	NUMBER	PERCENT	AMOUNT	PERCENT	
Existing stockholders	13,189,391	72.5%	$ 78,535,300	51.2%	$ 5.95
New investors	5,000,000	27.5	75,000,000	48.8	$ 15.00
Total	18,189,391	100.0%	$153,535,300	100.0%	

Each $1.00 increase or decrease in the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease the total consideration paid by investors in this offering by approximately $5.0 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us. We may also increase or decrease the number of shares we are offering. Each 1,000,000 share increase or decrease in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase or decrease the total consideration paid by investors in this offering by approximately $15.0 million, assuming the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us.

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters exercise in full their option to purchase 750,000 additional shares from us, the number of shares held by the existing stockholders after this offering would be reduced to 69.6% of the total number of shares of our common stock outstanding after this offering, and the number of shares held by new investors would increase to 30.4% of the total number of shares of our common stock outstanding after this offering.

The tables and calculations above are based on 13,189,391 shares of our common stock outstanding (which includes 34,557 shares of restricted common stock subject to repurchase and the conversion of the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020) as of December 31, 2019 and excludes:

- 1,164,017 shares of our common stock issuable upon the exercise of options outstanding as of December 31, 2019, at a weighted-average exercise price of $0.35 per share;
- 1,147,434 shares of our common stock issuable upon the exercise of option approved subsequent to December 31, 2019, to be granted contingent and effective upon the execution of the underwriting agreement for this offering, at an exercise price equal to the initial public offering price per share;
- 985,619 shares of our common stock reserved for future issuance under our 2017 Stock Incentive Plan, as amended, or 2017 Plan, as of December 31, 2019, which reflects an amendment effected in March 2020 to increase the number of authorized shares under the 2017 Plan by 921,531 shares;
- 1,002,874 shares of our common stock reserved for future issuance pursuant to our 2020 Equity Incentive Plan, or 2020 Plan, (which does not give effect to the grant of 1,147,434 shares of common stock issuable upon the exercise of stock options that will be granted contingent and effective upon the execution of the underwriting agreement for this offering) which will become effective upon the execution of the underwriting agreement related to this offering, as well as any shares underlying options outstanding under the 2017 Plan that expire or otherwise terminate prior to exercise after the effective date of the 2020 Plan and any shares reserved pursuant to provisions in our 2020 Plan that automatically increase the number of shares of common stock reserved for issuance under the 2020 Plan; and
- 182,341 shares of our common stock reserved for future issuance under our 2020 Employee Stock Purchase Plan, or ESPP, which will become effective upon the execution of the underwriting agreement related to this offering, as well as any shares reserved pursuant to provisions in the ESPP that automatically increase the number of shares of common stock reserved for issuance under the ESPP.

To the extent that any outstanding options are exercised, or new shares are issued under our equity incentive plans at per share prices below the price to the public in this offering, there will be further dilution to investors participating in this offering. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables set forth our selected consolidated financial data for the periods ended on and as of the dates indicated. We derived the selected consolidated statements of operations data for the years ended December 31, 2018 and 2019 and the selected consolidated balance sheet data as of December 31, 2018 and 2019 from our audited consolidated financial statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results to be expected in any future period.

The selected consolidated financial data below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this prospectus. The selected consolidated financial data in this section are not intended to replace the consolidated financial statements and are qualified in their entirety by our consolidated financial statements and related notes included elsewhere in this prospectus.

	YEAR ENDED DECEMBER 31,	
	2018	2019
	(in thousands, expect share and per-share data)	
Consolidated Statement of Operations Data:		
Revenue:		
Research collaboration revenue	$ 10,000	$ 10,000
Total revenue	10,000	10,000
Operating expenses:		
Research and development	(10,111)	(17,379)
General and administrative	(1,580)	(3,184)
Total operating expenses	(11,691)	(20,563)
Loss from operations	(1,691)	(10,563)
Other income, net:		
Interest income (expense), net	6	(8)
Research and development incentive income	370	558
Change in fair value of preferred stock tranche liability	(43)	(2,564)
Other income, net	280	241
Total other income (expense), net	613	(1,773)
Loss before income taxes	(1,078)	(12,336)
Income tax provision	(257)	—
Net loss	$ (1,335)	$ (12,336)
Net loss attributable to common stockholders—basic and diluted	$ (2,346)	$ (14,136)
Net loss per share attributable to common stockholders—basic and diluted	$ (1.08)	$ (6.08)
Weighted average common stock outstanding—basic and diluted	2,174,514	2,326,857
Pro forma net loss per share attributable to common stockholders—basic and diluted(1)		$ (1.39)
Pro forma weighted average common stock outstanding—basic and diluted(1)		8,882,168

(1) The information presented in this table does not give effect to our issuance and sale of 4,169,822 shares of Series C preferred stock in March 2020. See Note 12 to our consolidated financial statements appearing at the end of this prospectus for further details on the calculation of basic and diluted net loss per share attributable to common stockholders.

	YEAR ENDED DECEMBER 31,	
	2018	2019
	(in thousands)	
Consolidated Balance Sheet Data:		
Cash and cash equivalents	$ 23,259	$ 7,020
Working capital(1)	14,062	4,441
Total assets	27,412	10,955
Total liabilities	14,654	10,460
Convertible preferred stock	19,941	19,941
Total stockholders' (deficit) equity	(7,183)	(19,446)

(1) Working capital is defined as current assets less current liabilities.

Recent Developments

In March 2020, we issued and sold 4,169,822 shares of Series C preferred stock and received net proceeds of $55.8 million.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with "Selected Consolidated Financial Data" and our consolidated financial statements and the related notes included elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this prospectus, our actual results could differ materially from the results described in or implied by these forward-looking statements. You should carefully read the "Risk Factors" section of this prospectus to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section entitled "Special Note Regarding Forward-Looking Statements".

Overview

We are a clinical-stage biopharmaceutical company focused on the discovery, development and commercialization of novel treatments for patients suffering from hematological and musculoskeletal disorders with high unmet medical need. We are a leader in understanding the role of the Transforming Growth Factor-Beta, or TGF-ß, family of proteins, which are master regulators of red blood cell and platelet production as well as of the growth, repair and maintenance of muscle and bone. We have leveraged this understanding and developed a discovery approach to generate large and small molecules to address diseases of these tissues. Targeting TGF-ß signaling pathways has been clinically proven to elicit robust changes in blood cells, muscle and bone, which we believe provides a precedent and strong rationale for our strategy. Our lead protein therapeutic product candidate, KER-050, is being developed for the treatment of low blood cell counts, or cytopenias, including anemia and thrombocytopenia, in patients with myelodysplastic syndromes, or MDS, and with myelofibrosis. We have observed positive results in a Phase 1 clinical trial of KER-050, and we plan to initiate Phase 2 clinical trials, one in patients with MDS and one in patients with myelofibrosis. Our lead small molecule product candidate, KER-047, is being developed for the treatment of anemia resulting from elevated levels of hepcidin, the key regulator of iron absorption and recycling, as well as for the treatment of fibrodysplasia ossificans progressiva, a rare musculoskeletal order, and is currently in a Phase 1 clinical trial. Our third product candidate, KER-012, is being developed for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of pulmonary arterial hypertension. We plan to progress KER-012 into a Phase 1 clinical trial in the second half of 2021. We believe these product candidates offer substantial opportunities for us to expand our development programs into related hematological and musculoskeletal disorders with high unmet medical need.

Since our inception in 2015, we have devoted the majority of our efforts into business planning, research and development of our product candidates, including by conducting clinical trials and preclinical studies, raising capital and recruiting management and technical staff to support these operations. To date, we have not generated any revenue from product sales as none of our product candidates have been approved for commercialization. We have historically financed our operations primarily through the sale of convertible preferred stock and cash received from licensing agreements.

We have incurred recurring losses since our inception, including net losses of $1.3 million and $12.3 million for the years ended December 31, 2018 and 2019, respectively. In addition, as of December 31, 2019, we had an accumulated deficit of $19.7 million. We expect to continue to generate operating losses and negative operating cash flows for the foreseeable future if and as we:

- continue the research and development of our product candidates;
- initiate clinical trials for, or additional preclinical development of, our product candidates;
- further develop and refine the manufacturing processes for our product candidates;
- change or add manufacturers or suppliers of product candidate materials;
- seek regulatory and marketing authorizations for any of our product candidates that successfully complete development;
- seek to identify and validate additional product candidates;

- acquire or license other product candidates, technologies or biological materials;
- make milestone, royalty or other payments under any current or future license agreements;
- obtain, maintain, protect and enforce our intellectual property portfolio;
- seek to attract and retain new and existing skilled personnel;
- create additional infrastructure to support our operations as a public company and incur increased legal, accounting, investor relations and other expenses; and
- experience delays or encounter issues with any of the above.

We will not generate any revenue from product sales unless and until we successfully complete clinical development and obtain regulatory approval for one or more of our product candidates. If we obtain regulatory approval for any of our product candidates, we expect to incur significant expenses related to developing our internal commercialization capability to support product sales, marketing and distribution.

As a result, we will need substantial additional funding to support our operating activities as we advance our product candidates through clinical development, seek regulatory approval and prepare for and, if any of our product candidates are approved, proceed to commercialization. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operating activities through a combination of equity offerings, debt financings, and license and development agreements in connection with any future collaborations. Adequate funding may not be available to us on acceptable terms, or at all.

If we are unable to obtain funding, we will be forced to delay, reduce or eliminate some or all of our research and development programs, product portfolio expansion or commercialization efforts, which could adversely affect our business prospects, or we may be unable to continue operations. Although we continue to pursue these plans, there is no assurance that we will be successful in obtaining sufficient funding on terms acceptable to us to fund continuing operations, if at all.

As of December 31, 2019, we had cash and cash equivalents of $7.0 million. We believe that the net proceeds from this offering, together with our existing cash and cash equivalents, will be sufficient to fund our operating expenses and capital expenditure requirements into the second half of 2022. See "— Liquidity and Capital Resources."

Licensing Agreements

2016 Exclusive Patent License Agreement with The General Hospital Corporation

In April 2016, we entered into an exclusive patent license agreement with The General Hospital Corporation, or MGH, and such agreement was subsequently amended in May 2017 and February 2018. Under the license agreement with MGH, or the MGH Agreement, we obtained an exclusive, worldwide license, with the right to sublicense, under certain patents and technical information of MGH, to make, have made, use, have used, sell, have sold, lease, have leased, import, have imported or otherwise transfer licensed products and processes for use in the treatment, diagnosis, palliation and prevention of diseases and disorders in humans and animals. We are required to use commercially reasonable efforts to develop and commercialize licensed products and processes, and must achieve certain required diligence milestones.

Under the terms of the MGH Agreement, we made an initial license payment of $0.1 million in 2016 and reimbursed MGH approximately $0.3 million of prior patent prosecution expenses related to the licensed patents in 2017. We also issued MGH an aggregate of 358,674 shares of our common stock. Additionally, we are required to pay a nominal annual maintenance fee prior to the first commercial sale of our first product or process, a mid-five digit annual maintenance fee after the first commercial sale of our first product or process that is creditable against royalties, certain clinical and regulatory milestone payments for the first three products or indications to achieve such milestones, which milestone payments are $8.6 million in the aggregate, and certain commercial milestone payments for the first three products or indications to achieve such milestones, which milestone payments are $18.0 million in the aggregate. We are also obligated to pay tiered royalties on net sales of licensed products ranging in the low-single digits to mid-single digits. The royalty rates are subject to up to a maximum 50% reduction for lack of a valid claim, in the event that it is necessary for us to obtain a license to any third-party intellectual property related to the licensed products, and generic competition. The obligation to pay royalties under the MGH Agreement

expires on a licensed product-by-licensed product and country-by-country basis upon the later of expiry of the last valid claim of the licensed patents that cover such licensed product in such country and ten years from the first commercial sale of such product in such country. We are also obligated to pay a percentage of non-royalty-related payments received by us from sublicensees ranging in the sub-teen double digits and a change of control fee equal to a low-single digit percentage of the payments received as part of any completed transaction up to a low-seven digit amount.

2017 Research Collaboration and Exclusive License Agreement with Novo Nordisk A/S

In December 2017, we entered into a research collaboration and exclusive license agreement with Novo Nordisk A/S, or Novo Nordisk. Under the agreement with Novo Nordisk, or the Novo Nordisk Agreement, we are collaborating with Novo Nordisk on research and development of fusion molecules consisting of a ligand binder present as part of a larger molecule, or ligand traps. Pursuant to the Novo Nordisk Agreement, Novo Nordisk had the right to select a prespecified number of ligand traps for further development and commercialization by Novo Nordisk. Following execution, Novo Nordisk selected one existing ligand trap to further develop and commercialize and prior to the completion of the two year research program, selected a second ligand trap arising from the collaboration.

Under the terms of the Novo Nordisk Agreement, we received $20.0 million in 2018, $16.0 million of which represented the initial license fee and $4.0 million of which related to research funding ($2.0 million for each year of the two-year research program). Additionally, we are eligible to receive certain clinical and regulatory milestone payments for the first product, for which milestone payments are $176.0 million in the aggregate, assuming the first product achieves such milestones in three indications, certain clinical and regulatory milestone payments for the second and third products, for which milestone payments are $145.5 million in the aggregate for each product, assuming each of the second and third products achieves such milestones in three indications, and certain commercial milestone payments, for which milestone payments are $70.0 million in the aggregate. We are also eligible to receive a mid-single digit royalty on net sales of licensed products, which include combination products. The royalty rates may be reduced up to a specified percentage in the event that Novo Nordisk's commercialization of resulting products requires obtaining a license from a third-party to avoid infringement of third-party patents. Novo Nordisk's obligation to pay royalties to us under the Novo Nordisk Agreement expires on a licensed product-by-licensed product and country-by-country basis upon the later of expiry of the last valid claim of certain specified patents that cover such licensed product in such country and a number of years in the sub-teen double digits from first commercial sale of such product in such country.

Components of Our Results of Operations

Revenue

To date, we have not generated any revenue, and do not expect to generate any revenue in the foreseeable future, from product sales. We have generated revenue solely from the Novo Nordisk Agreement. We may in the future generate revenue from other strategic collaborations.

Operating Expenses

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for our research activities, including our discovery efforts and the development of our product candidates, and include:

- salaries, benefits and other related costs, including stock-based compensation expense, for personnel engaged in research and development functions;
- license fees incurred in connection with license agreements;
- the cost of laboratory supplies and acquiring, developing and manufacturing preclinical study materials;
- facility-related expenses, which include direct depreciation costs and allocated expenses for rent and maintenance of facilities and other operating costs;
- cost of outside consultants, including their fees and related travel expenses, engaged in research and development functions;
- expenses related to regulatory affairs; and
- fees related to our scientific advisory board.

We expense research and development costs as incurred. Costs for external development activities are recognized based on an evaluation of the progress to completion of specific tasks using information provided to us by our vendors. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of costs incurred, and are reflected in our consolidated financial statements as prepaid or accrued research and development expenses. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses and expensed as the related goods are delivered or the services are performed.

Research and development activities are central to our business model. We expect that our research and development expenses will continue to increase for the foreseeable future as we initiate clinical trials for our product candidates and continue to discover and develop additional product candidates. If any of our product candidates enter into later stages of clinical development, they will generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. There are numerous factors associated with the successful commercialization of any product candidates we may develop in the future, including future trial design and various regulatory requirements, many of which cannot be determined with accuracy at this time based on our stage of development. Additionally, future commercial and regulatory factors beyond our control will impact our clinical development program and plans.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and other related costs, including stock-based compensation, for personnel in our executive, finance, corporate and business development and administrative functions. General and administrative expenses also include professional fees for legal, patent, accounting, information technology, auditing, tax and consulting services, travel expenses and facility-related expenses, which include direct depreciation costs and allocated expenses for rent and maintenance of facilities and other operating costs.

We expect that our general and administrative expenses will increase in the future as we increase our headcount to support our continued research and development and potential commercialization of our product candidates. We also expect to incur increased expenses associated with being a public company, including costs of accounting, audit, legal, regulatory and tax compliance services, director and officer insurance costs, and investor and public relations costs.

Other Income, Net

Interest Income (Expense), Net

Interest income (expense), net primarily consists of interest earned on money market accounts. Our interest income has not been significant to date.

Research and Development Incentive Income

Research and development incentive income includes payments under the Research and Development Incentive Program, or the R&D Incentive from the Australian government. The R&D Incentive is one of the key elements of the Australian government's support for Australia's innovation system and was developed to assist businesses recover some of the costs of undertaking research and development. The R&D Incentive provides tax offsets to eligible companies that engage in research and development activities and has two core components:

- 43.5% refundable tax offset for certain eligible research and development entities with an aggregated turnover of less than $20.0 million per annum; and
- 38.5% non-refundable tax offset for all other eligible research and development entities. Unused offset amounts may be able to be carried forward for use in future income years.

We have assessed our research and development activities and expenditures to determine which activities and expenditures are likely to be eligible under the R&D Incentive. At each period end we estimate the refundable tax offset available to us based on available information at the time. This estimate is also reviewed by our external tax advisors on an annual basis. We recognize the amount we expect to be reimbursed for qualified expenses as income.

Other Income, Net

Other income, net primarily consists of dividend income earned on money market fund accounts.

Change in Fair Value of Preferred Stock Tranche Obligation

The change in fair value of our preferred stock tranche obligation fluctuates based on remeasurements at each reporting period. Our preferred stock tranche obligation stems from our obligation to issue additional shares to investors upon the closing of additional tranches of preferred stock. Upon the closing of this offering, this liability will be settled as all of the preferred stock will convert into common stock. Until settlement, fluctuations in the fair value of our preferred stock tranche obligation are based on the remeasurement at each reporting period.

Results of Operations

Comparison for the years ended December 31, 2018 and 2019

The following table summarizes our results of operations for the years ended December 31, 2018 and 2019 (in thousands):

	YEAR ENDED DECEMBER 31,	
	2018	2019
Revenue		
Research collaboration revenue	$ 10,000	$ 10,000
Total revenue	10,000	10,000
Operating expenses:		
Research and development	(10,111)	(17,379)
General and administrative	(1,580)	(3,184)
Total operating expenses	(11,691)	(20,563)
Loss from operations	(1,691)	(10,563)
Other income, net:		
Interest income (expense), net	6	(8)
Research and development incentive income	370	558
Change in fair value of preferred stock tranche obligation	(43)	(2,564)
Other income, net	280	241
Total other income (expense), net	613	(1,773)
Loss before income taxes	(1,078)	(12,336)
Income tax provision	(257)	—
Net loss	$ (1,335)	$ (12,336)

Revenue

Our revenue for the years ended December 31, 2018 and 2019 is entirely related to the upfront payment of $16.0 million and annual collaboration fees of $2.0 million per year received as part of the Novo Nordisk Agreement, whereby we granted Novo Nordisk an exclusive license to develop and commercialize the licensed products listed under that agreement and Novo Nordisk granted us a non-exclusive license to its applicable intellectual property so that we could perform the activities we are responsible for, as stated in the Novo Nordisk Agreement. We recognized $10.0 million of the revenue over the two-year term of the Novo Nordisk Agreement in each of 2018 and 2019, in accordance with our pattern of performance of the research and development activities required under the Novo Nordisk Agreement.

Research and Development Expenses

The following table summarizes our research and development expenses for the years ended December 31, 2018 and 2019 (in thousands):

	YEAR ENDED DECEMBER 31,		INCREASE/
	2018	2019	(DECREASE)
Personnel expenses (including share-based compensation)	$ 1,660	$ 3,637	$ 1,977
Preclinical and development expenses	6,646	11,266	4,620
Facilities and supplies	1,434	1,409	(25)
Professional fees	180	780	600
Other expenses	191	287	96
	$ 10,111	$ 17,379	$ 7,268

Research and development expenses were $17.4 million for the year ended December 31, 2019, compared to $10.1 million for the year ended December 31, 2018. The increase of $7.3 million was primarily due to a $4.6 million increase in the costs related to our Phase 1 clinical trial of KER-050, as well as an increase of $2.0 million in personnel costs from the increased headcount required to support our Phase 1 clinical trial progress in 2019.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the years ended December 31, 2018 and 2019 (in thousands):

	YEAR ENDED DECEMBER 31,		
	2018	2019	INCREASE
Personnel expenses (including stock-based compensation)	$ 947	$ 1,458	$ 511
Facilities and supplies	300	469	$ 169
Legal and professional fees	212	1,090	$ 878
Other expenses	121	167	46
	$ 1,580	$ 3,184	$ 1,604

General and administrative expenses were $3.2 million for the year ended December 31, 2019, compared to $1.6 million for the year ended December 31, 2018. The increase of $1.6 million was primarily due to a $0.9 million increase in professional fees, as well as a $0.5 million increase in personnel expenses stemming from an increase in headcount to support our growth as we move towards becoming a public company.

Research and Development Incentive Income

Income related to the R&D Incentive was $0.6 million for the year ended December 31, 2019, compared to $0.4 million for the year ended December 31, 2018. The increase of $0.2 million was primarily due to an increase in research and development spending in Australia.

Other Income (Expense), Net

Other income (expense), net was ($1.8) million for the year ended December 31, 2019, compared to $0.6 million for the year ended December 31, 2018. The decrease of $2.4 million is related to the increase in the fair value of the preferred stock tranche obligation from $2.4 million as of December 31, 2018 to $5.0 million as of December 31, 2019, which was driven by the increase in the value of our preferred stock.

Liquidity and Capital Resources

As of December 31, 2019, we have raised $22.4 million from the sale of convertible preferred stock, which we have used to fund our operations. In March 2020, we issued and sold 4,169,822 shares of Series C preferred stock for net proceeds of $55.8 million. Additionally, pursuant to the Novo Nordisk Agreement, we received a $16.0 million

upfront payment as well as an additional $2.0 million research collaboration budget payment for each year of the collaboration, or $4.0 million total. The $2.0 million payment for the 2017 collaboration year was received in 2018. As of December 31, 2019, we had cash and cash equivalents of $7.0 million. As of February 21, 2020, we expect that our existing cash and cash equivalents of $3.6 million, which does not include the $55.8 million of net proceeds we received in March 2020 from our Series C financing, will be sufficient to fund our operating expenses and capital expenditure requirements into the second quarter of 2020. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we expect.

Our primary uses of cash are to fund operating expenses, primarily research and development expenditures. Cash used to fund operating expenses is impacted by the timing of when we pay these expenses, as reflected in the change in our outstanding accounts payable and accrued expenses. We currently have no ongoing material financing commitments, such as lines of credit or guarantees. We expect our expenses to increase in connection with our ongoing activities, particularly as we continue the research and development of, continue or initiate clinical trials of, and seek marketing approval for, our product candidates. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to program sales, marketing, manufacturing and distribution to the extent that such sales, marketing and distribution are not the responsibility of any future collaborators. Furthermore, following the completion of this offering, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce or eliminate our research and development programs or future commercialization efforts.

Our future capital requirements will depend on many factors, including:

- the scope, progress, results and costs of our ongoing and planned preclinical studies and clinical trials for KER-050, KER-047 and KER-012;
- the timing and amount of milestone and royalty payments we are required to make under the MGH Agreement or are eligible to receive under the Novo Nordisk Agreement;
- the extent to which we in-license or acquire other product candidates and technologies;
- the number and development requirements of other product candidates that we may pursue;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs associated with expanding our operations;
- the costs and timing of future commercialization activities, including drug manufacturing, marketing, sales and distribution, for any of our product candidates for which we receive marketing approval;
- the revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;
- our ability to establish strategic collaborations; and
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending any intellectual property-related claims.

Cash Flows

The following table summarizes our cash flows for the years ended December 31, 2018 and 2019 (in thousands):

	YEAR ENDED DECEMBER 31,	
	2018	2019
Net cash provided by (used in) operating activities	$ 7,042	$ (15,998)
Net cash used in investing activities	(217)	(271)
Net cash provided by financing activities	11,463	14
Net increase in cash and cash equivalents, and restricted cash	$ 18,288	$ (16,255)

Operating Activities

During the year ended December 31, 2018, operating activities provided $7.0 million of cash, primarily from a cash receipt of $20.0 million from Novo Nordisk related to the Novo Nordisk Agreement that was previously included in

prepaid expenses and other current assets. Of the $20.0 million received, $16.0 million was the upfront payment for the Novo Nordisk Agreement and $4.0 million was related to the collaboration payments due from Novo Nordisk for both 2017 and 2018, as all cash was received in 2018. This cash inflow was partially offset by a $10.0 million decrease in deferred revenue related to the portion of the Novo Nordisk Agreement upfront payment that was recognized as revenue in 2018. The inflow was also offset by other changes in our operating assets and liabilities including a $0.6 million increase in the R&D Incentive receivable relating to refunds for qualified research and development spending during the year as well as a $0.2 million non-cash expense for our non-cash lease expense related to our right-of-use asset and a $0.2 million decrease in our corresponding operating lease liability.

During the year ended December 31, 2019, cash used in operating activities was $16.0 million, primarily stemming from a $10.0 million decrease in deferred revenue for the portion of the Novo Nordisk payment recognized as revenue in 2019, as well as a $0.6 million increase in our R&D Incentive receivable. The $16.0 million cash outflow was partially offset by a $2.5 million increase in accounts payable and accrued expenses, a $2.6 million increase in our preferred stock tranche obligation, and a $1.9 million decrease in prepaid and other current assets.

Investing Activities

During the years ended December 31, 2018 and 2019, we used $0.2 million and $0.3 million of cash, respectively, for investing activities related to purchases of property and equipment.

Financing Activities

During the year ended December 31, 2018, net cash provided by financing activities was $11.5 million, primarily from the net proceeds received from the issuance of Series B-1 preferred stock in November 2018.

Net cash provided by financing activities of less than $0.1 million during the year ended December 31, 2019 stemmed from exercises of options to purchase common stock.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations at December 31, 2019 and the effects of such obligations are expected to have on our liquidity and cash flow in future periods (in thousands):

	PAYMENTS DUE BY PERIOD				
	TOTAL	LESS THAN 1 YEAR	1 TO 3 YEARS	4 TO 5 YEARS	MORE THAN 5 YEARS
Operating lease commitments	$ 1,446	$ 468	$ 978	$ —	$ —
Loan for leasehold improvements	195	65	130	—	—
Total	$ 1,641	$ 533	$ 1,108	$ —	$ —

We have entered into an operating lease for rental space in Lexington, Massachusetts. The table above includes future minimum lease payments under the non-cancelable lease arrangement. A portion of the contractual obligations and commitments is related to the loan we received from the landlord of $0.2 million for leasehold improvements. This will be repaid in full by December 2022 when the lease expires, but principal payments became due in monthly installments beginning 18 months after the commencement of the lease, which was March 2017.

We may incur contingent payments upon our achievement of clinical, regulatory and commercial milestones, as applicable, or royalty payments that we are required to make under the MGH Agreement pursuant to which we have in-licensed certain intellectual property. Due to the uncertainty of the achievement and timing of the events requiring payment under these agreements, the amounts to be paid by us are not fixed or determinable at this time and are excluded from the table above. Under the terms of the MGH Agreement, we are obligated to pay MGH designated amounts when any licensed product achieves certain developmental milestones. Following the commencement of commercial sales of the licensed products, we will pay designated amounts when certain milestone events occur. The development milestones and commercial milestones range from $50,000 to $10.0 million depending upon the significance of the particular milestone. We are also required to pay MGH royalties on all sales of licensed products, with such royalties ranging from the low-single digits to mid-single digits

of sales, as well as royalties ranging in the low-double digits of sublicense income depending on the stage of development of the relevant product or process when the sublicense is granted. In conjunction with the execution of the MGH Agreement, we issued MGH five percent of our outstanding fully diluted capital on April 15, 2016, or 358,674 shares of common stock, for proceeds of less than $0.1 million.

Critical Accounting Policies and Significant Judgments and Estimates

This management's discussion and analysis of financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of our consolidated financial statements and related disclosures requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, costs and expenses and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in greater detail in Note 2 to our consolidated financial statements appearing at the end of this prospectus, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition

To date, our revenues have consisted solely of payments received related to the Novo Nordisk Agreement. We apply the revenue recognition guidance in accordance with Financial Accounting Standards Board Accounting Standards Codification Subtopic 606, Revenue from Contracts with Customers, or ASC 606, which was adopted January 1, 2018 using the full retrospective method. Under ASC 606, we recognize revenue when our customers obtain control of promised goods or services, in an amount that reflects the consideration which we expect to receive in exchange for those goods or services.

To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, we perform the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) we satisfy each performance obligation. We only apply the five-step model to contracts when it is probable that we will collect consideration we are entitled to in exchange for the goods or services we transfer to our customer. All variable consideration, including milestones and royalties, is constrained until the cumulative revenue related to the consideration is no longer probable of reversal.

The consideration allocated to each performance obligation is recognized as revenue when control is transferred for the related goods or services. For performance obligations which consist of licenses and other promises, we utilize judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress. We evaluate the measure of progress each reporting period and, if necessary, adjust the measure of performance and related revenue recognition. We currently measure progress according to the expenditure of research and development efforts, based on costs incurred, as this is the best indicator of performance.

We receive payments from our customers based on billing schedules established in each contract. Upfront payments and fees are recorded as deferred revenue upon receipt or when due until we satisfy our obligations under these arrangements. Amounts are recorded as accounts receivable when our right to consideration is unconditional.

Accrued Research and Development Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our accrued research and development expenses. We make estimates of our accrued expenses as of each balance sheet date in the consolidated financial statements based on facts and circumstances known to us at that time. There may be

instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust the accrual or the amount of prepaid expenses accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period. To date, there have not been any material adjustments to our prior estimates of accrued research and development expenses.

Preferred Stock Tranche Obligation

The initial fair value of the preferred stock tranche obligation recognized in connection with our issuances of convertible preferred stock in April 2016, August 2016, and November 2018 was determined based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. The initial fair value of the obligation was estimated based on results of a third-party valuation performed in connection with the initial issuances. This obligation is remeasured prior to the issuance of subsequent tranches, and at each subsequent reporting period. See Note 8 to our annual consolidated financial statements included elsewhere in this prospectus for additional information regarding our issuances of preferred stock.

The tranche obligation was determined using the binomial pricing model, which takes into account the probability of both achievement and failure to achieve the tranche milestones and issue the subsequent shares. The binomial pricing model calculates the tranche obligation as the difference between the expected value of the Series B-1/B-2 Preferred Stock at the time the tranche milestone is met and the contractual purchase price for the tranche shares, and then discounts this value back to the initial issuance date. In determining the fair values of the tranche obligations, estimates and assumptions impacting fair value include the estimated future values of the Company's Series B-1/B-2 Preferred Stock, discount rates, estimated time to liquidity, and probability of each tranche closing. The Company determined the per share future value of the Series B-1/B-2Preferred Stock by back-solving to the initial proceeds of the financings. The Company remeasured each tranche obligation at each reporting period and prior to settlement. The purchase price of the preferred stock at initial issuance, and all subsequent issuances was higher than the fair value of the Company's common stock.

Stock-Based Compensation

We account for all stock-based compensation awards granted to employees and non-employees as stock-based compensation expense at fair value. Our stock-based payments include stock options and grants of common stock, including common stock subject to vesting. The measurement date for awards is the date of grant, and stock-based compensation costs are recognized as expense over the requisite service period, which is generally the vesting period, on a straight-line basis. Stock-based compensation expense is classified in the accompanying statements of operations based on the function to which the related services are provided. We recognize stock-based compensation expense for the portion of awards that have vested. Forfeitures are recorded as they occur. The fair value of each stock option grant is estimated on the date of grant using the Black-Scholes option-pricing model.

Determination of the Fair Value of Common Stock

As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by management and approved by our board of directors, utilizing the Company's enterprise value determined by a third-party valuation expert, and in accordance with the guidance outlined in the American Institute of Certified Public Accountants Technical Practice Aid, Valuation of Privately-Held-Company Equity Securities Issued as Compensation.

Our management considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold shares of preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- the progress of our research and development programs, including the status and results of preclinical studies for our product candidates;
- our stage of development and commercialization and our business strategy;

- external market conditions affecting the biopharmaceutical industry and trends within the biopharmaceutical industry;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an initial public offering, or IPO, or sale of our company in light of prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in the biopharmaceutical industry.

The assumptions underlying these valuations represented management's best estimate, which involved inherent uncertainties and the application of management's judgment. As a result, if we had used different assumptions or estimates, the fair value of our common stock and our stock-based compensation expense could have been materially different.

Options Granted

The following table sets forth, by grant date, the number of shares subject to options granted from January 1, 2018 through December 31, 2019, the exercise price per common share of the options, the fair value per common share on each grant date, and the estimated per share fair value of the options:

GRANT DATE	NUMBER OF COMMON SHARES SUBJECT TO OPTIONS GRANTED	EXERCISE PRICE PER COMMON SHARE (1)	FAIR VALUE PER COMMON SHARE AT GRANT DATE (1)	ESTIMATED PER-SHARE FAIR VALUE OF OPTIONS (2)
March 26, 2018	591,008	$ 0.30	$ 0.30	$ 0.19
June 21, 2018	42,389	$ 0.30	$ 0.30	$ 0.19
September 17, 2018	50,682	$ 0.30	$ 0.30	$ 0.19
October 28, 2018	23,038	$ 0.30	$ 0.30	$ 0.19
June 12, 2019	85,241	$ 0.47	$ 0.47	$ 0.32
June 19, 2019	169,113	$ 0.47	$ 0.47	$ 0.32
July 22, 2019	59,897	$ 0.47	$ 0.47	$ 0.32
September 19, 2019	156,658	$ 0.47	$ 0.47	$ 0.32

(1) The exercise price per common share of options represents the fair value of our common stock on the date of grant, as determined by our board of directors, after taking into account our most recently available contemporaneous valuation of our common stock as well as additional factors that may have changed since the date of such contemporaneous valuation through the date of grant.

(2) The estimated fair value of options reflects the weighted average fair value of options granted on each grant date, determined using the Black-Scholes option-pricing model.

Off-Balance Sheet Arrangements

We have not entered into any off-balance sheet arrangements and do not have any holdings in variable interest entities.

Recently Issued Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 2 to our consolidated financial statements appearing at the end of this prospectus.

Quantitative and Qualitative Disclosures about Market Risks

We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate sensitivities.

Interest Rate Sensitivity

As of December 31, 2019, we had cash and cash equivalents of $7.0 million. Our exposure to interest rate sensitivity is impacted by changes in the underlying U.S. bank interest rates. Our surplus cash has been invested in

money market fund accounts as well as interest-bearing savings accounts from time to time. We have not entered into investments for trading or speculative purposes. Due to the conservative nature of our investment portfolio, which is predicated on capital preservation of investments with short-term maturities, we do not believe an immediate one percentage point change in interest rates would have a material effect on the fair market value of our portfolio, and therefore we do not expect our operating results or cash flows to be significantly affected by changes in market interest rates.

As of December 31, 2019, we had no debt outstanding that is subject to interest rate variability, as our only debt is related to our lease incentive allowance. Therefore, we are not subject to interest rate risk related to debt.

Emerging Growth Company Status

In April 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107 of the JOBS Act provides that an “emerging growth company” may take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. Therefore, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected to avail ourselves of this extended transition period and, as a result, we will not adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

In addition, as an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- reduced disclosure about the compensation paid to our executive officers;
- not being required to submit to our stockholders’ advisory votes on executive compensation or golden parachute arrangements;
- an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002; and
- an exemption from new or revised financial accounting standards until they would apply to private companies and from compliance with any new requirements adopted by the Public Company Accounting Oversight Board requiring mandatory audit firm rotation.

We may take advantage of these exemptions for up to the last day of the fiscal year ending after the fifth anniversary of this offering or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (1) the last day of the fiscal year in which we have total annual gross revenues of $1.07 billion or more; (2) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (3) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (4) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission. We may choose to take advantage of some but not all of these exemptions.

BUSINESS

Overview

We are a clinical-stage biopharmaceutical company focused on the discovery, development and commercialization of novel treatments for patients suffering from hematological and musculoskeletal disorders with high unmet medical need. We are a leader in understanding the role of the Transforming Growth Factor-Beta, or TGF-ß, family of proteins, which are master regulators of red blood cell and platelet production as well as of the growth, repair and maintenance of muscle and bone. We have leveraged this understanding and developed a discovery approach to generate large and small molecules to address diseases of these tissues. Targeting TGF-ß signaling pathways has been clinically proven to elicit robust changes in blood cells, muscle and bone, which we believe provides a precedent and strong rationale for our strategy. Our lead protein therapeutic product candidate, KER-050, is being developed for the treatment of low blood cell counts, or cytopenias, including anemia and thrombocytopenia, in patients with myelodysplastic syndromes, or MDS, and in patients with myelofibrosis. We have observed positive topline results in a Phase 1 clinical trial of KER-050, and we plan to initiate two Phase 2 clinical trials, one in patients with MDS and one in patients with myelofibrosis. Our lead small molecule product candidate, KER-047, is being developed for the treatment of anemia resulting from elevated levels of hepcidin, the key regulator of iron absorption and recycling, as well as for the treatment of fibrodysplasia ossificans progressiva, or FOP, a rare musculoskeletal disorder, and is currently in a Phase 1 clinical trial. Our third product candidate, KER-012, is being developed for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of pulmonary arterial hypertension, or PAH. We plan to progress KER-012 into a Phase 1 clinical trial in the second half of 2021. We believe these product candidates offer substantial opportunities for us to expand our development programs into related hematological and musculoskeletal disorders with high unmet medical need.

KER-050 is an engineered ligand trap comprised of a modified ligand-binding domain of the TGF-ß receptor known as activin receptor type IIA, or ActRIIA, that is fused to the portion of the human antibody known as the Fc domain. KER-050 is designed to increase red blood cell and platelet production by inhibiting the signaling of a subset of the TGF-ß family of proteins to promote hematopoiesis. We believe KER-050 has the potential to provide benefit to patients suffering from red blood cell and platelet differentiation and maturation defects occurring across the spectrum from early through terminal stages of hematopoiesis, and consequently may be effective for many patients that have limited treatment options or are refractory to available therapies. We recently completed a Phase 1 clinical trial evaluating the safety, tolerability and pharmacokinetics of KER-050 in healthy post-menopausal women. Data from the single ascending dose portion of this trial demonstrated rapid and sustained increases in red blood cells and hemoglobin through Day 84 at the highest dose evaluated, increases in circulating immature red blood cells, or reticulocytes, through Day 29 at the higher doses, increases in platelets of 30 x 10^9 cells/L or greater (a change that we believe would be considered clinically meaningful in patients with low platelet counts) at the highest dose evaluated, as well as favorable tolerability. We plan to commence a Phase 2 clinical trial in patients with MDS evaluating KER-050 for the treatment of cytopenias, including anemia and thrombocytopenia, in the second half of 2020. We also plan to commence a Phase 2 clinical trial evaluating KER-050 for the treatment of patients with myelofibrosis-associated cytopenias in 2021.

KER-047 is designed to selectively and potently inhibit activin receptor-like kinase-2, or ALK2, a TGF-ß receptor. We believe that KER-047 has the potential to ameliorate excessive ALK2 signaling, which is directly implicated in genetically-defined anemias and musculoskeletal disorders where the transformation of soft tissue into bone, referred to as heterotopic ossification, leads to devastating immobility. We are developing KER-047 for the treatment of anemia resulting from high hepcidin levels as a direct consequence of elevated ALK2 signaling, including our initial target, iron-refractory iron deficiency anemia, or IRIDA. We are also developing KER-047 as a treatment for FOP, a rare genetic disease resulting from mutations in the ALK2 receptor that results in gain-of-function activity. In these patients, soft tissue, including muscles and tendons, develops normally, but remodels into bone after injury. KER-047 is currently being evaluated in a Phase 1 clinical trial in healthy volunteers. We expect to complete the Phase 1 clinical trial in mid-2020, and to subsequently report data from this trial in the second half of 2020. We expect to commence a Phase 2 clinical trial in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, in the first half of 2021 and a Phase 2 clinical trial in patients with FOP in the first half of 2021.

KER-012 is designed to bind to and inhibit the signaling of TGF-ß ligands, including activin A and activin B, which are key regulators of bone remodeling that act to suppress bone growth, to potentially increase bone mass. We believe that KER-012 has the potential to increase the signaling of bone morphogenic protein, or BMP, pathways through this inhibition of activin A and activin B signaling, and consequently treat diseases such as PAH that are associated with reduced BMP signaling due to inactivating mutations in the BMP receptors. We are developing KER-012 for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH. We have generated preclinical data that we believe demonstrated proof-of-mechanism of KER-012 for the treatment of such bone loss disorders and PAH. We plan to advance KER-012 into a Phase 1 clinical trial in the second half of 2021.

Our strategy focuses on the role of members of the TGF-ß family of proteins in the development of blood cells, muscle and bone. Aged and damaged cells are routinely replaced by new cells in normally functioning organs. These new cells are derived from stem cells that have the ability to differentiate into cells with specialized function when appropriate signals are provided to maintain the homeostatic state of the tissue. Members of the TGF-ß family of proteins, including activins and bone morphogenetic proteins, or BMPs, provide the necessary signals for this process of self-renewal and repair.

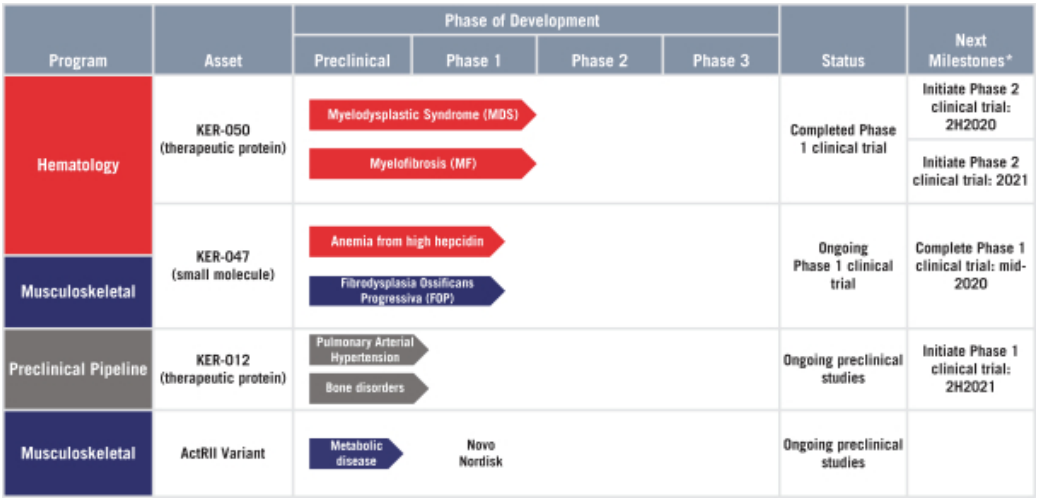
We seek to address the limitations of current therapeutic approaches to treating diseases whose manifestations are linked to dysfunction of TGF-ß signaling pathways by:

- Leveraging our comprehensive insights into the TGF-ß signaling pathways to discover therapeutics to treat hematological and musculoskeletal disorders.
- Expanding our library of proprietary molecules that are engineered to induce desired biological effects, such as increased blood cell production, inhibit heterotopic ossification and increased muscle and bone mass.
- Engineering proprietary molecules to selectively target specific proteins in the TGF-ß signaling pathways to provide therapeutic benefit while potentially minimizing safety risks.
- Developing product candidates for the treatment of diseases where targeting the TGF-ß signaling pathways has clinical validation or biological rationale to improve our probability of success in the clinic.
- Targeting the TGF-ß family of proteins, which are highly conserved throughout evolution, permitting the use of animal models to potentially predict with high confidence the therapeutic benefit in patients.

We are led by a highly experienced management team and scientific advisory board who have more than 100 combined years of research and development on therapeutics in the TGF-ß family of proteins. Our team has collectively worked on marketed therapeutics such as Reblozyl, Tecfidera, Kalydeco and Waylivra, and led drug discovery and clinical development at companies including Acceleron Pharma Inc., Biogen Inc., Wyeth Pharmaceuticals Inc., Seres Therapeutics, Inc., Vertex Pharmaceuticals Incorporated and Akcea Therapeutics, Inc.

Our Pipeline

The following table sets forth our product candidates, their current development stages and anticipated upcoming milestones.



* Anticipated clinical milestones are subject to the impact of COVID-19 on our business.

Our Strategy

Our mission is to deliver significant clinical benefit to patients suffering from hematological and musculoskeletal diseases by developing differentiated product candidates that are designed to alter TGF-ß signaling pathways. The key elements of our strategy include:

- *Rapidly advance the clinical development of KER-050 for the treatment of patients with MDS- and myelofibrosis-associated cytopenias.* We have generated positive topline data in a Phase 1 clinical trial of KER-050 in healthy post-menopausal women. We plan to commence a Phase 2 clinical trial evaluating KER-050 for the treatment of cytopenias, including anemia and thrombocytopenia, in patients with MDS in the second half of 2020. We also plan to commence a Phase 2 clinical trial evaluating the treatment of patients with myelofibrosis-associated cytopenias in 2021.
- *Rapidly advance the clinical development of KER-047 for the treatment of genetically-defined anemias and musculoskeletal disorders where heterotopic ossification leads to devastating immobility.* We are conducting a Phase 1 clinical trial in healthy volunteers to evaluate the safety and pharmacokinetic profiles of KER-047 and select biomarkers of iron mobilization. We expect to complete the Phase 1 clinical trial for KER-047 in mid-2020, and to subsequently report data from this trial in the second half of 2020. We expect to commence a Phase 2 clinical trial in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, and a Phase 2 clinical trial in patients with FOP in the first half of 2021. We also intend to develop KER-047 as a potential treatment option for patients who manifest anemia caused by high hepcidin levels as a secondary consequence of more common diseases.
- *Advance KER-012 into and through clinical development for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH*. We have generated preclinical data that we believe demonstrated proof-of-mechanism of KER-012 for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH. We plan to advance KER-012 into a Phase 1 clinical trial in the second half of 2021.
- *Pursue development and, if approved, commercialization of our product candidates in indications and regions where we believe we can maximize their value independently or through strategic collaborations.* We plan to independently advance our product candidates in indications and regions that we believe have clearly defined regulatory paths and commercialization strategies. We intend to opportunistically evaluate strategic collaborations to maximize the potential commercial value of our product candidates and discovery programs.

- *Leverage our proprietary discovery approach and knowledge base to develop new therapeutics.* Our discovery efforts are focused on expanding our pipeline of wholly-owned assets for the treatment of hematological and musculoskeletal diseases. Accordingly, we intend to identify and develop product candidates to treat diseases where targeting the TGF-ß signaling pathways has clinical validation or biological rationale.

Our Hematology Program

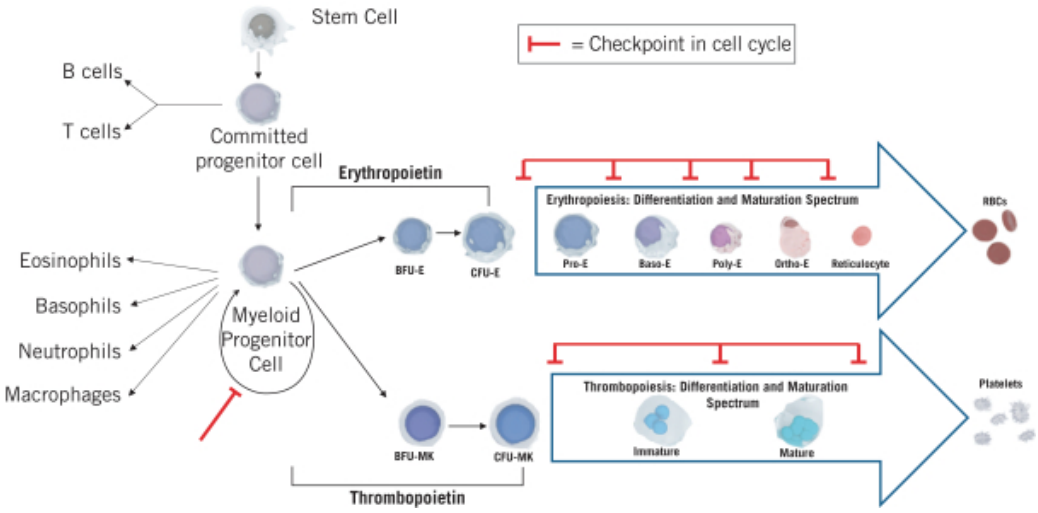
Our two lead product candidates, KER-050 and KER-047, are designed to target TGF-ß signaling pathways to address diseases that arise from ineffective hematopoiesis as well as anemias that result from elevated levels of hepcidin.

Hematopoiesis

The primary cellular components of blood are red blood cells, white blood cells and platelets. The function of red blood cells is to distribute oxygen to tissues throughout the body and to carry waste carbon dioxide back to the lungs. White blood cells are responsible for the immune response through coordinated surveillance and targeting of pathogens, infected or aberrant cells and cell debris. Platelets are a key component of the coagulation system and are responsible for stopping bleeding by forming a blood clot.

Hematopoiesis is the production of red blood cells, white blood cells and platelets from common progenitor stem cells, or progenitor cells. This process begins when a hematopoietic progenitor cell becomes committed to a specific cellular lineage. These cells progress through a series of intermediate stages before becoming a mature cell with a specialized function. At any given time, pools of each progenitor cell are maintained and primed to rapidly respond to a reduction of red blood cells, white blood cells and platelets. The graphic below depicts the stages of hematopoiesis for red blood cells and platelets.

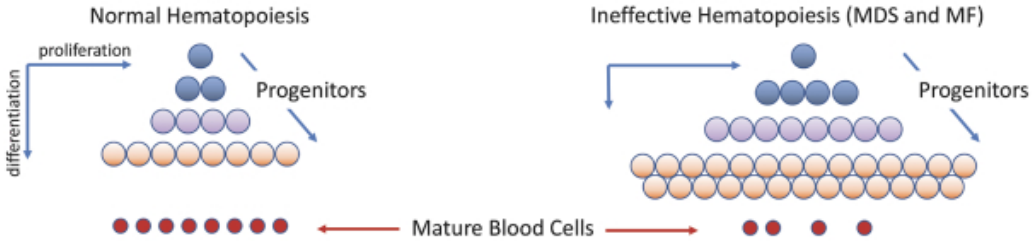
Stages of Hematopoiesis



TGF-ß signaling pathways involving activins prevent differentiation in order to maintain progenitor cells in a quiescent state while others involving BMPs promote differentiation of progenitor cells. Homeostasis of this process is essential to ensure all cell types are properly replenished in the blood.

In many hematological disorders, there is abnormal proliferation and differentiation of the progenitor cells for red blood cells, platelets and neutrophils. This failure to produce fully mature cells is termed ineffective hematopoiesis, and may be due to single or multiple defects that can lead to a hyperproliferation or a shortage of progenitor cells.

These changes have clinical consequences: a lack of red blood cells leads to anemia, a lack of platelets hampers clotting, resulting in increased incidence of bleeding events, and a lack of neutrophils increases susceptibility to infection. The failure of progenitor cells to differentiate can also lead to a build-up of these cells, resulting in bone marrow failure and fibrotic disease. The graphic below provides an illustration of the difference in the number of progenitor cells and mature bloods cells that are produced in normal hematopoiesis and in ineffective hematopoiesis.



Another critical component in red blood cell development is the production of hemoglobin, an iron-containing protein that delivers oxygen to cells and removes carbon dioxide. The synthesis of hemoglobin requires that sufficient levels of iron are present in the bone marrow and if iron levels are too low, it can result in a failure to produce sufficient numbers of red blood cells. Anemia is a common consequence of diseases where normal iron mobilization is hindered.

KER-050: For the Treatment of Ineffective Hematopoiesis to Address Cytopenias

We are developing KER-050, our lead protein therapeutic product candidate, for the treatment of cytopenias that occur due to ineffective hematopoiesis, including anemia and thrombocytopenia, in patients with MDS and in patients with myelofibrosis. KER-050 is designed to benefit patients suffering from defects in red blood cell and platelet differentiation and maturation across the spectrum from early through terminal stages of hematopoiesis. Consequently, KER-050 may be effective for many patients that have limited treatment options or are refractory to available therapies.

Myelodysplastic Syndromes

Myelodysplastic syndromes, or MDS, is a collection of bone marrow disorders characterized by ineffective hematopoiesis, often with a dramatic expansion of progenitor cells that are unable to mature into functioning blood cells. In the United States, there are 60,000 to 170,000 patients with MDS and 15,000 to 20,000 new cases of MDS reported each year. MDS predominantly affects older adults, with approximately 75% of patients aged 60 years or older at diagnosis. Median survival ranges from approximately nine years for very low-risk patients to less than a year for high-risk patients.

Cytopenias in MDS are caused by defects occurring across the various stages of hematopoiesis, from the self-renewal of progenitor cells to differentiation in early through terminal stages. Anemia is the most frequent consequence of ineffective hematopoiesis in patients with MDS due to low red blood cell production, and impacts 90% of MDS patients, with approximately 40% becoming transfusion dependent. Another consequence is thrombocytopenia, a deficiency of platelets in the blood, which is impaired blood clotting that can cause bleeding. The prevalence of thrombocytopenia in patients with MDS has been reported at 40% to 65%. A deficiency of neutrophils in the blood, or neutropenia, also increases the risk of serious infections in patients with MDS and has been reported to affect approximately 20% of patients with MDS.

To guide decisions on risk stratification and the treatment of patients with MDS, clinicians typically use the International Prognostic Scoring System-Revised, or the IPSS-R. The IPSS-R incorporates information on bone marrow blast percentage, karyotype and presence and severity of cytopenias in order to classify patients with MDS into groups based on the risk of progression to acute myeloid leukemia, ranging from very low-risk to high-risk. Patients are further classified into high transfusion burden and low transfusion burden categories based on the number of units of transfused red blood cells they receive.

A second classification system is the World Health Organization, or WHO, system, which is based on a combination of morphology, immunophenotype, genetics and clinical features. The WHO classification system includes a

subgroup of patients with MDS that show the presence of iron deposits around the mitochondria, known as ring sideroblasts. These patients are commonly referred to as RS positive and comprise approximately 15% of all patients with MDS, and splicing factor mutations, such as *SF3B1*, are highly correlated with these patients. Patients with splicing factor mutations often have been observed to have defects in the differentiation of red blood cells at the terminal stage.

Limitations of Current Treatment Options for Cytopenias in Patients with MDS

Patients with MDS-associated anemia are generally treated with red blood cell transfusions and erythroid stimulating agents, or ESAs, which are not approved for such treatment. The treatment of MDS-associated thrombocytopenia is platelet transfusions and platelet-stimulating agents.

Severe cytopenia and transfusion dependence are independent predictors of poor prognosis for patients with MDS and are inversely correlated with quality of life. Red blood cell and platelet transfusions provide temporary benefits to patients with MDS, but are associated with both acute and chronic health risks, including risk of bacterial infection and allergic reactions to the donor blood, and place a significant burden on both the patient and the healthcare system. Red blood cell transfusions are also associated with iron overload, which can lead to organ dysfunction over time. Additionally, the benefit from a platelet transfusion is typically short-lived and availability is limited. Platelet-stimulating agents for the treatment of thrombocytopenia, which are not currently indicated for MDS, carry the risk of thromboembolic events and bone marrow fibrosis.

ESAs are a class of drugs that work on the proliferation stage of red blood cell development by expanding the pool of early-stage progenitor cells. While ESAs have been shown to alleviate anemia in a subset of patients with MDS, patients that have elevated endogenous erythropoietin levels are unlikely to respond. In two controlled Phase 3 clinical trials evaluating darbepoetin alfa (Aranesp) for the treatment of MDS-associated anemia, 15% to 31% of patients responded. However, this response was limited to patients with mildly elevated endogenous erythropoietin levels and to patients who largely did not require regular red blood cell transfusions. These treatment options also represent a significant burden to patients, as they must be administered up to three times a week. Additionally, the effect of ESAs is limited to the red blood cell lineage and, therefore, ESAs only treat MDS-associated anemia and do not provide benefit to cytopenia of other cell lineages, including thrombocytopenia and neutropenia.

Reblozyl, a TGF-ß-based erythroid maturation agent, is designed to promote the terminal differentiation of red blood cells through inhibition of selected endogenous TGF-ß superfamily ligands. The characteristics of response were defined in a Phase 2 clinical trial of Reblozyl in patients with MDS. Consistent with the mechanism of Reblozyl on the terminal stages of erythropoiesis, the majority of responders were determined to have an *SF3B1* splicing factor mutation. Additionally, the responders were characterized as having elevated erythroid progenitor cells in the bone marrow, while patients with lower levels of erythroid progenitor cells in the bone marrow did not achieve hematological improvement. We believe this indicates that Reblozyl is limited to its effect on terminal differentiation of erythropoiesis and does not affect the early stages of differentiation.

Based on these Phase 2 results, a Phase 3 clinical trial of Reblozyl was conducted in RS positive, very low- to intermediate-risk patients with MDS. This trial included both patients with low transfusion dependence requiring fewer than four units of red blood cells over eight weeks and patients with high transfusion dependence requiring four or more units of red blood cells over eight weeks. In this trial, 37.9% of the RS positive patients treated with Reblozyl achieved the primary endpoint of transfusion independence, compared to 13.2% of patients that received placebo. The highest proportion of responders to Reblozyl were those with low transfusion dependence, while only a few high transfusion burden patients achieved transfusion independence despite being RS positive patients. Accordingly, we believe an unmet need remains in RS positive patients with high transfusion dependence.

The results of the Phase 2 and Phase 3 clinical trials suggest that Reblozyl, if approved, will be limited to the treatment of RS positive patients with MDS. Accordingly, we believe that additional treatment options will be needed to address anemia in the heterogeneous non-ring sideroblast MDS population, to provide clinical benefit to the RS positive population regardless of transfusion burden and to address other cytopenias, such as thrombocytopenia.

KER-050 is designed to alter TGF-ß signaling pathways at multiple stages of hematopoietic differentiation in both red blood cells and platelets. Consequently, we believe KER-050 has the potential to provide therapeutic benefit in

a broader subset of patients with MDS that have varying defects in commitment, differentiation and maturation of multiple cell types found in blood.

Myelofibrosis

Myelofibrosis is a group of rare cancers of the bone marrow in which the marrow is replaced by scar tissue and is not able to produce healthy blood cells. Myelofibrosis is characterized by ineffective hematopoiesis, an enlarged spleen, bone marrow fibrosis and shortened survival. Patients often experience multiple disease-associated and treatment-emergent cytopenias, including anemia and thrombocytopenia.

The ineffective hematopoiesis in myelofibrosis is driven by molecular abnormalities in the Janus kinase 2, or JAK2, -signal transducers and activators of transcription, or JAK-STAT, signaling pathway of transcriptional activators. Specifically, JAK2 activation leads to proliferation of red blood cell progenitors and platelet progenitors, or megakaryocytes, that fail to mature to platelets. Additionally, megakaryocyte dysplasia/hyperplasia has been implicated in inducing bone marrow fibrosis in patients with myelofibrosis. The inability of megakaryocytes to fully differentiate leads to the release of pro-inflammatory and pro-fibrotic factors that results in scarring of the bone marrow, which further exacerbates the myelofibrosis-associated cytopenias.

Myelofibrosis is a relatively rare condition with an identified prevalence of 16,000 to 18,500 patients in the United States. Approximately 3,000 new patients are diagnosed with myelofibrosis each year, and the median age at diagnosis is approximately 60 years. Currently, there are limited therapeutic options to address the myelofibrosis-associated cytopenias. Within a year of diagnosis, 38% of patients with myelofibrosis are red blood cell transfusion dependent and eventually nearly all will develop transfusion dependence. Additionally, within a year of diagnosis, 26% of patients with myelofibrosis will develop thrombocytopenia and 51% will develop anemia.

Limitations of Current Treatment Options for Cytopenias in Patients with Myelofibrosis

There are no approved pharmacological treatments for myelofibrosis-associated cytopenias. The National Comprehensive Cancer Network describes all therapeutic options to address myelofibrosis-associated cytopenias, including transfusions, as only minimally effective.

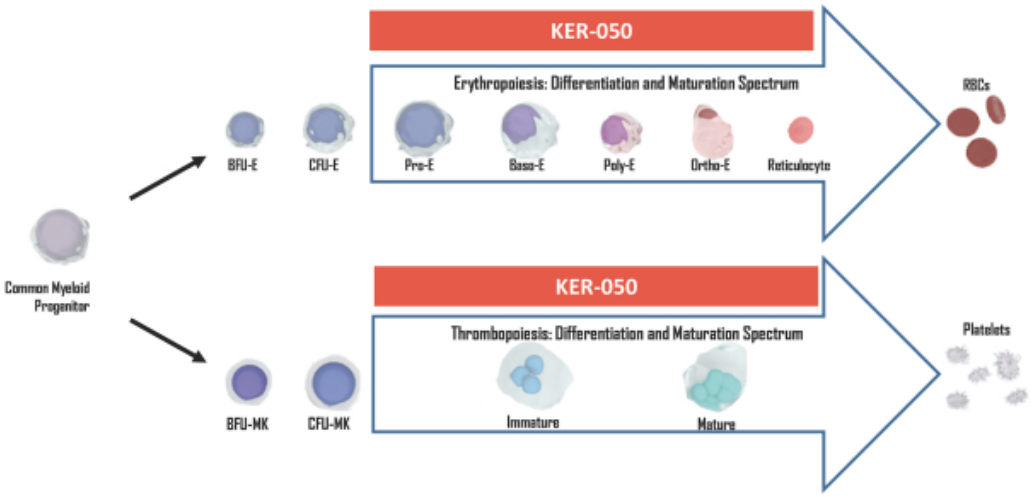
Currently approved products for the treatment of myelofibrosis, including JAK inhibitors ruxolitinib (Jakafi) and fedratinib (Inrebic), have been observed to exacerbate myelofibrosis-associated cytopenias. In a third-party Phase 3 clinical trial of Jakafi and a third-party Phase 3 clinical trial of Inrebic, treatment led to significant reductions in spleen volume and improvement in total symptom scores. However, JAK inhibitors interfere with normal hematopoiesis and treatment with Jakafi and Inrebic also resulted in clinically significant anemia and thrombocytopenia in these Phase 3 trials. Approximately 45% of patients in the Phase 3 clinical trial of Jakafi developed treatment-related grade 3 or 4 anemia. Grade 3 or higher adverse events of anemia and thrombocytopenia were observed in approximately 34% and 12%, respectively, of patients evaluated in the Phase 3 clinical trial of Inrebic. The treatment-related cytopenias led to severe complications, dose reductions and reduced compliance.

We believe KER-050 has the potential to ameliorate myelofibrosis-associated cytopenias.

Our Solution: KER-050

KER-050 is a ligand trap comprised of a modified ligand-binding domain of ActRIIA that is fused to the portion of the human antibody known as the Fc domain. KER-050 is designed to bind to and inhibit the signaling of TGF-ß ligands involved in the regulation of hematopoiesis, resulting in increased red blood cell and platelet production. Combined data from our preclinical studies and our Phase 1 clinical trial demonstrate that treatment with KER-050 increased red blood cell and platelet production. These data indicate that KER-050 is differentiated from available therapies because it appears to have both sustained and rapid effects on multiple cellular lineages in the hematopoietic pathway. We believe KER-050's promotion of differentiation of early- and terminal-stage progenitor cells contributes to these sustained and rapid effects, respectively, and consequently, KER-050 may be effective for many patients that are refractory to available therapies and may potentially provide benefit in multiple cytopenias simultaneously.

Mechanism of Action of KER-050



We intend to develop KER-050 for the treatment of both MDS- and myelofibrosis-associated cytopenias. We believe KER-050 has the potential to overcome limitations of current treatment options for MDS- and myelofibrosis-associated cytopenias. We believe the potential advantages of KER-050 compared to current treatment options include:

- *Dual mechanism affecting both the early and terminal stages of erythropoiesis.* Patients with MDS can have defects occurring anywhere along the differentiation and maturation spectrum of erythropoiesis, and often have multiple mutations that cause ineffective erythropoiesis. By acting on cell types throughout the erythropoiesis pathway, KER-050 may lead to robust responses in RS positive patients who have a characteristic defect in terminal maturation, and may also address anemia in the broader MDS population that has defects in earlier-stage erythroid cell development.
- *Increased platelet counts in blood.* Ineffective hematopoiesis in patients with MDS and in patients with myelofibrosis can result in thrombocytopenia, which can lead to an increased risk of bleeding events. We believe treatment with KER-050 has the potential to address the MDS- and myelofibrosis-associated thrombocytopenia.
- *Reduced accumulation of progenitor cells.* Ineffective hematopoiesis in patients with MDS and in patients with myelofibrosis can be caused by excessive production of blood cell progenitors that are unable to complete differentiation and ultimately become mature blood cells. We believe treatment with KER-050 will stimulate these progenitors to progress to maturation, ameliorating the accumulation of these cells that lead to MDS- and myelofibrosis-associated cytopenias.
- *Robust and sustained increase in red blood cells, hemoglobin and reticulocytes, supporting monthly or less frequent dosing.* ESAs can require dosing up to three times a week. We believe that treatment with KER-050 has the potential to reduce the frequency of dosing to every four weeks or less frequently, thereby decreasing the burden on patients and potentially improving compliance.

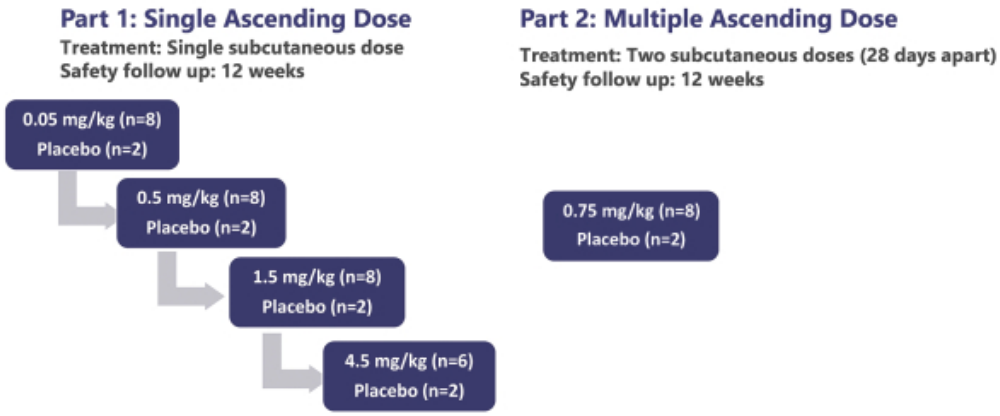
Completed Phase 1 Clinical Trial

In January 2020, we completed a randomized, double-blind, placebo-controlled, two-part, dose-escalation Phase 1 clinical trial of KER-050 in 48 healthy post-menopausal women. The primary endpoints of this trial were safety, tolerability and pharmacokinetics. We also investigated changes in hematology and bone biomarkers in this clinical trial.

In Part 1 of this trial, 30 subjects received a single dose of KER-050 and eight subjects received a single dose of placebo, each administered subcutaneously with a 12-week safety follow-up. The subjects were enrolled in sequential single-ascending dose escalation cohorts of up to ten subjects each. In Part 2 of this trial, eight subjects

received KER-050 and two received placebo, administered subcutaneously, on two occasions 28 days apart, with a 12-week safety follow-up after the second dose. In Part 2 of this trial, only one dose level was evaluated, as it was deemed to provide the necessary data, in addition to that from Part 1 of the trial, to inform the design of the Phase 2 clinical trials of KER-050 in patients with MDS and in patients with myelofibrosis.

The trial design is summarized in the figure below.



Observed tolerability data

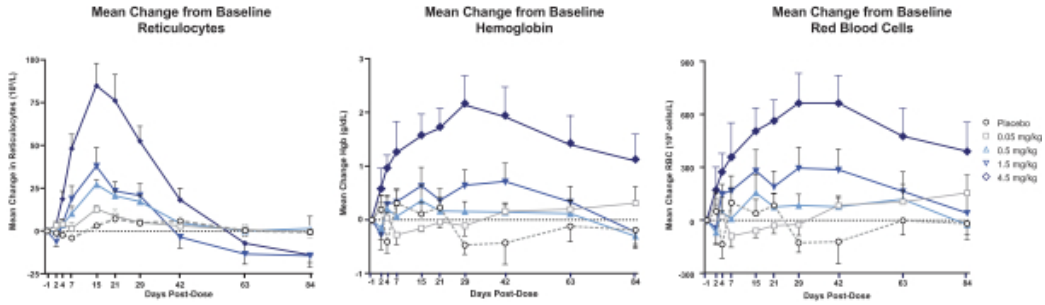
KER-050 was well tolerated in this Phase 1 clinical trial at dose levels up to 4.5 mg/kg, the highest dose level tested, and multiple doses of 0.75 mg/kg. While one subject in the placebo group withdrew consent, there were no discontinuations due to treatment-related adverse events. No treatment-related serious adverse events were reported. The most common adverse events observed in subjects in this trial were nausea, gastroenteritis, injection site erythema and, consistent with the mechanism of action of KER-050, increased hemoglobin and hypertension. The reversible, mild hypertension events were observed in subjects with an approximately 3 g/dL increase in hemoglobin.

Long half-life observed, potentially supporting monthly or less frequent dosing

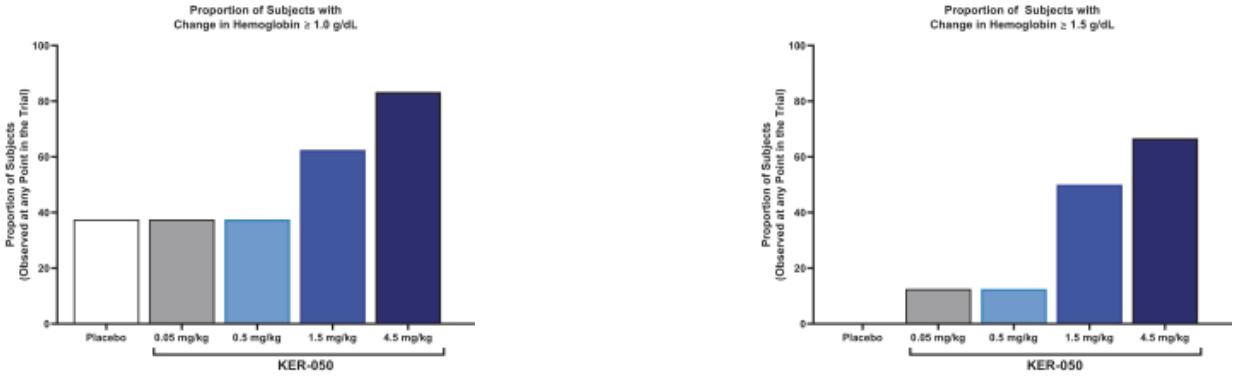
We observed that KER-050 drug levels were dose proportional in Part 1 of this trial, with a mean half-life of approximately 12 days. The half-life coupled with the pharmacodynamic effect observed in the hematologic parameters support the potential for administration of monthly or less frequent dosing, which we believe will decrease the burden on patients and improve compliance.

Rapid and sustained increases in mean reticulocyte counts, hemoglobin, red blood cell counts and platelet counts observed

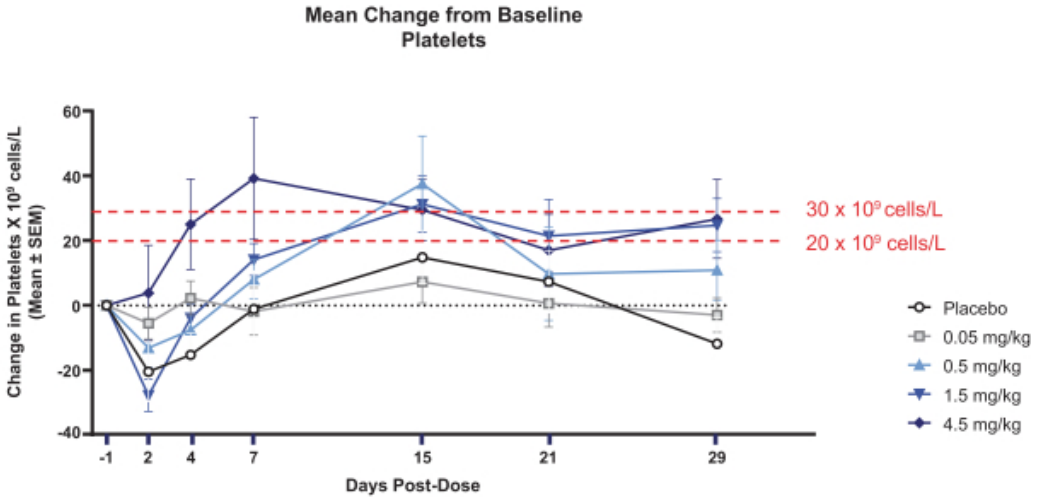
In Part 1 of this trial, we observed rapid and sustained increases in mean reticulocyte counts, hemoglobin, red blood cell counts and platelet counts. Consistent with the underlying biology, increases in reticulocytes were observed early with increases of hemoglobin following thereafter. Increases in reticulocytes were observed as early as Day 2 and reached a peak around Day 15. Increases in hemoglobin concentration were also observed as early as Day 2, reached a peak around Day 29 and remained elevated for several weeks.



We also observed a dose-dependent increase in the proportion of subjects with hemoglobin increases of 1.0 g/dL and 1.5 g/dL. We believe a 1.5 g/dL increase would be considered clinically meaningful in patients with low red blood cell counts.



In addition to the changes in erythroid parameters, robust, dose-dependent increases in platelet count were observed after a single dose of KER-050. All subjects who received a 4.5 mg/kg dose of KER-050, the highest dose evaluated, demonstrated an increase of 30 x 10^9 cells/L or greater at any point in the trial, which we believe would be considered clinically meaningful in patients with low platelet counts.



We believe the rapid onset and durability of increased hemoglobin and platelet count observed in Part 1 of our Phase 1 clinical trial supports the potential for a dual effect of KER-050 on both early-stage differentiation and terminal maturation.

Clinical Development Strategy

We expect to commence an open-label Phase 2 clinical trial evaluating the treatment of cytopenias, including anemia and thrombocytopenia, in patients with very low-, low- or intermediate-risk MDS in the second half of 2020. We also expect to commence an open-label Phase 2 clinical trial evaluating the treatment of patients with myelofibrosis-associated cytopenias in 2021.

Preclinical Data

KER-050 was observed to inhibit ligands that signal through activin receptors in *in vitro* assays, and to potently regulate hematopoiesis in *in vivo* studies. Specifically, KER-050 demonstrated in these studies:

- high affinity for and potent inhibition of ligands involved in the regulation of hematopoiesis;
- increased red blood cell production in mice and non-human primates; and
- increased maturation of early-stage erythroid progenitors.

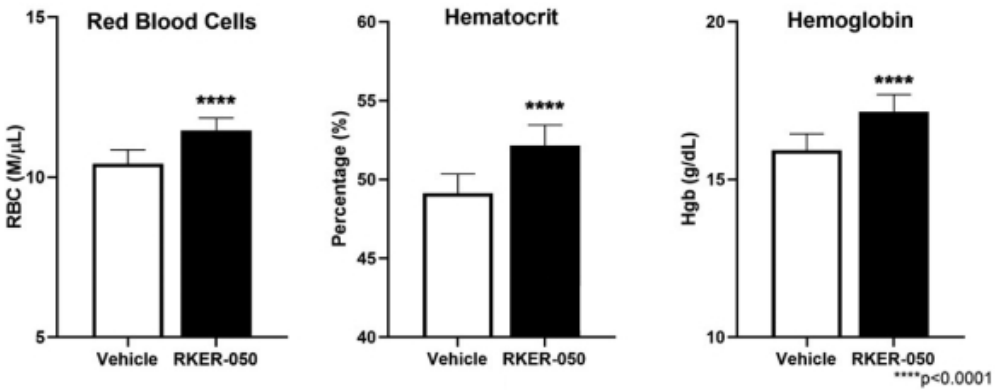
KER-050 observed to target ligands that signal through ActRIIA and ActRIIB

KER-050 is a modified ActRIIA ligand trap that contains sequences from both wild-type ActRIIA and wild-type activin receptor type IIB, or ActRIIB. KER-050 was observed to bind to and inhibit multiple ligands that signal through these cell surface receptors, including activin A, activin B and growth differentiation factor 11. These ligands are key regulators of hematopoiesis that restrict blood cell progenitors from continuing through differentiation and developing into mature cells with specialized function. The KER-050-mediated inhibition of these regulators stimulated the progenitors to progress to maturation and, consequently, increased the number of mature cells in the blood.

Mouse version of KER-050 observed to potently stimulate red blood cell parameters and to decrease the populations of erythroid progenitors

In a preclinical study conducted in mice, a single, subcutaneous 10 mg/kg dose of a mouse version of KER-050, or RKER-050, increased red blood cell numbers, hematocrit and hemoglobin compared to vehicle-treated mice four days post-treatment. RKER-050 has been modified to have a murine Fc domain in place of the human Fc domain present in KER-050, in order to minimize results confounded by the development of anti-drug antibodies in mice treated with a human protein.

Increase in Red Blood Cells, Hematocrit and Hemoglobin in Mice

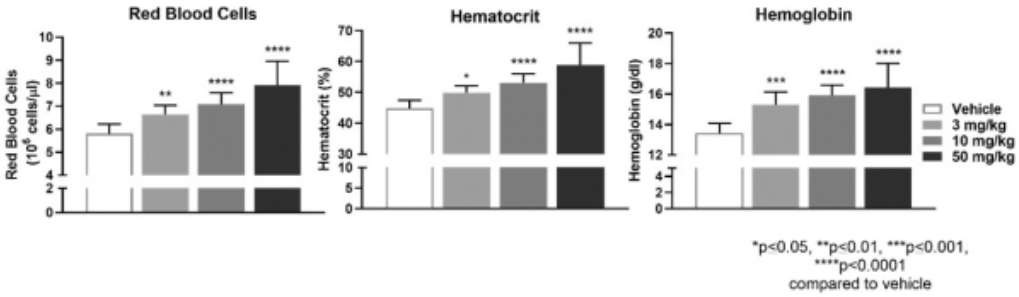


KER-050 also observed to increase red blood cells in non-human primates

We believe that our observations in preclinical studies of KER-050 in non-human primates indicate that the red blood cell effects of KER-050 also translated to higher-order species. In this study, cynomolgus monkeys received

subcutaneous administration every other week for three months of either vehicle or doses of 3 mg/kg, 10 mg/kg or 50 mg/kg of KER-050. Hematology was measured at baseline and on Day 92. Red cell mass, including red blood cell number, hematocrit and hemoglobin were dose-dependently increased in the cohorts receiving KER-050. These data demonstrate the translatability of red blood cell, hematocrit and hemoglobin increases observed in preclinical studies of KER-050 from mice to non-human primates.

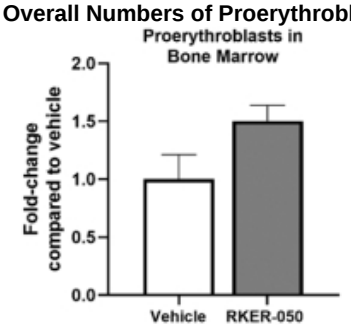
Increase in Red Blood Cells, Hematocrit and Hemoglobin in Cynomolgus Monkeys



RKER-050 also observed increase numbers of erythroid progenitors in mice

To evaluate the mechanism of action of RKER-050 in erythropoiesis, we collected and analyzed bone marrow from RKER-050-treated mice for erythroid progenitors. We observed a RKER-050-mediated increase in the proerythroblast, or Pro-E, population in a flow cytometry analysis that used antibodies directed against cell surface markers to label-specific cell populations.

Increase in Overall Numbers of Proerythroblasts in Mice



The rapid expansion of the Pro-E population also coincided with decreased numbers of erythroid burst-forming units and erythroid colony-forming units, the cells that give rise to Pro-E cells, which demonstrates that treatment with RKER-050 stimulated the erythroid burst-forming units and erythroid colony-forming units into erythroid differentiation. Since treatment with RKER-050 stimulated the earliest progenitors in the erythroid lineage to progress to maturation and increased the Pro-E pool, the first cells to start synthesis of hemoglobin, we believe KER-050 has the potential to affect the early stages of erythropoiesis.

We believe that the findings from our preclinical studies and from our Phase 1 clinical trial of KER-050 in healthy post-menopausal women demonstrates the translation of biological action from rodents to humans. We also believe that data from our preclinical studies and clinical trials support that treatment with KER-050 has the potential to address ineffective hematopoiesis in diseases where multiple cytopenias arise from the blockage in progression of progenitor cells to mature blood cells, such as in MDS and myelofibrosis.

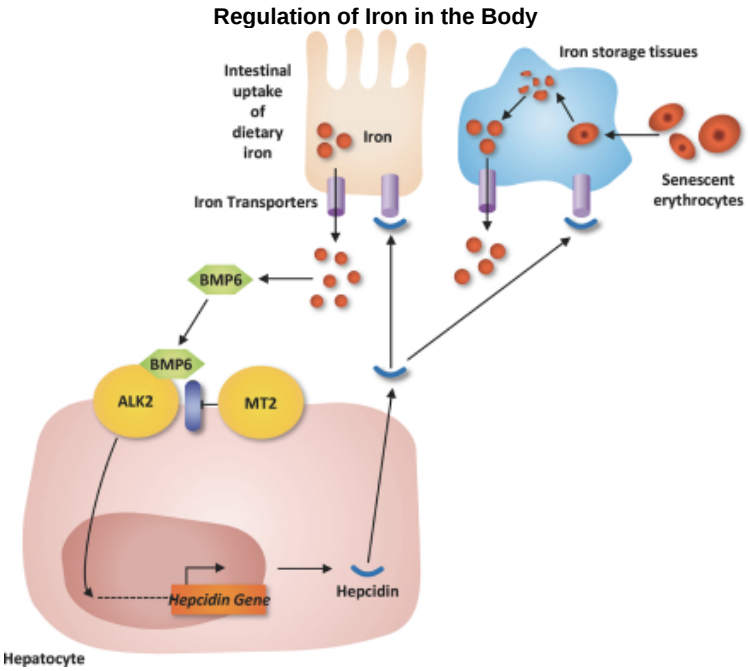
KER-047: For the Treatment of Anemia Arising from High Hepcidin Levels

We are developing KER-047, our lead small molecule product candidate, for the treatment of anemia resulting from high hepcidin levels. We believe KER-047 is a potent and selective inhibitor of ALK2, a receptor whose excessive signaling is the underlying cause of the elevated hepcidin levels that lead to low iron bioavailability and anemia in a broad range of diseases. KER-047 is being evaluated in a Phase 1 clinical trial in healthy volunteers to evaluate the safety and pharmacokinetic profiles of KER-047 and select biomarkers of iron mobilization.

Hepcidin

Iron supply in the bone marrow is critical for erythropoiesis, as iron is an essential component of hemoglobin. Although iron is required for many functions in the body, including erythropoiesis, high iron levels are toxic, so circulating levels are regulated to avoid iron overload. To maintain this balance, absorption of dietary iron is tightly controlled and recycled iron is held in the liver and macrophages, which we refer to as the storage tissues, to be mobilized quickly when circulating iron levels are too low. These storage tissues also act to sequester away iron when levels are too high. Hepcidin, a hormone produced by the liver, is the key regulator of iron absorption and recycling, and controls both the recirculation of iron from storage tissues as well as the absorption of dietary iron from the intestine.

Hepcidin levels are upregulated through activation of the ALK2 receptor, which is a BMP receptor belonging to the broader TGF-ß family of proteins. Hepcidin levels are tightly regulated by liver cells through BMP6 signaling via ALK2. High serum iron triggers the expression of BMP6, which then acts to increase hepcidin expression, resulting in iron sequestration, decreased iron absorption and reduced serum iron. A negative feedback loop prevents this system from shifting out of balance. The system is downregulated through the activity of matriptase-2, or MT-2, a cell surface protease, which is encoded by the TMPRSS6 gene. This protein reduces the ability of BMP6 to signal through ALK2. The below graphic illustrates a normal functioning of the negative feedback loop.



Anemia Arising from High Hepcidin Levels, including IRIDA

Failure to suppress ALK2 signaling can result in elevated hepcidin levels, which are associated with decreased dietary iron absorption, increased iron sequestration in storage tissues and low iron bioavailability in the bone

marrow. These effects culminate in a shortage of serum iron, which leads to insufficient red blood cell production that manifests as mild to moderate anemia.

Proinflammatory cytokines can also result in inappropriately high ALK2 signaling, increased hepcidin expression and anemia. In patients with chronic inflammation, the sustained cytokine-mediated ALK2 activation translates to low serum iron and mild to moderate anemia driven by abnormally high hepcidin levels. Anemia of inflammation is the second most common cause of anemia worldwide. The prevalence of anemia varies among different inflammatory rheumatic diseases. In the United States, approximately 1,000,000 people older than age 65 suffer from diseases of chronic inflammation, including rheumatoid arthritis, systemic lupus erythematosus and ankylosing spondylitis. Anemia with high hepcidin levels has also been reported in patients with primary myelofibrosis.

High hepcidin levels can also be the result of genetic disease. Iron-refractory iron deficiency anemia, or IRIDA, is a rare, inherited form of iron deficiency anemia that results in loss of function of MT-2, resulting in elevated ALK2 signaling and high hepcidin levels. Patients with IRIDA have the typical symptoms of anemia, including fatigue, weakness and shortness of breath, in addition to other symptoms associated with low iron. These symptoms are most pronounced during childhood, although they tend to be mild.

The prevalence of IRIDA worldwide is estimated to be less than one person in 1,000,000. IRIDA was first described in 1981 with the observation that patients with anemia were refractory to treatment with oral iron. However, the association of mutations in the TMPRSS6 gene with IRIDA was not identified until 2008, and genetic testing for IRIDA is not widely available. Furthermore, affected individuals usually have normal growth and development, so IRIDA is poorly diagnosed. All these factors contribute to an inability to accurately determine the prevalence of IRIDA.

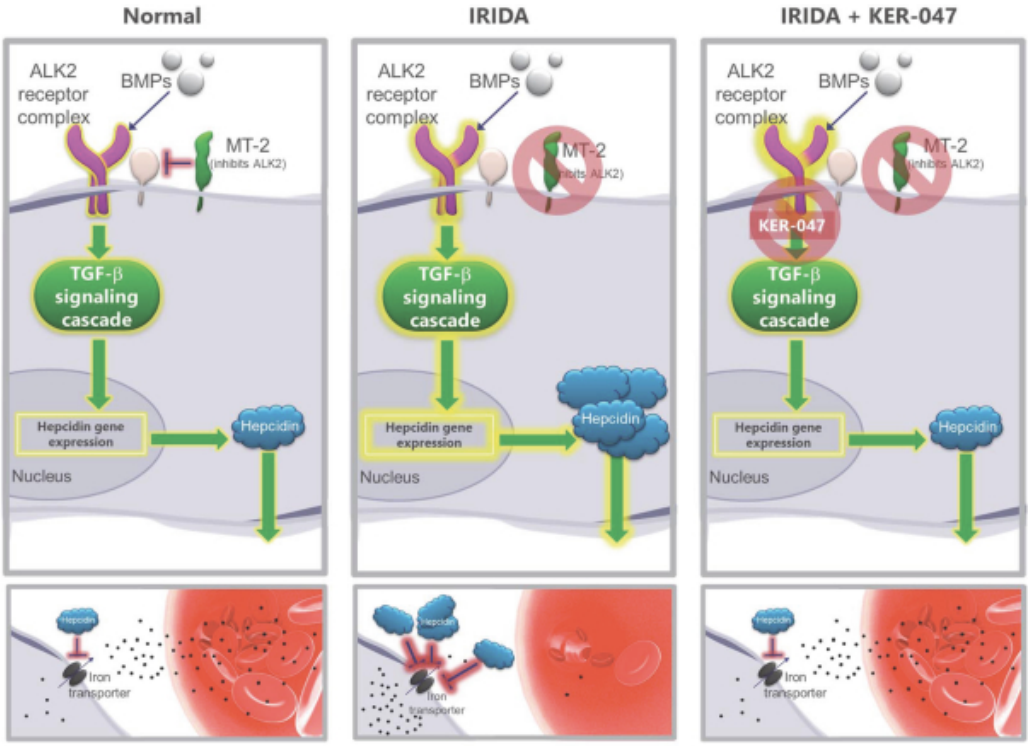
Limitations of Current Treatment Options for Anemia Arising from High Hepcidin Levels, including IRIDA

There are no current treatments that address the underlying cause of anemia arising from high hepcidin levels, including in patients with IRIDA. Although these patients are often treated with oral iron supplements or iron administered by intravenous infusion, these treatments do not address the underlying cause of the disease and therefore do not produce a clinically meaningful response or noticeable improvement in quality of life. These treatments can also cause mild side effects, such as constipation, diarrhea and cramping, and can increase the risk of very serious, life-threatening side effects, such as iron deposits in organs, hypersensitivity reactions and opportunistic infections.

Our Solution: KER-047

KER-047 is an orally-available small molecule ALK2 inhibitor designed to potently inhibit ALK2 signaling, with high selectivity for ALK2 relative to other structurally-similar TGF-ß receptors as well as other kinase families.

Mechanism of Action of KER-047



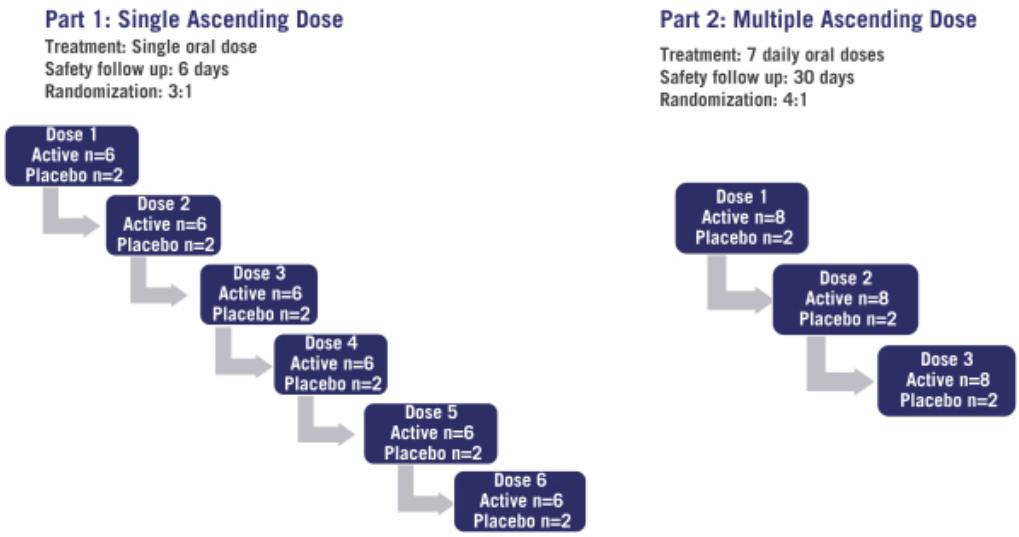
We believe that KER-047 has the potential to address the underlying cause of anemia arising from high hepcidin levels by suppressing ALK2 signaling to normalize hepcidin expression, thereby correcting serum iron levels and restoring the production of functional red blood cells. By ameliorating anemia arising from high hepcidin levels, we believe KER-047 can potentially eliminate the need for excessive supplementary iron or intravenous iron treatments and therefore avoid the adverse events associated with those treatment options.

KER-047 is being evaluated in a Phase 1 clinical trial in healthy volunteers to assess the safety and pharmacokinetic profiles of KER-047 and select biomarkers of iron mobilization. We expect to complete the Phase 1 clinical trial in mid-2020, and to subsequently report data from this trial in the second half of 2020. We expect to commence a Phase 2 clinical trial in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, in the first half of 2021.

Ongoing Phase 1 Clinical Trial and Clinical Development Strategy

We are conducting a randomized, double-blind, placebo-controlled, two-part Phase 1 clinical trial to evaluate single and multiple ascending doses of KER-047 in healthy volunteers. The primary objectives of this trial are to assess safety, tolerability and pharmacokinetics of KER-047. The trial design is summarized in the figure below.

Phase 1 Clinical Trial Design



We expect to complete the Phase 1 clinical trial in mid-2020, and to subsequently report data from this trial in the second half of 2020. We expect to commence a Phase 2 clinical trial in patients with IRIDA and anemias with elevated hepcidin, including myelofibrosis, in the first half of 2021. The data from this Phase 2 clinical trial will help guide patient selection and define dose levels to inform the design of any future clinical trials evaluating KER-047 in other indications where patients have anemia arising from high hepcidin levels.

Preclinical Data

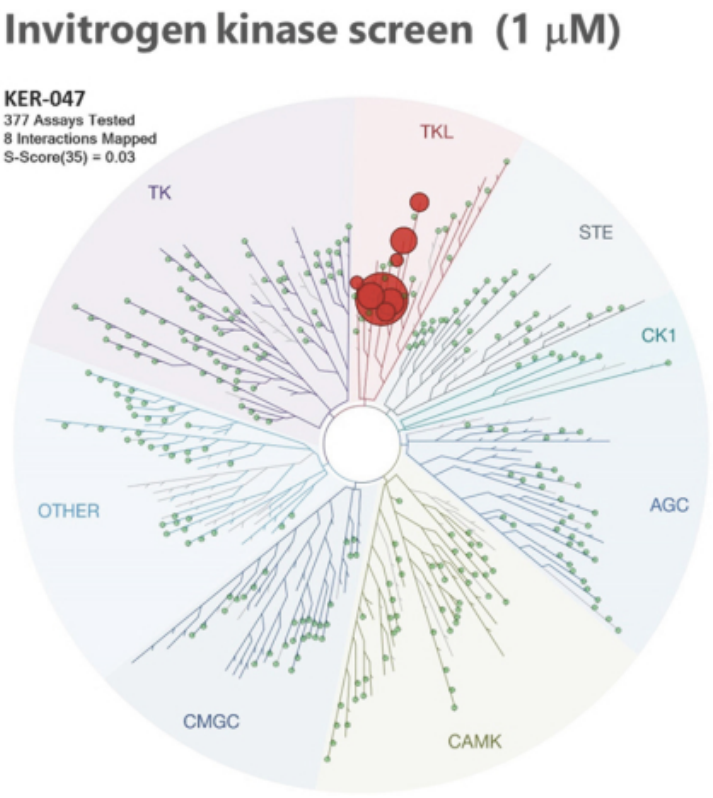
KER-047 was observed in preclinical studies to be a potent and highly selective ALK2 inhibitor and to change serum iron levels. Specifically, KER-047 demonstrated in these studies:

- selectivity for ALK2 compared to other structurally-related TGF-ß and non-TGF-ß kinases;
- increased serum iron levels in rat studies; and
- reversal of high hepcidin levels and low hemoglobin levels in a mouse model of IRIDA.

KER-047 observed to be a potent and highly selective ALK2 receptor inhibitor in a biochemical assay

In standard biochemical kinase screenings, KER-047 exhibited low nanomolar potency for ALK2. Under the conditions of this assay, KER-047 exhibited at least an eight-fold selectivity over the other structurally-related TGF-ß kinases. In a 370-member kinase panel, only two non-TGF-ß kinases were inhibited less than 75% at a KER-047 concentration of 1 µM. We believe these preclinical data further support the potency and selectivity of KER-047 for the ALK2 domain.

Highly Selective ALK2 Receptor Inhibitor



The kinase selectivity of KER-047 is shown in the dendrogram above. Compounds were screened at 1 µM against a panel of over 370 kinases and disease-relevant mutants. Each branch of the dendogram represents an individual human kinase. Kinases bound by the compound are indicated by red circles on the kinome tree. The degree of binding corresponds to the size of the circle. As illustrated by the largest red circle in the above graphic, KER-047 was observed to be a potent ALK2 inhibitor and a weak inhibitor of other members of the TGF-ß family of receptors.

In cell-based assays that more directly tested the functional ability of KER-047 to suppress receptor signaling, KER-047 exhibited low nanomolar potency. In assays evaluating the effect of KER-047 on receptors with the highest structural homology to ALK2, KER-047 had at least 20-fold selectivity for ALK2, compared to ALK1 and ALK5, which have 77% and 65% homology to ALK2, respectively.

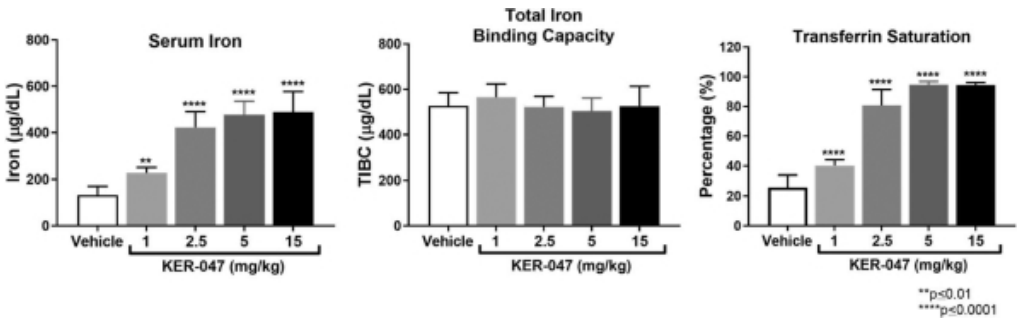
KER-047 inhibition of ALK2 signaling resulted in increased serum iron and transferrin saturation in multiple animal models

We believe that data from preclinical studies support a link between ALK2 signaling, hepcidin expression and serum iron across multiple preclinical species in both healthy and disease models. Serum iron is an indicator of whether there is adequate iron available in the body. Total iron binding capacity is the measure of the maximum amount of iron that can be bound by transferrin, an iron-binding protein, and is a surrogate measurement of serum transferrin levels. Transferrin saturation is calculated by dividing serum iron by total iron binding capacity, and is an indicator of how well the body is transporting the iron in blood. Taken together, these values are an indication of the state of iron balance in the body.

We evaluated serum iron, total iron binding capacity and transferrin saturation in Sprague-Dawley rats that received daily, oral administration of either vehicle or doses of 1 mg/kg, 2.5 mg/kg, 5 mg/kg or 15 mg/kg of KER-047 for

three months. Rats that were treated with KER-047 were observed to have a dose-dependent increase in serum iron levels and a concomitant increase in transferrin saturation, with no change in total iron binding capacity.

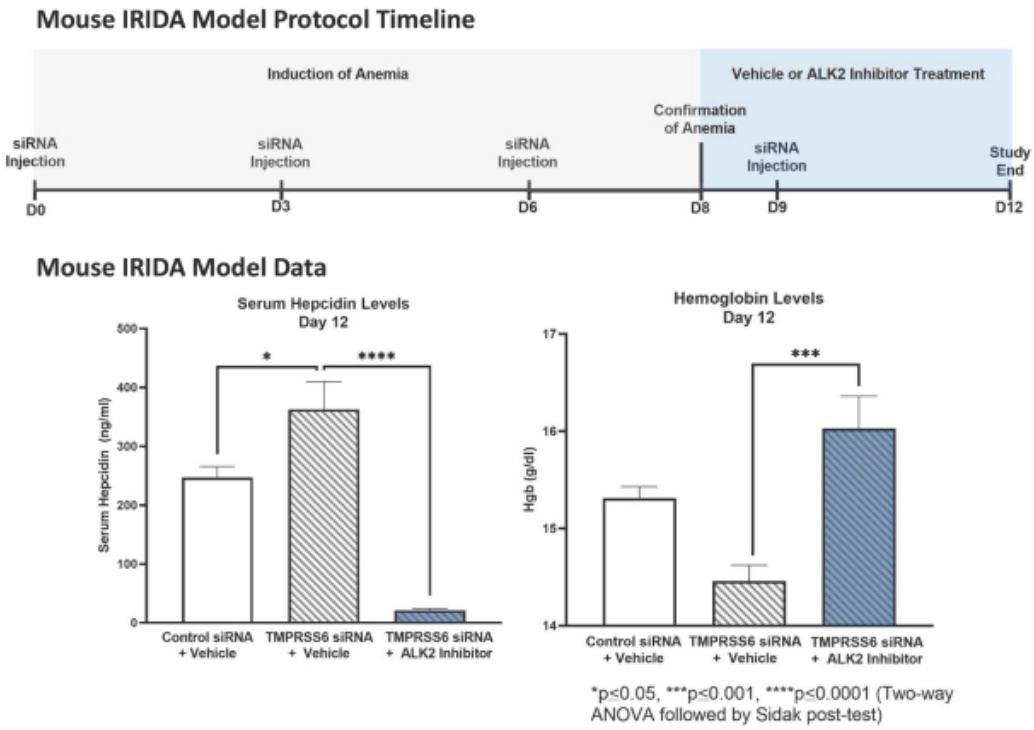
Increased Serum Iron, Total Iron Binding Capacity and Transferrin Saturation in Rats



These data demonstrate that ALK2 inhibition resulted in increased serum iron and that KER-047 acts by releasing iron into blood without altering the expression or functionality of iron binding proteins. We believe that these data demonstrate that treatment with KER-047 has the potential to alter ALK2 signaling and release iron from storage tissue for transport to other tissues, including in the bone marrow.

Treatment with an ALK2 inhibitor closely related to KER-047 was also observed to reverse anemia in a mouse model of IRIDA. To generate this mouse model, we used an siRNA directed against TMPRSS6, the same gene that is defective in patients with IRIDA, to render the mice TMPRSS6-deficient. We confirmed that mice receiving the TMPRSS6 siRNA had a greater than 85% reduction of target gene expression relative to the control siRNA cohort. This model recapitulated the increased hepcidin levels and reduced hemoglobin that are characteristic of patients with IRIDA. Treatment of the mice receiving the TMPRSS6 siRNA with an ALK2 inhibitor normalized levels of both hepcidin gene expression and hemoglobin levels compared to the control siRNA cohort receiving vehicle treatment, which we believe indicates that ALK2 inhibition can reverse anemia resulting from high hepcidin levels.

Serum Hepcidin and Hemoglobin Levels in Mice with siRNA-induced IRIDA



The sequence of the ALK2 receptor has been highly conserved through evolution, with greater than 98% amino acid sequence homology between mice and humans. Likewise, the finding that the mouse models with changes in ALK2 signaling recapitulate human disease also provides evidence that the function of the ALK2 receptor is conserved across species. For example, knockdown of the TMPRSS6 gene results in a phenocopy of the disease observed in patients with IRIDA. We believe that the conservation of biology provides confidence that treatments that are efficacious in preclinical models will have similar effects in humans.

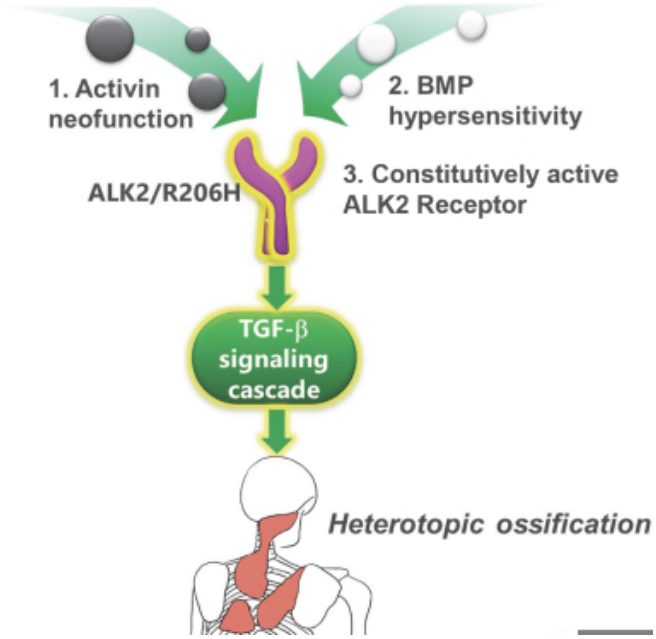
Our Fibrodysplasia Ossificans Progressiva Program

We are also developing KER-047 for the treatment of fibrodysplasia ossificans progressiva, or FOP. FOP is a rare genetic disease resulting from gain-of-function mutations in the ALK2 receptor. In patients with FOP, soft tissue, including muscles and tendons, develops normally, but remodels into bone spontaneously or after injury. There are currently no approved treatments for FOP. We believe KER-047 has the potential to prevent progression of disease in these patients by normalizing ALK2 signaling.

Fibrodysplasia Ossificans Progressiva

FOP results from single amino acid mutations in the ALK2 receptor that result in gain-of-function activity of the receptor. An estimated 97% of patients with FOP have an R206H mutation that results in excessive ALK2 receptor signaling. Multiple processes drive this excessive signaling. The ALK2/R206H receptor is inappropriately activated by activins A and B, hyperresponsive to the endogenous BMP ligands and can be active in the absence of ligands. These changes all result in increased kinase-mediated signaling and upregulation of bone-forming cellular activity, such as heterotopic ossification.

Mutations in the ALK2 Receptor Result in Gain-of-Function Activity of the Receptor Through Three Distinct Processes



Heterotopic ossification in patients with FOP can occur spontaneously or can be triggered by soft tissue trauma, such as from immunizations, falls, surgery or viral illnesses. The bony lesions from heterotopic ossification are painful and restrict movement. These lesions are permanent and their accumulation leads to progressive loss of function and immobility, eventually resulting in patients becoming wheelchair-dependent, making independent living difficult. Patients can have additional morbidity due to severe weight loss resulting from bone developing in and essentially locking the jaw, as well as respiratory problems due to constriction of the rib cage. Additionally, development of pneumonia and heart failure results in a high mortality rate, with a median age of death of 40 years. The International Fibrodysplasia Ossificans Progressiva Association estimates that there are 3,500 people worldwide with FOP, with approximately 800 patients identified. There are 285 known cases in the United States.

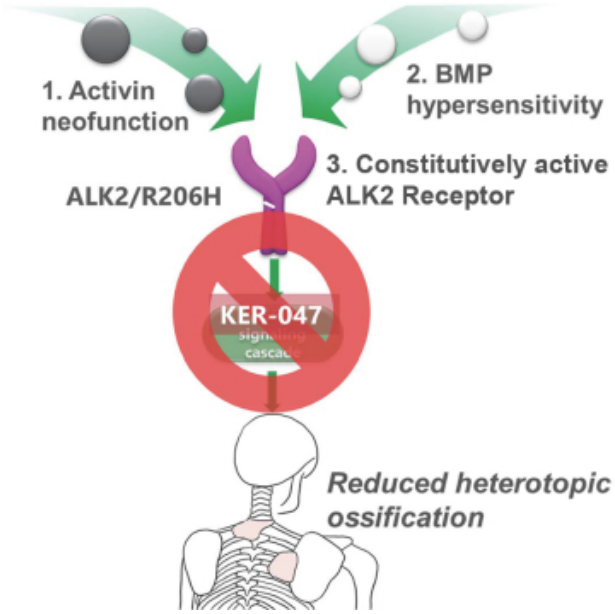
Limitations of Current Treatment Options for FOP

There are no therapies approved to treat FOP. Patients are administered anti-inflammatory agents to minimize tissue damage and alleviate pain, but these treatment options do not reduce or prevent bone formation. Surgical removal of the heterotopic ossification is performed in extreme cases, such as when the bony lesion is hindering jaw movement. However, this intervention only provides temporary benefit, as bone that is surgically removed is quickly replaced by a similar volume of new bone in its place.

Our Solution: KER-047

KER-047 is designed as an ALK2 inhibitor that is also designed to inhibit the ALK2/R206H mutant receptor, which we believe presents the potential to address the underlying cause of FOP.

Mechanism of Action of KER-047



KER-047 is designed to suppress ALK2 signaling, which we believe will prevent the development of new, and the expansion of existing, heterotopic ossification. Additionally, we believe that KER-047 has the potential to prevent the regrowth of bone after surgical resection and *de novo* bone formation resulting from surgery-induced trauma.

FOP treatments currently in development, such as palovarotene, were observed to hamper the healing process in preclinical studies. We believe treatment with KER-047 would not interfere with a patient's ability to undergo and recover from surgery. Additionally, treatment with palovarotene has been observed in a Phase 2 clinical trial to cause premature closure of growth plates in pediatric patients. ALK2 signaling is not required for normal skeletal growth and development, and in our preclinical studies, we did not observe changes to normal bone growth when treating mice with dose levels of KER-047 that resulted in a reduction in the amount of heterotopic ossification. Based on these data, KER-047 would not be expected to affect normal skeletal development and could be used to treat patients with FOP of all ages.

We expect to commence a Phase 2 clinical trial of KER-047 in patients with FOP in the first half of 2021.

Preclinical Data

We have generated compelling biochemical and preclinical data that we believe demonstrated proof-of-mechanism of KER-047 for the treatment of FOP. Specifically, KER-047 demonstrated in these studies:

- potent ALK2/R206H mutant receptor inhibitor;
- dose-dependent reduction in the formation of heterotopic ossification in multiple mouse models; and
- no shortening of long bones in mice receiving the ALK2 inhibitor.

KER-047 observed to be a potent ALK2 receptor inhibitor and ALK2/R206H mutant receptor inhibitor

In an *in vitro* assay, KER-047 was observed to be a potent ALK2 receptor inhibitor. In cell-based reporter assays, KER-047 also exhibited low nanomolar potency against the ALK2/R206H mutant receptor.

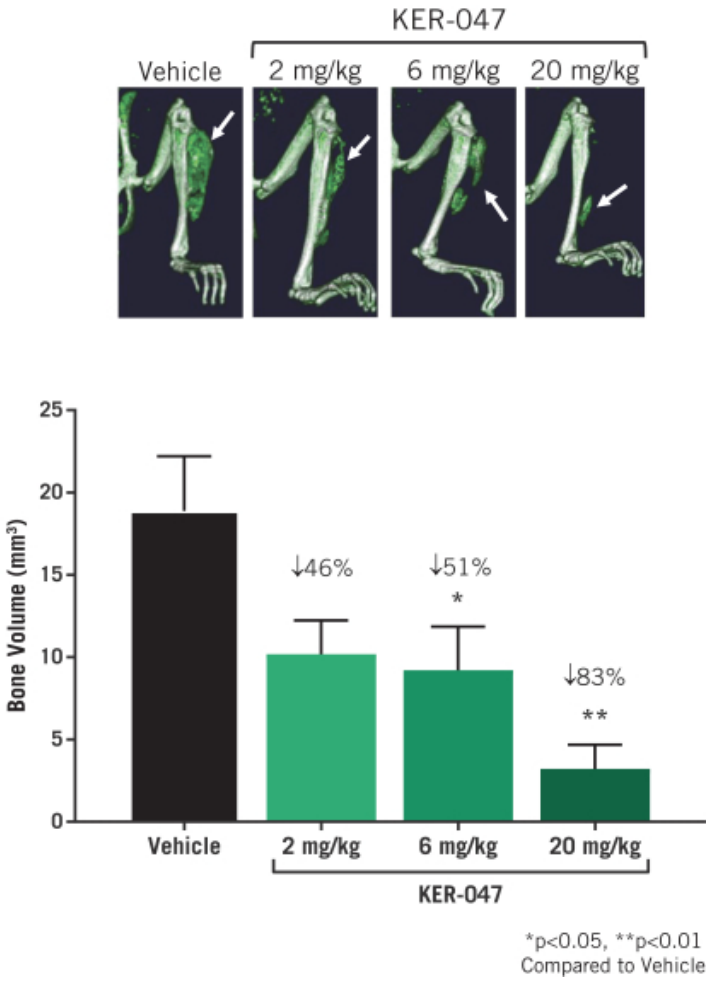
KER-047 inhibited ALK2 signaling and was associated with reduced bone formation in a mouse model of heterotopic ossification

In patients with FOP, heterotopic ossification is driven by excessive signaling through a mutated ALK2 receptor. We evaluated treatment with KER-047 in multiple models of heterotopic ossification prior to testing in a genetic mouse

model. In one such non-genetic model of heterotopic ossification, direct placement of the potent bone-inducing agent BMP6, a ligand that acts through the ALK2 receptor, in muscle, in combination with injury, results in rapid conversion of the muscle into bone. Only the most potent ALK2 inhibitors can inhibit this aggressive heterotopic ossification due to the presence of very high local concentrations of BMP6.

Administration of BMP6 in combination with cardiotoxin to induce injury resulted in robust heterotopic ossification in 11 days. In this model, we treated mice with either vehicle or doses of 2 mg/kg, 6 mg/kg or 20 mg/kg of KER-047, dosed daily by oral gavage for 14 days, one day before cardiotoxin administration and three days before receiving BMP6. We analyzed micro-CT scans for the presence of heterotopic ossification lesions in muscle. We observed a dose-dependent reduction in the formation of heterotopic ossification in the mice that were treated with KER-047, with more than 80% reduction in heterotopic ossification at the highest dose level tested.

Reduced Bone Formation in a Mouse Model of Heterotopic Ossification

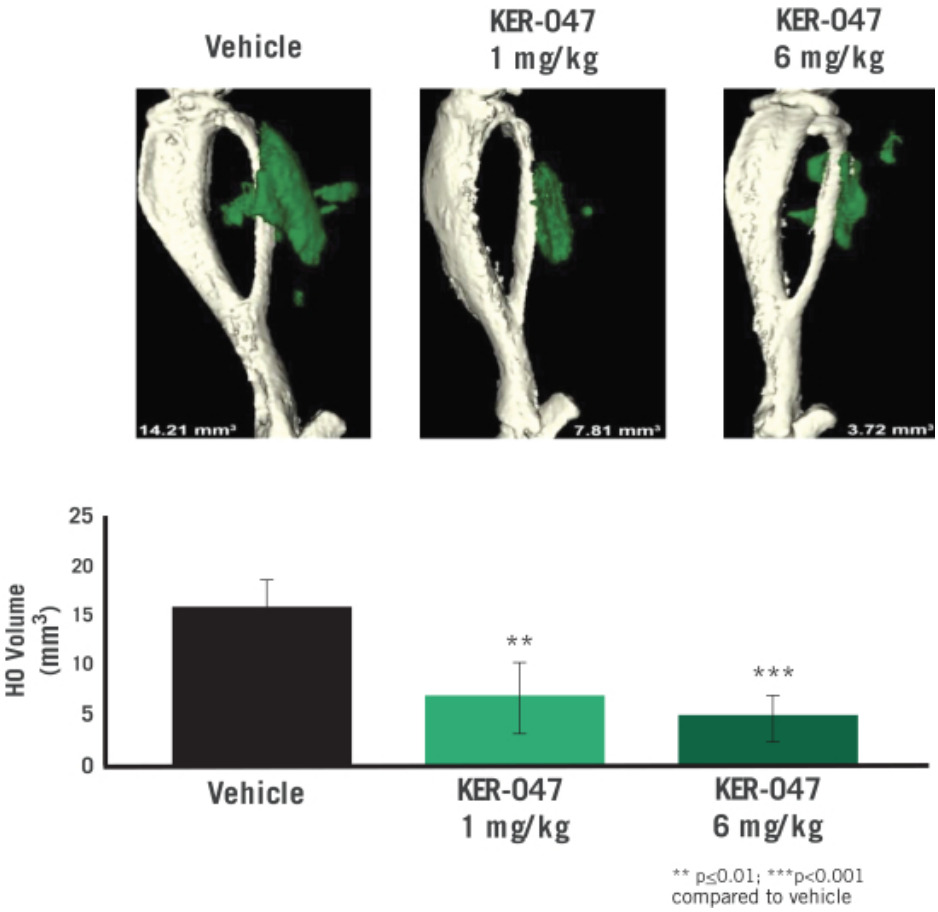


In an R206H mouse model of FOP, KER-047 was associated with a dose-dependent reduction in heterotopic ossification. In our preclinical study, mice were treated with either vehicle or doses of 1 mg/kg or 6 mg/kg of

KER-047, dosed daily by oral gavage, starting three days prior to mice receiving the pinch injury and continuing through 14 days post-injury. Micro-CT scans were analyzed for the presence of heterotopic ossification lesions in muscle. In mice with the ALK2/R206H mutant receptor receiving KER-047, a statistically significant, dose-dependent reduction in the formation of heterotopic ossification after pinch injury was observed.

Reduced Formation of Heterotopic Ossification in a Mouse Model of FOP

Representative MicroCT Images

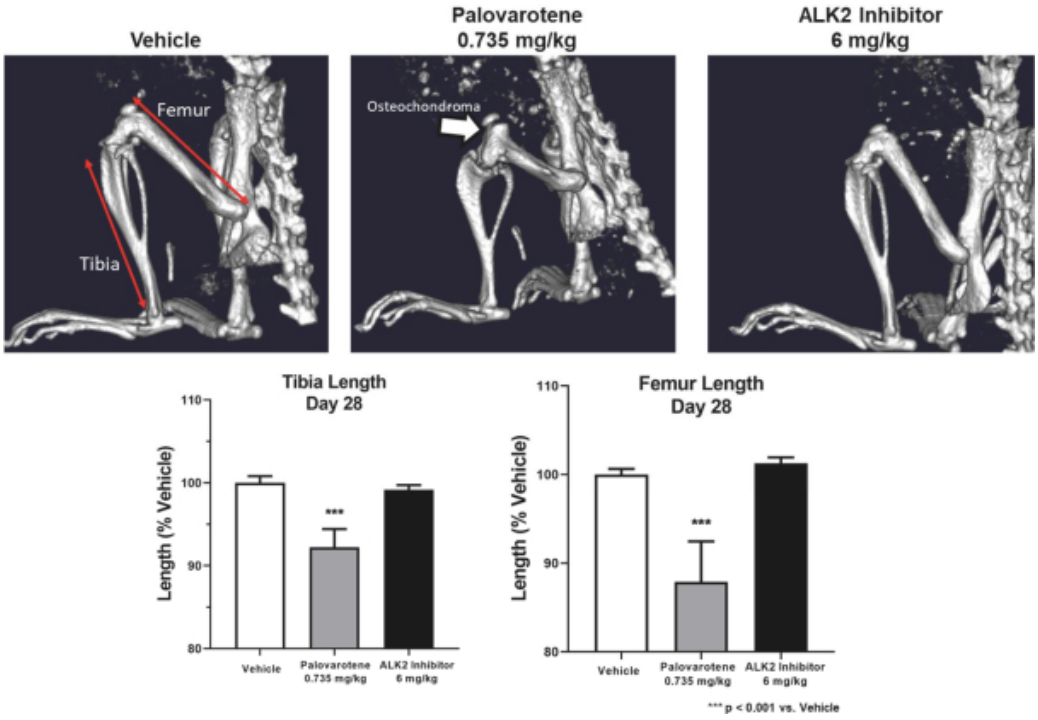


Treatment with a selective ALK2 inhibitor did not affect skeletal development in young mice

Third-party reports have described how treatment of young mice with palovarotene, a RAR-gamma agonist, resulted in growth plate closure in the normal skeleton, which led to a shortening of the long bones. These reports also described overgrowth of synovial joints that manifested as osteochondromas. One of the proposed mechanisms of the RAR-gamma agonist is inhibition of ALK2 in addition to other TGF-ß receptors. In order to evaluate the specific relationship between ALK2 and the development of these skeletal defects, we dosed two-week old mice with a potent ALK2 inhibitor closely related to KER-047. We tested the RAR-gamma agonist palovarotene as a positive control and observed a statistically significant shortening of the long bones. In contrast, mice treated with pharmacologically-relevant doses of the ALK2 inhibitor did not exhibit any shortening of the long bones. We did not

observe any shortening of long bones in mice receiving the ALK2 inhibitor at doses associated with reduction in the formation of heterotopic ossification after pinch injury in the R206H model.

Normal Skeletal Development Was Not Disrupted in Young Mice Receiving an ALK2 Inhibitor



Our Preclinical Pipeline

KER-012

KER-012 is a ligand trap comprised of a modified ligand-binding domain of ActRIIB that is fused to the portion of the human antibody known as the Fc domain. KER-012 is designed to bind to and inhibit the signaling of TGF-ß ligands, including activin A and activin B, which are key regulators of bone remodeling that act to suppress bone growth, to potentially increase bone mass. We believe that KER-012 has the potential to increase the signaling of BMP pathways through this inhibition of activin A and activin B signaling, and consequently treat diseases such as PAH that are associated with reduced BMP signaling due to inactivating mutations in the BMP receptors. We are developing KER-012 for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of pulmonary arterial hypertension, or PAH.

Osteoporosis

Osteoporosis is a highly prevalent disease characterized by low bone mineral density and deterioration of bone structure, which leads to an increase in bone fractures. It is estimated that more than 200 million people worldwide, including approximately 30% of all post-menopausal women in the United States and Europe, suffer from osteoporosis. It is also estimated that 50% of women and 20% of men over the age of 50 will suffer at least one osteoporosis-related fracture in their remaining lifetime. These fractures can lead to increased morbidity and mortality. With the number of individuals over the age of 50 expected to increase, the incidence of osteoporosis-related fractures is predicted to double or triple in the upcoming decades.

Limitations of Current Treatment Options for Osteoporosis

Patients with osteoporosis are generally treated with anti-resorptive agents and anabolic agents. Anti-resorptive agents act to prevent further bone loss by inhibiting the breakdown of bone, while anabolic agents stimulate bone formation to build new, high-quality bone.

Bisphosphonate anti-resorptive agents, including Aredia (pamidronate), Fosamax (alendronate) and Reclast (zoledronic acid), are the current standard of care, and these treatments inhibit the cells that resorb or take away bone. However, bisphosphonates have limited efficacy for non-vertebral fractures, and gains in bone mineral density have been observed to plateau after a few years of treatment. Additionally, bisphosphonate use has been associated with infrequent but serious adverse events, such as osteonecrosis of the jaw and atypical femoral fractures. These side effects, although rare, have created increasing concern among physicians and patients. Accordingly, the number of bisphosphonate prescriptions has declined over 50% in the last decade and physicians are seeking alternatives to bisphosphonates.

There are several alternatives to bisphosphonates that are approved for the treatment of osteoporosis, including anti-resorptive agents and anabolic agents. The most potent anti-resorptive product that is approved for treatment is Prolia (denosumab). Given twice a year via subcutaneous injection by a physician, Prolia increases bone density and reduces hip, spine and non-vertebral fractures. However, in the past five years, there have been numerous reports about fractures, especially those of the spine, occurring after the cessation of Prolia, which we believe has caused many patients with osteoporosis to refrain from commencing treatment with Prolia.

Anabolic therapies approved for treatment of osteoporosis include Forteo (teriparatide) and Tymlos (abaloparatide). Delivered by daily subcutaneous injection, these products have been observed to improve bone density and reduce vertebral fractures, but have limited evidence for reduction of hip fracture, which is frequently a debilitating fracture for patients. Additionally, use of these products is restricted to two years and their labels include a black-box warning regarding the occurrence of bone cancer in rats treated with Forteo, which is a key deterrent to using these products for many patients.

Evenity (romosozumab-aqqg), an anabolic therapy, increases bone formation briefly while also reducing bone resorption. The reason for the short-term nature of the anabolic effect is unclear. Evenity is delivered via two subcutaneous injections monthly at a doctor’s office, with use restricted to 12 months. Although Evenity exhibited robust anti-fracture efficacy and large gains in bone mineral density in a third-party Phase 3 clinical trial, the Evenity label includes a black-box warning that the product may increase the risk of heart attack, stroke or death from a cardiovascular event.

We believe there is a large unmet need for patients with osteoporosis, as existing therapies have shortcomings in efficacy, tolerability, convenience and safety. Given these shortcomings, we believe there is a significant market opportunity for an anabolic agent such as KER-012, which is designed to be a potent and selective inhibitor of certain TGF-ß ligands, including activin A and activin B, that are key regulators of bone remodeling that act to suppress bone growth. Additionally, with a growing population of older adults, the number of patients with osteoporosis is predicted to expand in the coming years.

Osteogenesis Imperfecta

Osteogenesis imperfecta is a group of genetic disorders that mainly affect the bones. People with osteogenesis imperfecta have bones that fracture easily, often from mild trauma or with no apparent cause. Osteogenesis imperfecta affects approximately one out of every 10,000 to 20,000 people worldwide, while an estimated 25,000 to 50,000 people in the United States are living with the condition.

Limitations of Current Treatment Options for Osteogenesis Imperfecta

There are no approved therapies for the treatment of osteogenesis imperfecta in the United States or the European Union. Current treatment of osteogenesis imperfecta is directed towards the management of fractures with casting or surgical fixation, followed by physical therapy. Preventative surgeries, such as intramedullary, or in-bone, nailing fixation, in which a permanent nail or rod is placed into the center of the bone, are also undertaken. However, these surgical options do not treat the underlying cause of osteogenesis imperfecta. Additionally, bisphosphonates, which are not approved for osteogenesis imperfecta, are commonly used off-label in children. A meta-analysis of randomized trials demonstrated that there was no evidence that current treatments, including bisphosphonates,

reduce fracture risk in patients with osteogenesis imperfecta. Controlled clinical trials also showed no improvement in bone pain, a key disability in children with osteogenesis imperfecta. Additionally, we are not aware of any long-term clinical trials demonstrating a reduction in fractures in adults, and the effect of long-term therapy with these existing products remains unclear.

Pulmonary Arterial Hypertension

PAH is a debilitating disorder characterized by elevated pulmonary vascular resistance due to severe constriction and progressive obliteration of the pulmonary vessels. PAH results in diminished oxygenation, impaired cardiac output and symptoms stemming from overload of the right ventricle, such as shortness of breath, fatigue, fainting, chest pain, palpitations and swelling of extremities and abdomen. We estimate that in the United States there are 750 to 2,000 new cases of PAH each year and 10,000 to 20,000 individuals living with this condition. Despite current treatment options, survival with PAH remains only slightly above 50% at five years, with mortality typically resulting from right ventricle failure.

Loss-of-function mutations in the gene encoding the BMP type II receptor, or BMPR2, are present in over 70% of cases of heritable PAH, or HPAH, while loss-of-function mutations in certain BMPR2 co-receptors are present in other cases of HPAH and idiopathic PAH. Histology and gene expression studies from the lungs of human and experimental PAH showed diminished BMPR2 expression and BMP signaling even in the absence of loss-of-function mutations, as well as enhanced TGF-ß signaling. Consistent with an imbalance in the signaling of these families of ligands, it was recently found that PAH due to cirrhosis and portal hypertension is marked by a severe deficiency of circulating BMP9, while circulating TGF-ß, activin and growth differentiation factor, or GDF, ligands were found to be increased in PAH, even in the absence of causative mutations. Multiple experimental third-party models also demonstrated the efficacy of augmenting BMP signaling or suppressing TGF-ß, activin or GDF signaling, which we believe supports the notion that imbalanced homeostatic BMP and pathogenic TGF-ß, activin and GDF signaling drive the development and progression of pulmonary vascular disease.

Limitations of Current Treatment Options for PAH

All of the currently-approved therapies for PAH are vasodilators, which are medications that dilate blood vessels. These vasodilators fall into one of three categories: (i) prostanoids, which are agonists of the prostacyclin signaling pathway; (ii) endothelin receptor antagonists, or ERAs; or (iii) (a) phosphodiesterase 5 inhibitors, or PDE5i, which are agents that enhance nitric oxide metabolism, or (b) soluble guanylate cyclase activators, which cause downstream cGMP signaling.

One common approach to treating early-stage or mild PAH is an oral combination therapy using ERA and PDE5i medications. More severe PAH generally requires the addition of prostanoid, via oral or inhaled administration, while advanced PAH typically requires continuous parenteral administration. Each of these individual therapies may modestly improve a patient's functional status and in some cases survival, but is limited by systemic hypotension, systemic side effects and tachyphylaxis, which is an acute, sudden decrease in response to a product after its administration. Additionally, combination therapy is limited by the combined side effect profiles. Although existing treatments may modestly slow the progression of PAH, none appear to halt or reverse the disease's progression.

While the key physiologic and pathologic features of PAH include vasoconstriction, scar tissue and vascular smooth muscle cell proliferation and inflammation, the main pharmacological effect for all currently approved therapies is believed to be vasodilation. Accordingly, we believe there is a significant unmet need for a treatment that primarily targets the proliferative pathological processes and can be used alone or in combination with other PAH therapies. We believe that potent therapies that do not exhibit tachyphylaxis, are orally bioavailable or do not require continuous infusion therapy would have advantages over the currently available treatments for PAH.

Therapies that arrest pulmonary vascular remodeling could have a long-term clinical stabilizing effect in PAH, or reverse vascular obliteration. We believe that KER-012 has the potential to increase the signaling of BMP pathways through the inhibition of activin A and activin B signaling, and consequently treat diseases such as PAH that are associated with reduced BMP signaling due to inactivating mutations in the BMP receptors.

Preclinical Data

We have generated preclinical data that we believe demonstrated proof-of-mechanism of KER-012 for the treatment of disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta, and for the treatment of PAH. Specifically, in preclinical studies, KER-012:

- showed high affinity for and potent inhibition of ligands involved in the regulation of bone homeostasis;
- lacked binding to BMP9, a ligand critical in vascular remodeling, vascular stability and vascular quiescence;
- increased bone mineral density and trabecular bone volume in wild-type mice and mice with established osteoporosis; and
- did not increase red blood cell production in cynomolgus monkeys.

KER-012 targeted ligands that signal through ActRIIA and ActRIIB in preclinical studies

KER-012 is a modified ActRIIB ligand trap that contains sequences from both wild-type ActRIIB and wild-type ActRIIA. In preclinical studies, KER-012 bound to and inhibited multiple ligands that signal through these cell surface receptors, including activin A, activin B and growth differentiation factor 11. These ligands are key regulators of bone remodeling that act to suppress bone growth. BMP9 is a ligand capable of signaling through the ActRIIB and bone morphogenetic receptor II. Inhibition of BMP9 results in disruption of vascular remodeling, which can lead to the development of epistaxis and telangiectasias. KER-012 did not bind BMP9 or inhibit BMP9 signaling in preclinical studies. Consequently, we believe KER-012 has the potential to avoid negative effects on vascular remodeling.

KER-012 potently stimulated bone growth by increasing bone formation in wild-type mice and mice with established osteoporosis

In preclinical studies conducted in wild-type mice, twice weekly intraperitoneal 20 mg/kg dosing of KER-012 increased bone mineral density, trabecular volume and trabecular number compared to vehicle-treated mice 31 days post-treatment. Additionally, we observed that treatment with KER-012 statistically significantly increased trabecular bone formation and mineral apposition rate, which we believe is consistent with an anabolic effect on bone. We also observed in preclinical studies conducted in mice with established osteoporosis that twice weekly intraperitoneal 20mg/kg dosing of KER-012 increased bone mass compared to vehicle-treated mice 46 days post-treatment.

CKER-012 did not increase red blood cells in non-human primates

In a preclinical study, cynomolgus monkeys received subcutaneous administration every other week for one month of either vehicle or a 10 mg/kg dose of CKER-012, a monkey form of KER-012 comprised of the same modified ActRIIB fused to a cynomolgus Fc that has a ligand binding profile similar to that of KER-012. We measured hematology at baseline and on Day 35. Changes in red blood cells, hematocrit and hemoglobin over the 35-day study were not statistically significantly different compared to changes observed in the vehicle-treated cohort. Based on these findings that CKER-012 did not increase red blood cell production in monkeys, we believe KER-012 has the potential not to increase red blood cell production in humans.

Based on the findings from our preclinical studies, we believe KER-012 has the potential to treat disorders associated with bone loss, such as osteoporosis and osteogenesis imperfecta. Additionally, inhibition of BMP9 signaling can result in endothelial cell apoptosis, remodeling and arterial occlusion in diseases such as PAH. We believe that KER-012 has the potential to increase the signaling of BMP pathways through this inhibition of activin A and activin B signaling, and consequently treat diseases such as PAH that are associated with reduced BMP signaling due to inactivating mutations in the BMP receptors.

Our Proprietary Discovery Approach

We believe, based on our previous experience with ActRII ligand traps using the endogenous and wild-type sequences, that observations in preclinical rodent models have the potential to translate to humans in the clinic. Specifically:

- Wild-type ActRIIA-Fc was associated with increased bone growth and red blood cell production in rodents and non-human primates. In a third-party clinical trial of ActRIIA-Fc, increased bone mineral density and red blood cell production was reported in healthy post-menopausal women. In this clinical trial, it was also

reported that lower doses elicited the effect on red blood cells compared to bone, and thus, the dominant effect on red blood cell production prevented development in diseases with bone loss.

- In third-party preclinical studies in rodents and non-human primates, ActRIIB-Fc was associated with increased bone mineral density and lean muscle mass, but was not associated with changes in red blood cells. However, ActRIIB-Fc was also observed to cause nose and gum bleeding, which we believe is due to its effect of disrupting normal vascular remodeling. BMP9 signaling is required for normal vascular remodeling, but is not involved in regulation of muscle or bone tissues. ActRIIB-Fc potently inhibits BMP9 signaling, which is the mechanism behind the bleeding events observed with ActRIIB-Fc treatment.

We have developed a proprietary library of ActRII ligand traps by combining sequences from ActRIIA and ActRIIB. We have engineered molecules that are designed to have the therapeutic properties of either or both parent molecules without the dose-limiting effect on red blood cells observed with ActRIIA-Fc or the negative effect on blood vessels observed with wild-type ActRIIB-Fc. Our ActRII program has produced a broader pipeline of engineered ligand traps and currently contains more than 20 unique variants in preclinical development. These include:

- Molecules designed to increase bone mass without the dose-limiting effect on red blood cells observed with wild-type ActRIIA-Fc; and
- Molecules designed to increase muscle and bone mass with reduced BMP9 binding without impacting vascular remodeling that leads to weak blood vessels observed with the wild-type ActRIIB-Fc.

Our discovery approach has built on these initial observations to generate product candidates designed to target ActRII receptors without the liabilities observed in third-party preclinical studies and clinical trials of ActRIIA-Fc and ActRIIB-Fc.

We believe that we are well positioned to advance our product candidates and realize the commercial opportunities in diseases where muscle and bone loss result in a debilitating impact on survival and quality of life, if our product candidates are successfully developed and approved. Our deep knowledge and expertise of the TGF-ß family of proteins provides a streamlined approach to screen and develop novel product candidates for hematological and musculoskeletal diseases.

Manufacturing

We rely, and expect to continue to rely for the foreseeable future, on third-party contract manufacturing organizations, or CMOs, to produce our product candidates for preclinical and clinical testing, as well as for commercial manufacture if our product candidates receive marketing approval. We require that our CMOs produce bulk drug substances and finished drug products in accordance with current Good Manufacturing Practices, or cGMPs, and all other applicable laws and regulations. We maintain agreements with our manufacturers that include confidentiality and intellectual property provisions to protect our proprietary rights related to our product candidates.

We have engaged CMOs to manufacture supply for preclinical and clinical use. Additional CMOs are used to label, package and distribute drug product for preclinical and clinical use. We obtain our supplies from these CMOs on a purchase order basis and do not have any long-term supply arrangements in place. We do not currently have arrangements in place for redundant supply. As our development programs expand and we build new process efficiencies, we expect to continually evaluate this strategy with the objective of satisfying demand for registration trials and, if approved, the manufacture, sale and distribution of commercial products.

Competition

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary rights. While we believe that our product candidates, discovery programs, technology, knowledge, experience and scientific resources provide us with competitive advantages, we compete in the highly competitive markets and face significant competition from many sources, including pharmaceutical and biotechnology companies, as well as academic institutions, governmental agencies and private and public research institutions.

We compete in the segments of the biotechnology, pharmaceutical and other related industries that develop and market therapies for the treatment of hematological and musculoskeletal disorders. There are many other companies,

including large biotechnology and pharmaceutical companies, that have commercialized and/or are developing therapies for the same therapeutic areas that our product candidates target. For example, FibroGen Inc. and Astellas Pharma Inc. are developing product candidates for the treatment of anemia, and Acceleron Pharma Inc. and Bristol-Myers Squibb Company are both developing product candidates targeting diseases associated with MDS and myelofibrosis, including chronic anemia. Sierra Oncology, Inc. is developing momelotinib as a treatment for myelofibrosis.

Other companies that are developing product candidates that are designed to target the TGF-ß signaling pathways include Scholar Rock Holding Corporation, Biogen Inc. and Regeneron Pharmaceuticals, Inc.

There are currently no approved drugs for the treatment of FOP. However, Ipsen, through its subsidiary Clementia Pharmaceuticals Inc. and pursuant to a collaboration with Blueprint Medicines Corporation, as well as Regeneron Pharmaceuticals, Inc. and BioCryst Pharmaceuticals, Inc. are developing product candidates for the treatment of FOP that are intended to work, at least in part, through inhibition of the ALK2 signaling pathway.

Many of the companies against which we are competing or against which we may compete in the future, either alone or with their strategic collaborators, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved drugs than we do. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies or universities and research institutions. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and enrolling patients for our clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

We could see a reduction or elimination of our commercial opportunity if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. The availability of reimbursement from government and other third-party payors will also significantly affect the pricing and competitiveness of our products. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market.

Collaborations and License Agreement

2016 Exclusive Patent License Agreement with The General Hospital Corporation

In April 2016, we entered into an exclusive patent license agreement with The General Hospital Corporation, or MGH, which was subsequently amended in May 2017 and February 2018. Under the license agreement with MGH, or the MGH Agreement, we obtained an exclusive, worldwide license, with the right to sublicense, under certain patents and technical information of MGH, to make, have made, use, have used, sell, have sold, lease, have leased, import, have imported or otherwise transfer licensed products and processes for use in the treatment, diagnosis, palliation and prevention of diseases and disorders in humans and animals. We are required to use commercially reasonable efforts to develop and commercialize licensed products and processes, and must achieve certain required diligence milestones.

Under the terms of the MGH Agreement, we made an initial license payment of $100,000 and reimbursed MGH approximately $280,000 of prior patent prosecution expenses related to the licensed patents. We also issued MGH an aggregate of 358,674 shares of our common stock. Additionally, we are required to pay a low-five digit to mid-five digit annual maintenance fee prior to the first commercial sale of our first product or process, a mid-five digit annual maintenance fee after the first commercial sale of our first product or process that is creditable against royalties, certain clinical and regulatory milestone payments for the first three products or indications to achieve such milestones, which milestone payments are $8.6 million in the aggregate, and certain commercial milestone payments for the first three products or indications to achieve such milestones, which milestone payments are $18.0 million in the aggregate. We are also obligated to pay tiered royalties on net sales of licensed products ranging in the low-single digits to mid-single digits. The royalty rates are subject to up to a maximum 50% reduction for lack

of a valid claim, in the event that it is necessary for us to obtain a license to any third-party intellectual property related to the licensed products, and generic competition. The obligation to pay royalties under the MGH Agreement expires on a licensed product-by-licensed product and country-by-country basis upon the later of expiry of the last valid claim of the licensed patents that cover such licensed product in such country and ten years from the first commercial sale of such product in such country. We are also obligated to pay a percentage of non-royalty related payments received by us from sublicensees ranging in the sub-teen double digits and a change of control fee equal to a low-single digit percentage of the payments received as part of any completed transaction up to a low-seven digit amount.

The MGH Agreement expires upon expiry of the last remaining royalty obligation for a licensed product or process. Under the MGH Agreement, MGH may terminate the agreement upon our uncured material breach or insolvency, a challenge by us of the licensed patents and certain other specified breaches of the MGH Agreement. We may terminate the agreement for any reason upon specified prior written notice to MGH.

2017 Research Collaboration and Exclusive License Agreement with Novo Nordisk

In December 2017, we entered into a research collaboration and exclusive license agreement with Novo Nordisk A/S, or Novo Nordisk. Under the agreement with Novo Nordisk, or the Novo Nordisk Agreement, we are collaborating with Novo Nordisk on research and development of fusion molecules consisting of a ligand binder present as part of a larger molecule, or ligand traps. Pursuant to the Novo Nordisk Agreement, Novo Nordisk had the right to select a prespecified number of ligand traps for further development and commercialization by Novo Nordisk. Following execution, Novo Nordisk selected one existing ligand trap to further develop and commercialize and prior to the completion of the two-year research program, selected a second ligand trap arising from the collaboration.

Upon selection by Novo Nordisk of each ligand trap, we transferred the selected ligand trap to Novo Nordisk for further development and commercialization. We are able to further develop and commercialize all other remaining declined ligand traps, subject to certain limitations as described below.

Under the Novo Nordisk Agreement, we granted Novo Nordisk an exclusive, worldwide, royalty bearing license, with the right to sublicense, under certain of our background intellectual property and collaboration intellectual property to develop, manufacture and commercialize products that contain the initial ligand trap and any selected ligand trap, whether alone or as a combination product, for use in the treatment of diabetes (including diabetes related complications of cardiovascular disease, or CVD, and chronic kidney disease, or CKD), obesity, (including obesity related complications of CVD, CKD and sarcopenic obesity), non-alcoholic steatohepatitis and cachexia, and, solely as a combination product for use in CVD and CKD.

Under the terms of the Novo Nordisk Agreement, we received an initial license payment of $16.0 million. Novo Nordisk has paid us $4.0 million in research funding over the two-year research program. Additionally, we are eligible to receive certain clinical and regulatory milestone payments for the first product, for which milestone payments are $176.0 million in the aggregate, assuming the first product achieves such milestones in three indications, certain clinical and regulatory milestone payments for the second and third products, for which milestone payments are $145.5 million in the aggregate for each product, assuming each of the second and third products achieves such milestones in three indications, and certain commercial milestone payments, for which milestone payments are $70.0 million in the aggregate. We are also eligible to receive a mid-single digit royalty on net sales of licensed products, which include combination products. The royalty rates may be reduced up to a specified percentage in the event that Novo Nordisk's commercialization of resulting products requires obtaining a license from a third party to avoid infringement of third-party patents. Novo Nordisk's obligation to pay royalties to us under the Novo Nordisk Agreement expires on a licensed product-by-licensed product and country-by-country basis upon the later of expiry of the last valid claim of certain specified patents that cover such licensed product in such country and a number of years in the sub-teen double digits from first commercial sale of such product in such country.

Under the terms of the Novo Nordisk Agreement, during the term of the agreement, we are not permitted, directly or indirectly, to research, develop or commercialize any ligand trap or ligand binder for use in the licensed field or any selected ligand trap outside of the licensed field, provided that after the expiration of the research collaboration term, we may research, develop, or commercialize any declined ligand trap for use in CVD and CKD.

The Novo Nordisk Agreement expires upon expiry of the last remaining royalty obligation for a licensed product. Under the Novo Nordisk Agreement, either party may terminate the agreement upon the uncured material breach or insolvency of the other party. We may terminate the agreement upon a challenge by Novo Nordisk of the patentability, enforceability or validity of any claim contained in the licensed patents. Novo Nordisk may terminate the agreement for any reason upon specified prior written notice to us.

Intellectual Property

Overview

We strive to protect the proprietary technology, inventions and improvements that we believe are commercially important to our business, including obtaining, maintaining, enforcing and defending our intellectual property rights, including patent rights, whether developed internally or licensed from third parties. We rely, in part, on trade secrets and know-how relating to our proprietary technology and drug candidates and continuing innovation to develop, strengthen and maintain our proprietary position. We also plan to rely, in part, on data exclusivity, market exclusivity and patent term extensions if and when available. Our commercial success will depend in part on our ability to obtain and maintain patent and other intellectual property protection for our technology, inventions and improvements; to preserve the confidentiality of our trade secrets; to defend and enforce our proprietary rights, including any patents that we own or may obtain in the future; and to operate without infringing, misappropriating or otherwise violating the valid and enforceable patents and other intellectual property rights of third parties. Intellectual property rights may not address all potential threats to our competitive advantage

As of December 31, 2019, our patent portfolio consisted of five issued U.S. patents, eight pending U.S. patent applications, three issued ex-U.S. patents and 25 pending ex-U.S. applications, with expected expiry dates not earlier than between March 13, 2029 and October 25, 2039. Of these, 25 patent applications relate to KER-050, KER-047 and KER-012, and eight issued patents and nine patent applications relate to other technologies, in each case as described in more detail below. Each of our pending international patent applications has been filed under the Patent Cooperation Treaty and has not yet entered any national jurisdictions. Our policy is to file patent applications to protect technology, inventions and improvements to inventions that may be commercially important to the development of our business.

We seek U.S. and international patent protection for a variety of technologies, and own patent applications with claims directed to ActRIIA ligand traps, ActRIIB ligand traps, GDNF fusion polypeptides, ALK2 antibodies and crystal forms of an ALK2 inhibitor. We also intend to seek patent protection or rely upon trade secret rights to protect other technologies that may be used to discover and validate targets, and that may be used to manufacture and develop novel products. We are a party to license agreements that give us rights to use specific technologies in our products and in manufacturing our products.

Patent applications directed to our most advanced programs are summarized below.

KER-050

KER-050 is a modified ActRIIA ligand trap that is designed to bind to different TGF-ß ligands that signal through a TGF-ß signaling pathway. We own four pending U.S. patent applications and 14 pending ex-U.S. applications that contain claims or supporting disclosure directed to ActRIIA ligand traps and use thereof to treat muscle disease, bone disease, metabolic disease, anemia, fibrosis, and pulmonary hypertension. Any patents issuing from these applications will have expiration dates between November 9, 2037 and May 9, 2039, absent any patent term adjustments or extensions.

KER-047

KER-047 is an orally available small molecule ALK2 inhibitor designed to potently and selectively inhibit ALK2 signaling. We own one pending U.S. patent application that contains claims or supporting disclosure directed to crystal forms of an ALK2 inhibitor. Any patents issuing from this application will have an expiration date of October 25, 2039, absent any patent term adjustments or extensions.

We have exclusively licensed from The General Hospital Corporation rights in one patent family related to novel ALK2 inhibitors. Patents in this family are expected to expire on April 26, 2038, absent any patent term adjustments or extensions.

KER-012

KER-012 is a modified ActRIIB ligand trap that is designed to bind to different TGF-ß ligands that signal through a TGF-ß signaling pathway. We own one pending U.S. patent application that contains claims or supporting disclosure directed to ActRIIB ligand traps and use thereof to treat muscle disease, bone disease, anemia, fibrosis, and pulmonary hypertension. Any patents issuing from this application will have an expiration date of January 11, 2039, absent any patent term adjustments or extensions.

Other

We plan to seek United States and international patent protection for a variety of additional technologies. We own two pending U.S. patent applications and seven pending ex-U.S. applications that contain claims or supporting disclosure directed to GDNF fusion polypeptides and ALK2 antibodies. Any patents issuing from these applications will have expiration dates between November 9, 2037 and October 23, 2039, absent any patent term adjustments or extensions.

Intellectual Property Protection

Individual patents extend for varying periods depending on the date of filing of the patent application or the date of patent issuance and the legal term of patents in the countries in which they are obtained. Generally, patents issued for regularly filed applications in the United States are granted a term of 20 years from the earliest effective non-provisional filing date. In addition, in certain instances, a patent term can be extended to recapture a portion of the U.S. Patent and Trademark Office, or the USPTO, delay in issuing the patent as well as a portion of the term effectively lost as a result of the FDA regulatory review period. However, as to the FDA component, the restoration period cannot be longer than five years and the total patent term including the restoration period must not exceed 14 years following FDA approval. The duration of patents outside of the United States varies in accordance with provisions of applicable local law, but typically is also 20 years from the earliest effective filing date. However, the actual protection afforded by a patent varies on a product by product basis, from country to country and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country and the validity and enforceability of the patent.

Furthermore, we rely upon trade secrets and know-how and continuing technological innovation to develop and maintain our competitive position. We seek to protect our proprietary information, in part, using confidentiality agreements with our collaborators, employees and consultants and invention assignment agreements with our employees. We also have confidentiality agreements or invention assignment agreements with our collaborators and consultants. These agreements are designed to protect our proprietary information and, in the case of the invention assignment agreements, to grant us ownership of technologies that are developed through a relationship with a third party. These agreements may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our collaborators, employees and consultants use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Our commercial success will also depend in part on not infringing upon the proprietary rights of third parties. It is uncertain whether the issuance of any third-party patent would require us to alter our development or commercial strategies, or our product candidates or processes, obtain licenses or cease certain activities. Our breach of any license agreements or failure to obtain a license to proprietary rights that we may require to develop or commercialize our future product candidates may have an adverse impact on us. If third parties have prepared and filed patent applications prior to March 16, 2013 in the United States that also claim technology to which we have rights, we may have to participate in interference proceedings in the USPTO, to determine priority of invention. For more information, please see “Risk Factors—Risks Related to Intellectual Property.”

Government Regulation

The FDA and other regulatory authorities at federal, state and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring and post-approval reporting of drug and biological products such as those we are developing.

Our product candidates are subject to regulation under the Food, Drug, and Cosmetic Act and the Public Health Service Act, and other federal, state, local and foreign statutes and regulations. We, along with third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval or licensure of our product candidates.

U.S. Drug and Biological Product Regulation

Our product candidates must be approved by the FDA through either a New Drug Application, or NDA, or a Biologics License Application, or BLA. The process required by the FDA before biopharmaceutical product candidates may be marketed in the United States generally involves the following:

- completion of extensive preclinical laboratory tests and animal studies performed in accordance with applicable regulations, including the FDA's Good Laboratory Practice, or GLP, requirements;
- submission to the FDA of an Investigational New Drug, or IND, application which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, or ethics committee at each clinical site before the trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with applicable IND regulations, good clinical practice, or GCP, requirements and other clinical trial-related regulations to establish the safety and efficacy of the investigational drug product for each proposed indication and to establish the safety, purity and potency of the investigational biologic product candidate for each proposed indication;
- preparation of and submission to the FDA of an NDA for a small molecule product candidate or a BLA for a biologic after completion of all pivotal clinical trials;
- payment of user fees for FDA review of the NDA or BLA;
- a determination by the FDA within 60 days of its receipt of the NDA or BLA to file the application for review;
- satisfactory completion of one or more FDA pre-approval inspections of the manufacturing facility or facilities at which the proposed product will be produced to assess compliance with current Good Manufacturing Practice, or cGMP, requirements and to assure that the facilities, methods and controls are adequate to preserve the product's continued identity, strength, quality and purity;
- potential FDA audit of the preclinical study and/or clinical trial sites that generated the data in support of the NDA or BLA;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- FDA review and approval of an NDA or licensure of a BLA, including consideration of the views of any FDA Advisory Committee, prior to any commercial marketing or sale of the product for particular indications for use in the United States; and
- compliance with any post-approval requirements, including the potential requirement to conduct post-approval studies.

Preclinical and Clinical Development

Before testing any drug or biologic candidate in humans in the United States, the product candidate must undergo rigorous preclinical testing. Preclinical studies include laboratory evaluation of product chemistry and formulation, as well as *in vitro* and animal studies to assess safety and in some cases to establish a rationale for therapeutic use. The conduct of preclinical studies is subject to federal and state regulations and requirements, including GLP regulations for safety/toxicology studies.

Prior to beginning the first clinical trial with a product candidate, we must submit the results of the preclinical studies, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of an IND. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The IND submission contains the general investigational plan and the protocol or protocols for preclinical studies and clinical trials, as well as results of *in vitro* and animal studies assessing the toxicology, pharmacokinetics, pharmacology and pharmacodynamic characteristics of the

product, chemistry, manufacturing and controls information, and any available human data or literature to support the use of the investigational product. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day period, raises safety concerns or questions related to one or more proposed clinical trials and places the trial on clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial.

The clinical stage of development involves the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCP requirements, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. These investigators are generally physicians who are not employed by or under the trial sponsor's control. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, dosing procedures, subject selection and exclusion criteria, and the parameters to be used in monitoring subject safety and assessing efficacy. Each protocol, and any subsequent amendments to the protocol, must be submitted to the FDA as part of the existing IND. Furthermore, each clinical trial must be reviewed and approved by an independent IRB for each institution at which the clinical trial will be conducted to ensure that the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the informed consent form that must be provided to each clinical trial subject or his or her legal representative, and must monitor the study until completed. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing preclinical studies and clinical trials and clinical study results to public registries.

A sponsor who wishes to conduct a clinical trial outside of the United States may, but need not, obtain FDA authorization to conduct the clinical trial under an IND. If a foreign clinical trial is not conducted under an IND, the sponsor may submit data from the clinical trial to the FDA in support of an NDA. The FDA will accept a well-designed and well-conducted foreign clinical trial not conducted under an IND if the trial was conducted in accordance with GCP requirements and the FDA is able to validate the data through an onsite inspection, if deemed necessary, and the practice of medicine in the foreign country is consistent with the United States.

Human clinical trials in the United States are typically conducted in three sequential phases that may overlap or be combined:

- Phase 1 clinical trials generally involve a small number of healthy volunteers or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.
- Phase 2 clinical trials involve studies in a limited population of disease-affected patients to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks.
- Phase 3 clinical trials generally involve a large number of patients at multiple geographically dispersed clinical trial sites and are designed to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval.

When these phases overlap or are combined, the trials may be referred to as Phase 1/2 or Phase 2/3. A Phase 1/2 clinical trial is a human trial that investigates both safety and preliminary efficacy of an investigational therapy. A Phase 2/3 clinical trial is a human trial that investigates both preliminary and confirmatory efficacy and safety to potentially support submission of a marketing application with the applicable regulatory authorities.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so-called Phase 4 studies, are used to gain additional experience from the treatment of patients in the intended therapeutic indication and are commonly intended to generate additional safety data regarding use of the product in a clinical setting. In certain instances, the FDA may mandate the performance of Phase 4 clinical trials as a condition to FDA approval of an NDA or BLA.

Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the chemistry and physical characteristics of the product candidate, and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product, or for biologics, the safety, purity and potency. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data, and clinical study investigators. The FDA or the sponsor or its data safety monitoring board may suspend a clinical study at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical study at its institution if the clinical study is not being conducted in accordance with the IRB's requirements or if the biological product candidate has been associated with unexpected serious harm to patients. There are also requirements governing the reporting of ongoing clinical trials and completed clinical trial results to public registries. Sponsors of clinical trials of FDA-regulated products, including biologics, are required to register and disclose certain clinical trial information, which is publicly available at www.clinicaltrials.gov.

FDA Review Process

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, nonclinical studies and clinical trials are submitted to the FDA as part of an NDA or BLA. The NDA or BLA is a request for approval to market the drug or biologic for one or more specified indications and must contain proof of safety and efficacy for a drug or safety, purity and potency for a biologic. The application must include all relevant data available from pertinent preclinical studies and clinical trials, including negative or ambiguous results of preclinical studies and clinical trials, as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls, and proposed labeling, among other things. Data may come from company-sponsored clinical trials intended to test the safety and efficacy of a product's use or from a number of alternative sources, including studies initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and efficacy of the investigational product to the satisfaction of FDA.

Under the Prescription Drug User Fee Act, or PDUFA, as amended, each submission of an NDA or BLA requires payment of a substantial application user fee to the FDA, unless a waiver or exemption applies. The FDA adjusts the PDUFA user fees on an annual basis. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first application filed by a small business. Additionally, no user fees are assessed on NDAs or BLAs for products designated as orphan drugs, unless the product application also includes a non-orphan indication.

The FDA reviews all submitted NDAs and BLAs before it accepts them for filing, and may request additional information rather than accepting the NDA or BLA for filing. The FDA must make a decision on accepting an NDA or BLA for filing within sixty days of receipt. Such decision could include either issue a refusal to file letter or acceptance of the NDA or BLA for filing, indicating that it is sufficiently complete to permit substantive review.

Once an NDA or BLA has been accepted for filing, the FDA begins an in-depth review of the NDA or BLA. Under the goals and policies agreed to by the FDA under PDUFA, the FDA aims to review standard applications within ten months from the filing date, during which it will complete its initial review of a new molecular entity NDA or original BLA and respond to the applicant, or within six months from the filing date of a new molecular entity NDA or original BLA designated for priority review. In both standard and priority reviews, the FDA does not always meet its PDUFA

goal dates, and the review process is often significantly extended by FDA requests for additional information or clarification. The FDA reviews the application to determine, among other things, whether a product is safe and effective, or for a biologic, safe, pure and potent for its intended use, and whether the facility in which it is manufactured, processed, packed or held meets standards designed to assure and preserve the product's identity, safety, strength, quality, potency and purity.

The FDA generally accepts data from foreign clinical trials in support of an NDA or BLA if the trials were conducted under an IND, and the IND requirements, unless waived, were met. If a foreign clinical trial is not conducted under an IND, the FDA nevertheless may accept the data in support of an NDA or BLA if the trial was conducted in accordance with GCPs and the FDA is able to validate the data through an on-site inspection, if deemed necessary. Although the FDA generally requests that marketing applications be supported by some data from domestic clinical studies, the FDA may accept foreign data as the sole basis for marketing approval if (1) the foreign data are applicable to the U.S. population and U.S. medical practice, (2) the trials were performed by clinical investigators with recognized competence, and (3) the data may be considered valid without the need for an on-site inspection or, if the FDA considers the inspection to be necessary, the FDA is able to validate the data through an on-site inspection or other appropriate means.

Before approving an NDA or BLA, the FDA will conduct a pre-approval inspection of the manufacturing facility or facilities for the new product to determine whether they comply with cGMP requirements. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. The FDA also may audit data from clinical trials to ensure compliance with GCP requirements. Additionally, the FDA may refer applications for novel products or products which present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions, if any. The FDA is not bound by recommendations of the advisory committee, but it considers such recommendations when making decisions on approval. Additionally, before approving an NDA or BLA, the FDA will typically inspect one or more clinical sites to assure compliance with GCPs. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates an NDA or BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be manufactured, the FDA will issue an approval letter or a Complete Response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A Complete Response letter indicates that the review cycle of the application is complete and the application will not be approved in its present form. A Complete Response letter usually describes all of the specific deficiencies that the FDA has identified in the NDA or BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the Complete Response letter without first conducting required inspections, testing submitted product lots and/or reviewing proposed labeling. In issuing the Complete Response letter, the FDA may recommend actions that the applicant might take to place the application in condition for approval, including requests for additional information or clarification, which may include the potential requirement for additional clinical studies, including the potential requirement to conduct additional clinical trial(s) and/or to complete other significant and time-consuming requirements related to clinical trials, or to conduct additional preclinical studies or manufacturing activities. If a Complete Response Letter is issued, the applicant may either resubmit the NDA or BLA, addressing all of the deficiencies identified in the letter, or withdraw the application or request an opportunity for a hearing. Even if such data and information are submitted, the FDA may decide that the NDA or BLA does not satisfy the criteria for approval. Data obtained from clinical trials are not always conclusive and the FDA may interpret data differently than we interpret the same data.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States for which there is no reasonable expectation that the

cost of developing and making available in the United States a drug or biologic for this type of disease or condition will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting an NDA or BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications, including a full NDA or BLA, to market the same product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity or if the FDA finds that the holder of the orphan drug exclusivity has not shown that it can assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the drug was designated. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the application fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Post-Approval Requirements

Following approval of a new product, the manufacturer and the approved product are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to monitoring and record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, compliance with advertising and promotion requirements, which include restrictions on promoting the product for unapproved uses or patient populations, known as “off-label use,” and limitations on industry-sponsored scientific and educational activities. Further, after approval, if there are any changes or modifications to the approved product, including changes in indications, labeling or manufacturing processes or facilities, the applicant may be required to submit and obtain FDA review and approval of a new NDA/BLA or NDA/BLA supplement, which may require the development of additional data or preclinical studies and clinical trials.

The FDA may also place other conditions on approvals including the requirement for a Risk Evaluation and Mitigation Strategy, or REMS, to assure the safe use of the product. If the FDA concludes a REMS is needed, the sponsor of the NDA or BLA must submit a proposed REMS. A REMS is a safety strategy to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA will not approve the NDA or BLA without an approved REMS, if required. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 post-market studies and surveillance to further assess and monitor the product’s safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies. Product approvals may be withdrawn for non-compliance with regulatory standards or if problems occur following initial marketing.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning or untitled letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of existing product approvals;
- product seizure or detention, or refusal of the FDA to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of drugs and biologics. Drugs and biologics may be promoted only for the approved indications and in accordance with the provisions of the approved label. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA approved labeling. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products.

Biosimilars and Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively the ACA, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCI Act, which created an abbreviated approval pathway for biological products shown to be similar to, or interchangeable with, an FDA-licensed reference biological product. To date, only a handful of biosimilars have been licensed under the BPCIA, although numerous biosimilars have been approved in Europe. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product and, for products administered multiple times, the biologic and the reference biologic may be switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. However, complexities associated with the larger, and often more complex, structure of biological products, as well as the process by which such products are manufactured, pose significant hurdles to implementation that are still being worked out by the FDA.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the

reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

A biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

Foreign Regulation

In order to market any product outside of the United States, we would need to comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety, and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of our products. Whether or not we obtain FDA approval for a product, we would need to obtain the necessary approvals by the comparable foreign regulatory authorities before we can commence clinical trials or marketing of the product in foreign countries and jurisdictions.

Australia

Our initial Phase 1 trial for KER-047 is being conducted in Australia and our Phase 1 trial for KER-050 was conducted in Australia. The Therapeutic Goods Administration, or the TGA, and the National Health and Medical Research Council set the GCP requirements for clinical research in Australia, and compliance with these codes is mandatory. Australia has also adopted international codes, such as those promulgated by the International Council for Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use, or the ICH. The ICH guidelines must be complied with across all fields of clinical research, including those related to pharmaceutical quality, nonclinical and clinical data requirements and trial designs. The basic requirements for preclinical data to support a first-in-human trial under ICH guidelines are applicable in Australia. Requirements related to adverse event reporting in Australia are similar to those required in other major jurisdictions.

Clinical trials conducted using "unapproved therapeutic goods" in Australia, being those which have not yet been evaluated by the TGA for quality, safety and efficacy must occur pursuant to either the Clinical Trial Notification Scheme, or the CTN Scheme, or the Clinical Trial Exemption Scheme, or the CTX Scheme. In each case, the trial is supervised by a Human Research Ethics Committee, or HREC, an independent review committee set up under guidelines of the Australian National Health and Medical Research Council that ensures the protection of rights, safety and well-being of human subjects involved in a clinical trial. A HREC does this by reviewing, approving and providing continuing examination of trial protocols and amendments, and of the methods and material to be used in obtaining and documenting informed consent of the trial subjects.

The CTN Scheme broadly involves:

- completion of preclinical laboratory and animal testing;
- submission to a HREC, of all material relating to the proposed clinical trial, including the trial protocol;
- the institution or organisation at which the trial will be conducted, referred to as the "Approving Authority", giving final approval for the conduct of the trial at the site, having regard to the advice from the HREC; and
- the investigator submitting a 'Notification of Intent to Conduct a Clinical Trial' form, or CTN Form, to the TGA. The CTN form must be signed by the sponsor, the principal investigator, the chairman of the HREC and a person responsible from the Approving Authority. The TGA does not review any data relating to the clinical trial however CTN trials cannot commence until the trial has been notified to the TGA.

Under the CTX Scheme:

- a sponsor submits an application to conduct a clinical trial to the TGA for evaluation and comment; and
- a sponsor must forward any comments made by the TGA Delegate to the HREC(s) at the sites where the trial will be conducted.

A sponsor cannot commence a trial under the CTX Scheme until written advice has been received from the TGA regarding the application and approval for the conduct of the trial has been obtained from an ethics committee and the institution at which the trial will be conducted.

Approval for inclusion in the Australian Register of Therapeutic Goods, or ARTG, is required before a pharmaceutical product may be marketed (or imported, exported or manufactured) in Australia. In order to obtain registration of the product on the ARTG, it is required that:

- adequate and well-controlled clinical trials demonstrate the quality, safety and efficacy of the therapeutic product;
- evidence is compiled which demonstrates that the manufacture of the therapeutic product complies with the principles of cGMP;
- manufacturing and clinical data is derived to submit to the Advisory Committee on Prescription Medicines, which makes recommendations to the TGA as to whether or not to grant approval to include the therapeutic product in the ARTG; and
- an ultimate decision is made by the TGA whether to include the therapeutic product in the ARTG.

Other Healthcare Laws and Compliance Requirements

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business. Such laws include, without limitation: the U.S. federal Anti-Kickback Statute, the civil False Claims Act, U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, and similar foreign, federal and state fraud and abuse, transparency and privacy laws.

The U.S. federal Anti-Kickback Statute prohibits, among other things, persons and entities from knowingly and willfully soliciting, receiving, offering or paying remuneration, to induce, or in return for, either the referral of an individual, or the purchase or recommendation of an item or service for which payment may be made under any federal healthcare program. The term remuneration has been interpreted broadly to include anything of value, including stock options. The U.S. federal Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, and others on the other hand. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, but they are drawn narrowly, and practices that involve remuneration, such as consulting agreements, that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the U.S. federal Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, a claim including items or services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act.

Civil and criminal false claims laws, including the civil False Claims Act, which can be enforced through civil whistleblower or *qui tam* actions, and civil monetary penalty laws prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment to the federal government, including federal healthcare programs, that are false or fraudulent. For example, the civil False Claims Act prohibits any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to the federal government or knowingly making, using or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. A claim includes “any request or demand” for money or property presented to the U.S. government. Pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product.

HIPAA created additional federal civil and criminal liability for, among other things, executing a scheme to defraud any healthcare benefit program, including private third-party payors, and making false statements relating to

healthcare matters. Similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, HIPAA, as amended by HITECH, and their implementing regulations, impose certain requirements on HIPAA covered entities, which include certain healthcare providers, healthcare clearing houses and health plans, and individuals and entities that provide services on their behalf that involve individually identifiable health information, known as business associates, relating to the privacy, security and transmission of individually identifiable health information.

The U.S. federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to certain payments and other transfers of value made in the prior year to physicians, as defined under such law, teaching hospitals and, beginning in 2022, certain other healthcare providers, as well as ownership and investment interests held by such healthcare providers and their immediate family members.

We are also subject to additional similar U.S. state and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, or that apply regardless of payor, state laws which require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, state and local laws which require pharmaceutical companies to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures, state laws which require the reporting of information related to drug pricing, state and local laws requiring the registration of pharmaceutical sales representatives, and state and foreign laws governing the privacy and security of health information which, in some cases, differ from each other in significant ways, and may not have the same effect, thus complicating compliance efforts. If our operations are found to be in violation of any of such laws or any other governmental regulations that apply, we may be subject to penalties, including, without limitation, significant civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, such as Medicare and Medicaid or similar programs in other countries or jurisdictions, integrity oversight and reporting obligations to resolve allegations of non-compliance, disgorgement, imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of our operations.

Coverage and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any pharmaceutical or biological product for which we obtain regulatory approval. Sales of any product, if approved, depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance and managed healthcare organizations, and the level of reimbursement, if any, for such product by third-party payors. No uniform policy for coverage and reimbursement exists in the United States, and coverage and reimbursement can differ significantly from payor to payor. Decisions regarding whether to cover any of our product candidates, if approved, the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our product candidates to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization. In addition, companion diagnostic tests require coverage and reimbursement separate and apart from the coverage and reimbursement for their companion pharmaceutical or biological products. Similar challenges to obtaining coverage and reimbursement, applicable to pharmaceutical or biological products, will apply to companion diagnostics.

In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products. Third-party payors are increasingly challenging the prices charged for medical products and services, examining the medical necessity and reviewing the cost effectiveness of pharmaceutical or biological products, medical devices and medical services, in addition to questioning safety and efficacy. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product that receives approval. Decreases in third-party reimbursement for any product or a decision by a third party not to cover a product could reduce physician usage and patient demand for the product. No regulatory authority has granted approval for a personalized cancer immunotherapy based on a vaccine approach, and there is no model for reimbursement of this type of product.

Healthcare Reform

The United States and some foreign jurisdictions are considering or have enacted a number of reform proposals to change the healthcare system. There is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by federal and state legislative initiatives, including those designed to limit the pricing, coverage, and reimbursement of pharmaceutical and biopharmaceutical products, especially under government-funded healthcare programs, and increased governmental control of drug pricing.

The ACA, which was enacted in March 2010, substantially changed the way healthcare is financed by both governmental and private insurers in the United States, and significantly affected the pharmaceutical industry. The ACA contains a number of provisions of particular import to the pharmaceutical and biotechnology industries, including, but not limited to, those governing enrollment in federal healthcare programs, a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected, and annual fees based on pharmaceutical companies' share of sales to federal healthcare programs. Since its enactment, there have been judicial, Congressional and executive branch challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. For example, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, it has enacted laws that modify certain provisions of the ACA such as removing penalties, which started on January 1, 2019, for not complying with ACA's individual mandate to carry health insurance, delaying the implementation of certain ACA-mandated fees, and increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D. In addition, the 2020 federal spending package permanently eliminates, effective January 1, 2020, the ACA-mandated "Cadillac" tax on high-cost employer-sponsored health coverage and medical device tax and, effective January 1, 2021, also eliminates the health insurer tax. On December 14, 2018, a U.S. District Court Judge in Texas ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act. Additionally, on December 18, 2019, the U.S. Court of Appeals for the 5th Circuit ruled that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well.

Other legislative changes have been proposed and adopted since the ACA was enacted, including aggregate reductions of Medicare payments to providers of 2% per fiscal year and reduced payments to several types of Medicare providers. These reductions went into effect in April 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2029 unless additional action is taken by Congress.

Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. At the federal level, the Trump administration's budget proposal for fiscal year 2020 contains further drug price control measures that could be enacted during the 2020 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate

cost sharing for generic drugs for low-income patients. Further, the Trump administration released a “Blueprint” to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. HHS has already started soliciting feedback on certain of these measures and, additionally, has implemented others under its existing authority. For example, in May 2019, CMS issued a final rule to allow Medicare Advantage Plans the option to use step therapy for Part B drugs beginning January 1, 2020. This final rule codified CMS’s policy change that was effective January 1, 2019. Although a number of these and other measures may require additional authorization to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Additionally, the Right to Try Act, which was enacted on May 30, 2018, provides a federal framework for certain patients with life-threatening diseases or conditions to access certain investigational products for which a Phase I clinical trial has been completed, and that are undergoing investigation for FDA approval, provided that the investigational product has not been approved for any use. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA permission under the FDA expanded access program. There is no obligation for a drug manufacturer to make its investigational products available to eligible patients as a result of the Right to Try Act.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservation and Recovery Act and the Toxic Substances Control Act, affect our business. These and other laws govern the use, handling and disposal of various biologic, chemical and radioactive substances used in, and wastes generated by, operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. Equivalent laws have been adopted in other countries that impose similar obligations.

U.S. Foreign Corrupt Practices Act

The U.S. Foreign Corrupt Practices Act, or FCPA, prohibits U.S. corporations and individuals from engaging in certain activities to obtain or retain business abroad or to influence a person working in an official capacity. It is illegal to pay, offer to pay or authorize the payment of anything of value to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business or to otherwise influence a person working in an official capacity. The scope of the FCPA includes interactions with certain healthcare professionals in many countries. Equivalent laws have been adopted in other foreign countries that impose similar obligations.

Employees

As of December 31, 2019, we had 23 full-time employees, including nine who hold Ph.D. or M.D. degrees. Of these full-time employees, 17 employees are engaged in research and development and six employees are engaged in management or general and administrative activities. None of our employees are subject to a collective bargaining agreement or represented by a trade or labor union. We consider our relationship with our employees to be good.

Facilities

Our principal office is located at 99 Hayden Avenue, Suite 120, Building E, Lexington, Massachusetts 02421, where we lease approximately 10,400 square feet of office and laboratory space under a lease that terminates in 2022. We believe that these facilities will be adequate for our near-term needs. If required, we believe that suitable additional or substitute space will be available in the future on commercially reasonable terms to accommodate any such expansion of our operations.

Legal Proceedings

From time to time, we may be involved in various other claims and legal proceedings relating to claims arising out of our operations. We are not currently a party to any material legal proceedings.

MANAGEMENT

Executive Officers and Directors

The following table sets forth information concerning our executive officers and directors as of March 31, 2020:

NAME	AGE	POSITION(S)
Executive Officers		
Jasbir Seehra, Ph.D.	64	Chief Executive Officer and Director
Keith Regnante	50	Chief Financial Officer
Jennifer Lachey, Ph.D.	47	Chief Scientific Officer
Claudia Ordonez, M.D.	54	Chief Medical Officer
Non-Employee Directors		
Nima Farzan	44	Director
Carl Gordon, Ph.D., C.F.A.	55	Director
Tomer Kariv	59	Director
Julius Knowles	56	Director
Alon Lazarus, Ph.D.	45	Director
Ran Nussbaum	47	Director

Executive Officers

Jasbir Seehra, Ph.D., has served as our Chief Executive Officer and as a member of our board of directors since December 2015. Prior to joining us, Dr. Seehra served as the Chief Scientific Officer at Ember Therapeutics, Inc. from December 2011 to April 2015. From February 2004 to November 2010, Dr. Seehra served as the Co-Founder and Chief Scientific Officer of Acceleron Pharma Inc. Dr. Seehra serves on the board of directors of Eloxx Pharmaceuticals, Inc. He has also served as Vice President of Biological Chemistry at Wyeth Pharmaceuticals Inc. and led the small molecule lead discovery effort at Genetics Institute, Inc., where he helped build the institute's small molecule drug discovery capabilities, including medicinal chemistry, high throughput screening and structural biology. Dr. Seehra received a B.Sc. and a Ph.D. in Biochemistry from the University of Southampton in England. He completed his postdoctoral work at the Massachusetts Institute of Technology. Our board of directors believes that Dr. Seehra's extensive experience in the pharmaceutical industry and executive leadership experience provides him with the qualifications to serve on our board of directors.

Keith Regnante has served as our Chief Financial Officer since February 2020. Prior to joining us, from August 2016 to January 2020, Mr. Regnante served as Chief Financial Officer at Wave Life Sciences Ltd. From February 2014 to August 2016, Mr. Regnante served as Vice President of Finance at Shire Pharmaceuticals, or Shire, a global biopharmaceutical company. Mr. Regnante also served on the Financial Leadership Team and the R&D Leadership Team while he was at Shire. From September 2013 to February 2014, he served as Head of R&D Finance for ARIAD Pharmaceuticals, Inc. From January 1999 to August 2013, Mr. Regnante held multiple finance positions at Biogen Inc., including Senior Director of Corporate Finance from 2011 to 2013, Senior Director of Worldwide R&D Finance from 2008 to 2011 and several other positions dating back to 1999. Prior to these roles, Mr. Regnante worked as a consultant at The Boston Consulting Group. He holds a B.A. in Economics from Tufts University and an M.B.A. from the MIT Sloan School of Management.

Jennifer Lachey, Ph.D., has served as our Chief Scientific Officer since June 2019, and as our Vice President of Biology and Pharmacology since July 2016. Prior to joining us, Dr. Lachey served as a Senior Director at Seres Therapeutics, Inc. from March 2015 to July 2016. From July 2012 to January 2015, Dr. Lachey served as the Senior Director of Preclinical Pharmacology at Ember Therapeutics, Inc. From January 2008 to July 2012, Dr. Lachey served as the Associate Director of Preclinical Pharmacology at Acceleron Pharma Inc. Dr. Lachey received a B.Sc. in Biology from Indiana University, and a Ph.D. in Neurobiology from the University of Cincinnati. Dr. Lachey completed her post-doctoral training at Beth Israel Deaconess Medical Center.

Claudia Ordonez, M.D., has served as our Chief Medical Officer since September 2019. Prior to joining us, Dr. Ordonez served as vice president of Akcea Therapeutics, Inc. from November 2018 to September 2019. From October 2015 to October 2018, Dr. Ordonez served as Chief Medical Officer of Flatley Discovery Lab. From July 2012 to October 2015, Dr. Ordonez served as Senior Medical Director at Biogen Inc. (formerly Biogen Idec Inc.). From July 2006 to June 2012, Dr. Ordonez served as Senior Medical Director at Vertex Pharmaceuticals, Inc. Dr. Ordonez also served as a full-time attending physician at Boston Children's Hospital from August 1998 to July 2006, maintaining the position on a part-time basis to April 2013. Dr. Ordonez received a B.A. in Biology from the University of Maryland, Baltimore County, and received an M.D. in Medicine and fellowship training at University of California, San Francisco.

Non-Employee Directors

Nima Farzan has served as a member of our board of directors since March 2020. Mr. Farzan has served as the Chief Executive Officer and director of Kinnate Biopharma Inc. since March 2020. Mr. Farzan served as an advisor for a number of life sciences companies from October 2018 to February 2020. From 2011 to October 2018, Mr. Farzan was employed by PaxVax Corporation, serving as its President and Chief Executive Officer from April 2015 until the company's acquisition by Emergent Biosolutions Inc. in October 2018. Prior to PaxVax, Mr. Farzan held positions of increasing seniority at Novartis AG from 2003 to 2011. From 1999 to 2002, Mr. Farzan served in various marketing and business development positions at DoubleTwist, Inc. and from 1997 to 1999, Mr. Farzan served as an associate at The Boston Consulting Group. Nima has a bachelor's degree in Human Biology from Stanford University and an M.B.A. from the Harvard Business School. Our board of directors believes that Mr. Farzan's significant industry experience and corporate management experience qualify him to serve on our board of directors.

Carl Gordon, Ph.D., C.F.A., has served as a member of our board of directors since March 2020. Dr. Gordon is a founding member, Managing Partner and Co-Head of Global Private Equity at OrbiMed Advisors LLC, an investment firm. Dr. Gordon currently serves on the boards of directors of Turning Point Therapeutics, Inc. and Prevail Therapeutics Inc., as well as several private companies. Dr. Gordon previously served on the boards of directors of several biopharmaceutical companies, including Alector Inc., X4 Pharmaceuticals, Inc. (formerly Arsanis, Inc.), Acceleron Pharma Inc., ARMO BioSciences, Inc., Intellia Therapeutics, Inc., Selecta Biosciences, Inc. and Passage Bio Inc. Dr. Gordon received a B.A. in Chemistry from Harvard College, a Ph.D. in Molecular Biology from the Massachusetts Institute of Technology and was a Fellow at The Rockefeller University. Our board of directors believes that Dr. Gordon's medical expertise, extensive business experience and experience in venture capital and the life science industry qualify him to serve on our board of directors.

Tomer Kariv has served as a member of our board of directors since January 2020. Mr. Kariv has served as Managing Partner and Co-Founder of The Pontifax Group, or Pontifax, a group of Israeli-based life sciences venture funds focusing on investments in development stage bio-pharmaceutical and med-tech technologies, since December 2004. Mr. Kariv currently serves on the boards of Eloxx Pharmaceuticals, Inc. and LogicBio Therapeutics, Inc., and he previously served on the boards of 89bio, Inc., Arno Therapeutics, Inc., Check-Cap Ltd., Macrocure Ltd. and VBI Vaccines Inc. Mr. Kariv also serves as a member of the boards of several private life sciences companies. Mr. Kariv received a B.A. in Economics from Harvard University and a J.D. from Harvard Law School. Our board of directors believes Mr. Kariv's extensive experience as a venture capital investor, financial executive and board member qualifies him to serve on our board of directors.

Julius Knowles has served as a member of our board of directors since April 2016. Since January 2014, Mr. Knowles has served as a Partner at Partners Innovation Fund, the venture arm of Partners HealthCare. From March 2012 to January 2014, Mr. Knowles served as the Chief Executive Officer of X-BODY BioSciences Inc. (acquired by Juno Therapeutics, Inc.). From October 2006 to February 2012, Mr. Knowles was responsible for global technology and drug discovery collaborations at Novartis, including as the Head of the Platforms team for Strategic Alliances at Novartis Institute of Biomedical Research. From March 2002 to June 2006, Mr. Knowles served as the President of Novalar Pharmaceuticals, Inc. Mr. Knowles previously served as the Vice President of Business Development of Novacea, Inc. (acquired by Transcept Pharmaceuticals, Inc.) from June 2001 to March 2002, the Vice President of Business Development of SGX Pharmaceuticals, Inc. from October 1999 to June 2001 and the Director of Research and Development Planning at Vertex Pharmaceuticals, Inc. from June 1993 to October 1999.

Mr. Knowles also serves on the board of several private life science companies. Mr. Knowles received a B.A. with distinction in Chemistry from Carleton College, an M.B.A. from the University of Pennsylvania and an M.Sc. in Chemistry from UC Berkeley. Our board of directors believes Mr. Knowles' significant industry experience and corporate management experience qualify him to serve on our board of directors.

***Alon Lazarus, Ph.D.*,** has served as a member of our board of directors since April 2016. Dr. Lazarus has held the position of Biotech Investment Manager of the Pharma Division of Arkin Holdings, Ltd., an investment firm, focused in the healthcare and pharmaceutical sectors, since August 2013. Prior to joining Arkin Holdings, Ltd., Dr. Lazarus worked for the Healthcare Business Development Department of Yissum Research Development Company of the Hebrew University of Jerusalem from January 2012 until August 2013, and as an Analyst for Integra Holdings, Ltd., an Israel-based healthcare investment company. Dr. Lazarus serves as a member of the board of directors of several private life science companies. Dr. Lazarus holds a Ph.D. in Molecular Biology from the Hadassah Medical School of Hebrew University of Jerusalem in Israel, an M.B.A. from the School of Business Administration of Hebrew University of Jerusalem in Israel and a B.Sc. in Biology from Hebrew University of Jerusalem in Israel. Our board of directors believes Dr. Lazarus' experience as a member of the board of directors of several biotechnology companies and his comprehensive understanding of the industry qualifies him to serve on our board of directors.

Ran Nussbaum has served as a member of our board of directors since April 2016. Since January 2004, Mr. Nussbaum has served as a Managing Partner and the Co-Founder of Pontifax. He also serves as a board member on many of Pontifax's portfolio companies, including ArQule, Inc. (acquired by Merck & Co., Inc.), Eloxx Pharmaceuticals Ltd., Prevail Therapeutics, Inc. and UroGen Pharma Ltd. Mr. Nussbaum previously served as a director of BioBlast Pharma Ltd., VBI Vaccines Inc. and Kite Pharma, Inc. until its acquisition by Gilead Sciences, Inc. Our board of directors believes Mr. Nussbaum's investment experience in the life sciences industry provides him with the qualifications to serve on our board of directors.

Family Relationships

There are no family relationships among any of our executive officers or directors.

Board Composition

Our business and affairs are managed under the direction of our board of directors, which currently consists of six members. Certain members of our board of directors were elected pursuant to the provisions of a voting agreement among certain of our major stockholders. The voting agreement will terminate upon the closing of this offering and, following such termination, none of our stockholders will have any special rights regarding the election or designation of members of our board of directors.

Our board of directors will consist of seven members upon the closing of this offering. In accordance with our amended and restated certificate of incorporation to be filed in connection with this offering, immediately after this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual general meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors will be divided among the three classes as follows:

- Class I, which will consist of Jasbir Seehra, Nima Farzan and Julius Knowles, and will have a term that expires at our first annual meeting of stockholders to be held after the closing of this offering;
- Class II, which will consist of Alon Lazarus and Ran Nussbaum, and will have a term that expires at our second annual meeting of stockholders to be held after the closing of this offering; and
- Class III, which will consist of Tomer Kariv and Carl Gordon, and will have a term that expires at our third annual meeting of stockholders to be held after the closing of this offering.

Our amended and restated bylaws that will become effective immediately prior to the closing of this offering will provide that the authorized number of directors may be changed only by resolution approved by a majority of our board of directors.

We expect that any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. The

division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our management or a change in control.

Director Independence

Our board of directors has undertaken a review of the independence of our directors and considered whether any director has a relationship that, in the opinion of the board of directors, would interfere with the exercise of independent judgment in carrying out the responsibilities of a member of our board. Based upon information requested from and provided by each director concerning such director's background, employment and affiliations, including family relationships, our board of directors has determined that all of our directors other than Dr. Seehra, representing six of our seven directors, are "independent directors" as defined under the standards of the Nasdaq Stock Market, or Nasdaq. In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances that our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director and the transactions involving them described in the section of this prospectus titled "Certain Relationships and Related Party Transactions."

Board Committees

Our board of directors has established a compensation committee, and our board of directors will establish, immediately prior to the closing of this offering, an audit committee and a nominating and corporate governance committee. From time to time, the board may establish other committees to facilitate the management of our business.

Audit Committee

Upon the completion of this offering, our audit committee will consist of three directors, Mr. Farzan, Mr. Knowles and Dr. Lazarus. Our board of directors has determined that each of these individuals meets the requirements for independence under current rules and regulations of the SEC and the listing standards of Nasdaq. Each member of our audit committee meets the financial literacy requirements of the listing standards of Nasdaq. Mr. Farzan will serve as the chairman of the audit committee and our board of directors has determined that Mr. Farzan is an "audit committee financial expert" as defined by Item 407(d) of Regulation S-K under the Securities Act. The principal duties and responsibilities of our audit committee will include, among other things:

- selecting a qualified firm to serve as the independent registered public accounting firm to audit our financial statements;
- helping to ensure the independence and performance of the independent registered public accounting firm;
- discussing the scope and results of the audit with the independent registered public accounting firm, and reviewing, with management and the independent accountants, our interim and year-end operating results;
- developing procedures for employees to submit concerns anonymously about questionable accounting or audit matters;
- reviewing our policies on risk assessment and risk management;
- reviewing related party transactions;
- obtaining and reviewing a report by the independent registered public accounting firm at least annually, that describes our internal quality-control procedures, any material issues with such procedures, and any steps taken to deal with such issues when required by applicable law; and
- approving (or, as permitted, pre-approving) all audit and all permissible non-audit services, other than de minimis non-audit services, to be performed by the independent registered public accounting firm.

Our audit committee will operate under a written charter, to be effective immediately prior to the closing of this offering, which satisfies the applicable rules and regulations of the SEC and the listing standards of Nasdaq.

Compensation Committee

Upon the completion of this offering, our compensation committee will consist of three directors, Mr. Nussbaum, Dr. Gordon and Dr. Lazarus, each of whom is a non-employee member of our board of directors as defined in

Rule 16b-3 under the Securities Exchange Act of 1934, as amended, or the Exchange Act. Our board of directors has determined that each of these individuals meets the requirements for independence under current rules and regulations of the SEC and the listing standards of Nasdaq. Mr. Nussbaum will serve as the chairman of the compensation committee. The principal duties and responsibilities of our compensation committee will include, among other things:

- reviewing and recommending to our board of directors the compensation of our executive officers, including evaluating the performance of our chief executive officer and, with his assistance, that of our other executive officers;
- reviewing and recommending to our board of directors the compensation of our directors;
- reviewing and approving, or recommending that our board of directors approve, the terms of compensatory arrangements with our executive officers;
- administering our equity and non-equity incentive plans;
- reviewing and approving, or recommending that our board of directors approve, incentive compensation and equity plans; and
- reviewing and establishing general policies relating to compensation and benefits of our employees and reviewing our overall compensation philosophy.

Our compensation committee will operate under a written charter, to be effective immediately prior to the closing of this offering, which satisfies the applicable rules and regulations of the SEC and the listing standards of Nasdaq.

Nominating and Corporate Governance Committee

Upon the completion of this offering, our nominating and corporate governance committee will consist of three directors, Messrs. Kariv, Farzan and Knowles. Our board of directors has determined that each of these individuals meets the requirements for independence under current rules and regulations of the SEC and the listing standards of Nasdaq. Mr. Kariv will serve as the chairman of the nominating and corporate governance committee. The nominating and corporate governance committee's responsibilities will include, among other things:

- identifying, evaluating and selecting, or recommending that our board of directors approve, nominees for election to our board of directors and its committees;
- evaluating the performance of our board of directors and of individual directors;
- considering and making recommendations to our board of directors regarding the composition of our board of directors and its committees;
- reviewing developments in corporate governance practices;
- evaluating the adequacy of our corporate governance practices and reporting;
- developing and making recommendations to our board of directors regarding corporate governance guidelines and matters; and
- overseeing an annual evaluation of the board's performance.

Our nominating and governance committee will operate under a written charter, to be effective immediately prior to the closing of this offering, which satisfies the applicable rules and regulations of the SEC and the listing standards of Nasdaq.

Code of Business Conduct and Ethics

In connection with this offering, have adopted a Code of Business Conduct and Ethics, or the Code of Conduct, applicable to all of our employees, executive officers and directors. Following the closing of this offering, the Code of Conduct will be available on our website at www.kerostx.com. The nominating and corporate governance committee of our board of directors will be responsible for overseeing the Code of Conduct and must approve any waivers of the Code of Conduct for employees, executive officers and directors. We expect that any amendments to the Code of Conduct, or any waivers of its requirements, will be disclosed on our website. Information contained in, or accessible through, our website does not constitute a part of, and is not incorporated into, this prospectus.

Compensation Committee Interlocks and Insider Participation

None of our executive officers currently serves, or in our last completed fiscal year has served, as a member of the board of directors or compensation committee, or other committee serving an equivalent function, of any entity that has one or more executive officers that has served or is planning to serve on our board of directors or compensation committee. None of the members of our compensation committee is an officer or employee of our company, nor have they ever been an officer or employee of our company.

Non-Employee Director Compensation

During the fiscal year ended December 31, 2019, we did not pay cash or equity-based compensation to any of our non-employee directors for service on our board of directors. We have reimbursed and will continue to reimburse all of our non-employee directors for their reasonable out-of-pocket expenses incurred in attending board of directors and committee meetings.

Dr. Seehra, our Chief Executive Officer, who is also a member of our board of directors, did not receive any additional compensation for service as a director. Dr. Seehra's compensation as a named executive officer is set forth below under "Executive Compensation—Summary Compensation Table."

As of December 31, 2019, none of the non-employee directors held any outstanding option awards or other stock awards to purchase or to be issued our common stock.

Non-Employee Director Compensation Policy

In anticipation of this offering and the increased responsibilities of our directors as directors of a public company, our board of directors has adopted a non-employee director compensation policy, pursuant to which each of our directors who is not an employee or consultant of our company will be eligible to receive compensation for service on our board of directors and committees of our board of directors. In March 2020, following market research and advice from its compensation consultant, our board of directors adopted the non-employee director compensation policy, to be effective upon the execution of the underwriting agreement for this offering.

Cash Compensation

Under this policy, we will pay each of our non-employee directors a cash retainer for service on our board of directors and committees of our board of directors. Our non-employee chair also receives an additional cash retainer. These retainers will be payable in arrears in four equal quarterly installments on the last day of each fiscal quarter in which the service occurred, provided that the amount of such payment will be prorated for any portion of such quarter that the director is not serving on our board.

Non-employee directors will be eligible to receive cash compensation as follows:

	ANNUAL CASH RETAINER ($)
Annual retainer	35,000
Additional retainer for chair	30,000
Additional retainer for audit committee chair	15,000
Additional retainer for audit committee member	7,500
Additional retainer for compensation committee chair	10,000
Additional retainer for compensation committee member	5,000
Additional retainer for nominating and corporate governance committee chair	8,000
Additional retainer for nominating and corporate governance committee member	4,000

Equity Compensation

In addition to cash compensation, each non-employee director will be eligible to receive options under the 2020 Plan. Any options granted under this policy will have a term of ten years from the date of grant, subject to earlier termination in connection with a termination of service. Vesting schedules for equity awards will be subject to the non-employee director's continuous service on each applicable vesting date, provided that each option will vest in full upon a change in control of the company.

Upon the termination of service of the non-employee director for any reason other than death, disability or cause, his or her options granted under this policy shall remain exercisable for 12 months following his or her date of termination.

Initial Award

Each new non-employee director elected or appointed to our board of directors will be granted an initial, one-time option to purchase 16,587 shares of our common stock, which will vest in equal quarterly installments such that the option is fully vested on the third anniversary of the grant date.

Annual Awards

On the date of each annual meeting of stockholders of our company after the effective date of the policy, each non-employee director that continues to serve will be granted an option to purchase 8,293 shares of our common stock, each of which will vest in equal quarterly installments over the 12 months following the grant date, provided that such option will in any case be fully vested on the date of our next annual stockholder meeting.

EXECUTIVE COMPENSATION

The following table summarizes information regarding the compensation awarded to, earned by, or paid to our principal executive officer and the next two most highly compensated executive officers during 2019. We refer to these individuals in this prospectus as our named executive officers. Our named executive officers for 2019 who appear in the 2019 Summary Compensation Table are:

- Jasbir Seehra, Ph.D., Chief Executive Officer and Director;
- Jennifer Lachey, Ph.D., Chief Scientific Officer; and
- Claudia Ordonez, M.D., Chief Medical Officer.

In February 2020, we hired Keith Regnante as our Chief Financial Officer. Although Mr. Regnante commenced services with us in 2020, we have included information in the following narrative regarding his compensation where it may be material to an understanding of our executive compensation program.

Summary Compensation Table

The following table sets forth information concerning the compensation of our named executive officers for the year ended December 31, 2019.

NAME AND PRINCIPAL POSITION	YEAR	SALARY ($)	BONUS ($)	OPTION AWARDS ($)(1)	NON-EQUITY INCENTIVE PLAN COMP. ($)(2)	ALL OTHER COMP. ($)	TOTAL ($)
Jasbir Seehra, Ph.D.(3) *Chief Executive Officer and Director*	2019	485,100	—	15,379	194,040	—	694,519
Jennifer Lachey, Ph.D. *Chief Scientific Officer*	2019	294,255	—	27,039	93,000	—	414,294
Claudia Ordonez, M.D.(4) *Chief Medical Officer*	2019	106,458	30,000(5)	32,650	32,100	700(6)	201,908

(1) This column reflects the aggregate grant date fair value of option awards granted during the year measured pursuant to Financial Accounting Standard Board Accounting Standards Codification Topic 718, the basis for computing stock-based compensation in our consolidated financial statements. This calculation assumes that the named executive officer will perform the requisite service for the award to vest in full as required by SEC rules. The assumptions we used in valuing options are described in Note 10 to our consolidated financial statements appearing at the end of this prospectus. These amounts do not reflect the actual economic value that will be realized by the named executive officer upon vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.
(2) This column reflects the amount of performance-based incentive compensation earned by our named executive officers for 2019. For more information, see below under "—Non-Equity Incentive Plan Compensation."
(3) Dr. Seehra is also a member of our board of directors, but does not receive any additional compensation in his capacity as a director.
(4) Dr. Ordonez commenced employment with us in September 2019.
(5) In connection with her commencement of employment, Dr. Ordonez received a one-time signing bonus, which was paid in 2019.
(6) This reflects a monthly payment of $200 that we make to Dr. Ordonez in exchange for her opting not to participate in our health insurance plans.

Narrative to Summary Compensation Table

The compensation committee of our board of directors has historically determined our executives' compensation and determines the compensation of our named executive officers. Our compensation committee typically reviews and discusses management's proposed compensation with the Chief Executive Officer for all executives other than the Chief Executive Officer. Based on those discussions and its discretion, the compensation committee then approves the compensation of each executive officer after discussions without members of management present. We generally do not provide perquisites or personal benefits except in limited circumstances, and we did not provide any perquisites or personal benefits to our named executive officers in 2019.

Annual Base Salary

The annual base salaries of our named executive officers are generally reviewed, determined and approved by the board of directors periodically upon the recommendation of the compensation committee in order to compensate our named executive officers for the satisfactory performance of duties to our company. Annual base salaries are intended to provide a fixed component of compensation to our named executive officers, reflecting their skill sets, experience, roles and responsibilities. Base salaries for our named executive officers have generally been set at levels deemed necessary to attract and retain individuals with superior talent.

The following table sets forth the annual base salaries for each of our named executive officers for 2019 and 2020:

NAME	2019 BASE SALARY ($)	2020 BASE SALARY ($)(4)
Jasbir Seehra, Ph.D.(1) *Chief Executive Officer and Director*	485,100	510,000
Jennifer Lachey, Ph.D.(2) *Chief Scientific Officer*	310,000	345,000
Claudia Ordonez, M.D(3) *Chief Medical Officer*	365,000	372,500

(1) Dr. Seehra's 2019 base salary was approved by the compensation committee in December 2018.
(2) Dr. Lachey's base salary was increased from $267,842 to $310,000 in June 2019 by the board of directors in connection with Dr. Lachey's promotion to Chief Scientific Officer.
(3) Dr. Ordonez's 2019 base salary was approved by the compensation committee in August 2019 in connection with her commencement of employment.
(4) Pursuant to the employment agreements entered into between us and each of our named executive officers and Mr. Regnante in March 2020, current base salaries will be adjusted upon the completion of this offering, as described below under "—Agreements with Our Named Executive Officers."

Non-Equity Incentive Plan Compensation

We seek to motivate and reward our executives for achievements relative to our corporate goals and expectations for each fiscal year. Each of our named executive officers is eligible to receive an annual performance bonus based on the achievement of company-wide annual performance goals as determined by our board of directors upon recommendation by our compensation committee. For 2019, these goals included research and clinical objectives and corporate objectives. Each officer is assigned a target bonus expressed as a percentage of his or her base salary. The target bonus amounts for Dr. Seehra, Dr. Lachey and Dr. Ordonez for 2019 were set at 40%, 30% and 30%, respectively. In December 2019, the board of directors determined that the 2019 corporate goals were achieved at 100% and, as a result, approved annual performance bonuses for Dr. Seehra, Dr. Lachey and Dr. Ordonez in the amounts of $194,040, $93,000 and $32,100, respectively, as reflected in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table above. Dr. Ordonez's 2019 annual bonus amount was prorated to reflect her partial year of employment.

Equity-Based Incentive Awards

Prior to this offering, we have granted stock options to each of our named executive officers pursuant to our 2017 Stock Incentive Plan, as amended, or the 2017 Plan, the terms of which are described below under "—Equity Incentive Plans."

In June 2019, in connection with Dr. Lachey's promotion to Chief Scientific Officer, our board of directors granted an option to purchase 48,380 shares to Dr. Lachey. The shares subject to the option have an exercise price per share of $0.47 and vest over a four-year period, with 25% of the shares subject to the option vesting on the first anniversary of the vesting commencement date and 6.25% of the shares subject to the option vesting at the end of each successive three-month period following the first anniversary of the vesting commencement date, subject to Dr. Lachey's continuous service with us as of each such vesting date.

Also in June 2019, our board of directors granted options to purchase 49,087 shares to Dr. Seehra and 36,861 shares to Dr. Lachey. The shares subject to each of the options have an exercise price of $0.47 and vest over a

four-year period, with 25% of the shares subject to the option vesting on the first anniversary of the vesting commencement date and 6.25% of the shares subject to the option vesting at the end of each successive three-month period following the first anniversary of the vesting commencement date, subject to the executive's continuous service with us as of each such vesting date.

In September 2019, in connection with Dr. Ordonez's commencement of employment, our board of directors granted an option to purchase 103,211 shares to Dr. Ordonez. The shares subject to the option have an exercise price of $0.47 and vest over a four-year period, with 25% of the shares subject to the option vesting on the first anniversary of the vesting commencement date and 6.25% of the shares subject to the option vesting at the end of each successive three-month period following the first anniversary of the vesting commencement date, subject to Dr. Ordonez's continuous service with us as of each such vesting date.

In March 2020, in connection with Mr. Regnante's commencement of employment, our board of directors approved an option to Mr. Regnante to purchase 133,622 shares of our common stock, which will be granted under the 2020 Equity Incentive Plan, or the 2020 Plan, contingent and effective upon the execution of the underwriting agreement for this offering and will have an exercise price equal to the initial public offering price per share. The shares subject to the option vest over a four-year period, with 25% of the shares subject to the option vesting on the first anniversary of the vesting commencement date and 6.25% of the shares subject to the option vesting at the end of each successive three-month period following the first anniversary of the vesting commencement date, subject to Mr. Regnante's continuous service with us as of each such vesting date.

Outstanding Equity Awards as of December 31, 2019

The following table sets forth certain information about equity awards granted to our named executive officers that remained outstanding as of December 31, 2019.

	OPTION AWARDS (1)					
NAME	GRANT DATE	VESTING COMMENCEMENT DATE	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#) EXERCISABLE	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#) UNEXERCISABLE	OPTION EXERCISE PRICE PER SHARE ($)	OPTION EXPIRATION DATE
Jasbir Seehra, Ph.D.	4/3/2017(2)	1/1/2017	3,455	3,455	0.11	4/2/2027
	3/26/2018(3)	12/18/2017	301,811	—	0.30	3/25/2028
	3/26/2018(2)	12/18/2017	27,645	13,822	0.30	3/25/2028
	6/19/2019(4)	12/1/2018	12,271	36,816	0.47	6/18/2029
Jennifer Lachey, Ph.D.	2/6/2017(4)	7/1/2016	30,237	12,959	0.11	2/5/2027
	4/3/2017(2)	1/1/2017	5,529	691	0.11	4/2/2027
	3/26/2018(3)	12/18/2017	150,905	—	0.30	3/25/2028
	3/26/2018(2)	12/18/2017	5,529	2,764	0.30	3/25/2028
	6/12/2019(4)	5/13/2019	—	48,380	0.47	6/11/2029
	6/19/2019(4)	12/1/2018	9,215	27,645	0.47	6/18/2029
Claudia Ordonez, M.D.	9/19/2019(4)	9/16/2019	—	103,211	0.47	9/18/2029

(1) All of the option awards were granted under the 2017 Plan, the terms of which are described below under "—Equity Incentive Plans."
(2) Each option award vests as follows: 8.33% of the shares subject to the option vest at the end of each successive three (3) month period following the vesting commencement date until the third anniversary of the vesting commencement date.
(3) Each option award vests as follows: 50% of the shares subject to the option are fully vested and 6.25% of the shares subject to the option vest at the end of each successive three (3) month period following the vesting commencement date until the second anniversary of the vesting commencement date.
(4) Each option award vests as follows: 25% of the shares subject to the option vest on the first anniversary of the vesting commencement date and 6.25% of the shares subject to the option vest at the end of each successive three (3) month period following the first anniversary of the vesting commencement date until the fourth anniversary of the vesting commencement date.

In September 2019, Dr. Seehra exercised a portion of his April 2017 option and acquired 34,557 shares. We did not make any material modifications to options held by our named executive officers in 2019.

Equity Awards Relating to the Completion of this Offering

In March 2020, our board of directors, based on the recommendation of our compensation committee, approved option grants to each of our named executive officers and Mr. Regnante in the amounts of 696,569 shares to Dr. Seehra, 241,222 shares to Dr. Lachey, 18,430 shares to Dr. Ordonez and 18,430 shares to Mr. Regnante (in addition to his new hire award described above), which will be granted under the 2020 Plan, contingent and effective upon the execution of the underwriting agreement for this offering and will have an exercise price equal to the initial public offering price per share. These options will vest over a four-year period, with 25% of the shares subject to the option vesting on the first anniversary of the vesting commencement date and 6.25% of the shares subject to the option vesting at the end of each successive three-month period following the first anniversary of the vesting commencement date, subject to the executive officer's continuous service with us as of each such vesting date. The options are eligible to accelerate under certain circumstances in accordance with the named executive officer's or Mr. Regnante's employment agreement. See "—Potential Payments upon Termination or Change of Control" below for a description of vesting acceleration applicable to stock options held by our named executive officers and Mr. Regnante.

Agreements with Our Named Executive Officers

We have employment agreements or offer letters with each of our named executive officers. The material terms of each of these agreements are described below. These agreements provide for base salaries and incentive compensation, and each component reflects the scope of each named executive officer's anticipated responsibilities and the individual experience they bring to our company. The employment of each of our named executive officers is "at will" and may be terminated at any time. In addition, each of our named executive officers has executed a form of our standard proprietary information and inventions agreement.

Jasbir Seehra, Ph.D. We entered into an offer letter agreement with Dr. Seehra in December 2015, which was amended and restated by an employment agreement in March 2020, effective upon the completion of this offering. Pursuant to his March 2020 agreement, Dr. Seehra will be entitled to an annual base salary of $525,300, an annual discretionary bonus with a target amount equal to 50% of his annual base salary and certain severance benefits, as described below under "—Potential Payments upon Termination or Change of Control." Dr. Seehra is eligible to participate in the employee benefit plans generally available to our employees, and is subject to customary confidentiality covenants, as well as a non-competition and non-solicitation covenant for a period of twelve months following termination of his employment.

Jennifer Lachey, Ph.D. We entered into an offer letter agreement with Dr. Lachey in April 2016, which was amended and restated by an employment agreement in March 2020, effective upon the completion of this offering. Pursuant to her March 2020 agreement, Dr. Lachey will be entitled to an annual base salary of $380,000, an annual discretionary bonus with a target amount equal to 40% of her annual base salary and certain severance benefits, as described below under "—Potential Payments upon Termination or Change of Control." Dr. Lachey is eligible to participate in the employee benefit plans generally available to our employees, and is subject to customary confidentiality covenants, as well as a non-competition and non-solicitation covenant for a period of 12 months following her termination of employment.

Claudia Ordonez, M.D. We entered into an offer letter agreement with Dr. Ordonez in August 2019, which was amended and restated by an employment agreement in March 2020, effective upon the completion of this offering. Pursuant to the offer letter agreement, Dr. Ordonez was entitled to an initial annual base salary of $365,000, a one-time signing bonus of $30,000 and an annual incentive bonus based on a target amount of 30% of her base salary. In addition, Dr. Ordonez was eligible to receive a stock option to purchase up to 103,211 shares of our common stock, which was granted to Dr. Ordonez in September 2019. Pursuant to her March 2020 agreement, Dr. Ordonez will be entitled to an annual base salary of $385,000, an annual discretionary bonus with a target amount equal to 40% of her annual base salary and certain severance benefits, as described below under "—Potential Payments upon Termination or Change of Control." Dr. Ordonez is eligible to participate in the employee benefit plans generally available to our employees, and is subject to customary confidentiality covenants, as well as a non-competition and non-solicitation covenant for a period of 12 months following her termination of employment.

Keith Regnante. We entered into an offer letter agreement with Mr. Regnante in February 2020, which was amended and restated by an employment agreement in March 2020, effective upon the completion of this offering. Pursuant

to the offer letter agreement, Mr. Regnante was entitled to an initial annual base salary of $362,000. In addition, Mr. Regnante was eligible to receive a stock option to purchase up to 133,622 shares of our common stock, which was approved by our board of directors in March 2020. Pursuant to his March 2020 agreement, Mr. Regnante will be entitled to an annual base salary of $382,200, an annual discretionary bonus with a target amount equal to 40% of his annual base salary and certain severance benefits, as described below under "–Potential Payments upon Termination or Change of Control." Mr. Regnante is eligible to participate in the employee benefit plans generally available to our employees, and is subject to customary confidentiality covenants, as well as a non-competition and non-solicitation covenant for a period of 12 months following his termination of employment.

Potential Payments upon Termination or Change of Control

Regardless of the manner in which a named executive officer's service terminates, each named executive officer, as well as Mr. Regnante, is entitled to receive amounts earned during his or her term of service, including unpaid salary and unused vacation. Pursuant to the employment agreements entered into with each of our named executive officers and Mr. Regnante in March 2020, our named executive officers and Mr. Regnante will be entitled to certain severance benefits, subject to specific requirements, including signing and not revoking a separation agreement and release of claims. Cause, change of control, disability and good reason are defined in the March 2020 agreements.

If the executive is terminated by the company involuntarily without cause (and not due to death or disability) or the executive resigns for good reason, in each case, not in connection with a change of control then:

- With respect to Dr. Seehra and Dr. Lachey, the executive shall be entitled to cash severance equal to continued base salary payments for 12 months; continued vesting of the executive's options for a period of 12 months; a lump sum payment equal to 100% of the executive's target bonus pro-rated for the year of termination, only if the executive is terminated on or after July 1 of the calendar year; and payment of COBRA premiums for up to 12 months for Dr. Seehra or up to 9 months for Dr. Lachey.
- With respect to Dr. Ordonez and Mr. Regnante, the executive will be entitled to cash severance equal to continued base salary payments for nine months and payment of COBRA premiums for up to nine months.

If immediately before or within 12 months following a change of control, the executive is terminated by the company or successor involuntarily without cause (and not due to death or disability) or the executive resigns for good reason, the executive shall be entitled to cash severance equal to continued base salary payments for 18 months for Dr. Seehra or for 12 months for our other named executive officers and Mr. Regnante; acceleration of all of the executive's unvested and outstanding equity awards; a lump sum payment equal to 100% of the executive's target bonus for the year of termination; and payment of COBRA premiums for up to 18 months for Dr. Seehra or up to 12 months for our other named executive officers and Mr. Regnante.

Each of our named executive officers' stock options granted prior to the completion of this offering are subject to the terms of the 2017 Plan; a description of the termination and change in control provisions in the 2017 Plan and stock options granted thereunder is provided below under "—Equity Incentive Plans."

Equity Incentive Plans

The principal features of our equity incentive plans are summarized below. These summaries are qualified in their entirety by reference to the actual text of the plans, which are filed as exhibits to the registration statement of which this prospectus is a part.

2020 Equity Incentive Plan

In March 2020, our board of directors adopted and our stockholders approved our 2020 Plan. The 2020 Plan will become effective immediately prior to the execution of the underwriting agreement for this offering, at which point no further grants will be made under our 2017 Plan, as described in"—2017 Stock Incentive Plan." In March 2020, our board of directors approved an aggregate of 1,147,434 options under the 2020 Plan, to be granted contingent and effective upon the execution of the underwriting agreement for this offering; no shares of our common stock have been issued under our 2020 Plan. Our 2020 Plan will provide for the grant of stock options qualifying as incentive stock options, or ISOs, within the meaning of Section 422 of the Internal Revenue Code of

1986, as amended, or the Code, to our employees and for the grant of nonstatutory stock options, or NSOs, restricted stock awards, restricted stock unit awards, stock appreciation rights, performance stock awards and other forms of stock compensation to our employees, consultants and directors. Our 2020 Plan will also provide for the grant of performance cash awards to our employees, consultants and directors.

Authorized Shares. The number of shares of our common stock initially reserved for issuance under our 2020 Plan is the sum of (i) 1,002,874 new shares of our common stock, plus (ii) an additional number of shares not to exceed 2,104,937 shares, consisting of (A) the number of shares remaining available for issuance under our 2017 Plan when the 2020 Plan becomes effective and (B) the number of shares of our common stock subject to outstanding awards under our 2017 Plan when the 2020 Plan becomes effective that thereafter expire or are forfeited, canceled, withheld to satisfy tax withholding or to purchase or exercise an award, reacquired by us or are otherwise terminated. The number of shares of our common stock reserved for issuance under our 2020 Plan will automatically increase on January 1 of each year, for a period of ten years, from January 1, 2021 continuing through January 1, 2030, by 4.0% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares as may be determined by our board of directors. The maximum number of shares that may be issued pursuant to the exercise of ISOs under the 2020 Plan is 9,323,434.

Shares issued under our 2020 Plan may be authorized but unissued or reacquired shares of our common stock. Shares subject to stock awards granted under our 2020 Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, will not reduce the number of shares available for issuance under our 2020 Plan. Additionally, shares issued pursuant to stock awards under our 2020 Plan that we repurchase or that are forfeited, as well as shares reacquired by us as consideration for the exercise or purchase price of a stock award or to satisfy tax withholding obligations related to a stock award, will become available for future grant under our 2020 Plan.

Administration. Our board of directors, or a duly authorized committee thereof, has the authority to administer our 2020 Plan. Our board of directors intends to delegate its authority to administer our 2020 Plan to our compensation committee under the terms of the compensation committee's charter. Our board of directors may also delegate to one or more of our officers the authority to (i) designate employees other than officers to receive specified stock awards and (ii) determine the number of shares of our common stock to be subject to such stock awards. Subject to the terms of our 2020 Plan, the administrator has the authority to determine the terms of awards, including recipients, the exercise price or strike price of stock awards, if any, the number of shares subject to each stock award, the fair market value of a share of our common stock, the vesting schedule or performance criteria applicable to the awards, together with any vesting acceleration, the form of consideration, if any, payable upon exercise or settlement of the stock award and the terms and conditions of the award agreements for use under our 2020 Plan.

The administrator has the power to modify outstanding awards under our 2020 Plan. Subject to the terms of our 2020 Plan, the administrator has the authority to reprice any outstanding stock award, cancel and re-grant any outstanding stock award in exchange for new stock awards, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any adversely affected participant.

Stock Options. ISOs and NSOs are granted under stock option agreements adopted by the administrator. The administrator determines the exercise price for stock options, within the terms and conditions of the 2020 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2020 Plan vest at the rate specified in the stock option agreement, as determined by the administrator.

The administrator determines the term of stock options granted under the 2020 Plan, up to a maximum of 10 years. Unless the terms of an optionholder's stock option agreement provide otherwise, if an optionholder's service relationship with us or any of our affiliates ceases for any reason other than disability, death or cause, the optionholder may generally exercise any vested options for a period of three months following the cessation of service. This period may be extended in the event that exercise of the option is prohibited by applicable securities laws. If an optionholder's service relationship with us or any of our affiliates ceases due to death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise

any vested options for a period of 24 months following the date of death. If an optionholder's service relationship with us or any of our affiliates ceases due to disability, the optionholder may generally exercise any vested options for a period of 12 months following the cessation of service. In the event of an optionholder's termination for cause, options generally terminate upon the termination date. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of our common stock issued upon the exercise of a stock option will be determined by the administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder subject to certain limitations set forth in the 2020 Plan, (4) a net exercise of the option if it is an NSO or (5) other legal consideration approved by the administrator.

Unless the administrator provides otherwise, options generally are not transferable except by will or the laws of descent and distribution. Subject to approval of the administrator or a duly authorized officer, an option may be transferred pursuant to a domestic relations order, official marital settlement agreement or other divorce or separation instrument.

Tax Limitations on ISOs. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an award holder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant and (2) the term of the ISO does not exceed five years from the date of grant.

Restricted Stock Unit Awards. Restricted stock unit awards are granted under restricted stock unit award agreements adopted by the administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. A restricted stock unit award may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the administrator or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock unit awards that have not vested will be forfeited once the participant's continuous service ends for any reason.

Restricted Stock Awards. Restricted stock awards are granted under restricted stock award agreements adopted by the administrator. A restricted stock award may be awarded in consideration for cash, check, bank draft or money order, past or future services to us or any other form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. The administrator determines the terms and conditions of restricted stock awards, including vesting and forfeiture terms. If a participant's service relationship with us ends for any reason, we may receive any or all of the shares of our common stock held by the participant that have not vested as of the date the participant terminates service with us through a forfeiture condition or a repurchase right.

Stock Appreciation Rights. Stock appreciation rights are granted under stock appreciation right agreements adopted by the administrator. The administrator determines the purchase price or strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. A stock appreciation right granted under the 2020 Plan vests at the rate specified in the stock appreciation right agreement as determined by the administrator. Stock appreciation rights may be settled in cash or shares of our common stock, or in any other form of payment, as determined by the administrator.

The administrator determines the term of stock appreciation rights granted under the 2020 Plan, up to a maximum of ten years. If a participant's service relationship with us or any of our affiliates ceases for any reason other than cause, disability or death, the participant may generally exercise any vested stock appreciation right for a period of three months following the cessation of service. This period may be further extended in the event that exercise of the stock appreciation right following such a termination of service is prohibited by applicable securities laws. If a participant's service relationship with us, or any of our affiliates, ceases due to disability or death, or a participant

dies within a certain period following cessation of service, the participant or a beneficiary may generally exercise any vested stock appreciation right for a period of 12 months in the event of disability and 24 months in the event of death. In the event of a termination for cause, stock appreciation rights generally terminate immediately upon the occurrence of the event giving rise to the termination of the individual for cause. In no event may a stock appreciation right be exercised beyond the expiration of its term.

Performance Awards. The 2020 Plan permits the grant of performance awards that may be settled in stock, cash or other property. Performance awards may be structured so that the stock or cash will be issued or paid only following the achievement of certain pre-established performance goals during a designated performance period. Performance awards that are settled in cash or other property are not required to be valued in whole or in part by reference to, or otherwise based on, our common stock.

The performance goals may be based on any measure of performance selected by the board of directors. The performance goals may be based on company-wide performance or performance of one or more business units, divisions, affiliates or business segments, and may be either absolute or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the board of directors at the time the performance award is granted, the board will appropriately make adjustments in the method of calculating the attainment of performance goals as follows: (i) to exclude restructuring and/or other nonrecurring charges; (ii) to exclude exchange rate effects; (iii) to exclude the effects of changes to generally accepted accounting principles; (iv) to exclude the effects of any statutory adjustments to corporate tax rates; (v) to exclude the effects of items that are “unusual” in nature or occur “infrequently” as determined under generally accepted accounting principles; (vi) to exclude the dilutive effects of acquisitions or joint ventures; (vii) to assume that any business divested by us achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; (viii) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (ix) to exclude the effects of stock-based compensation and the award of bonuses under our bonus plans; (x) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; and (xi) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles.

Other Stock Awards. The administrator may grant other awards based in whole or in part by reference to our common stock. The administrator will set the number of shares under the stock award (or cash equivalent) and all other terms and conditions of such awards.

Limitation on Grants to Non-Employee Directors. The maximum number of shares of our common stock subject to awards granted under our 2020 Plan or otherwise to any of our non-employee directors with respect to any period commencing on the date of our annual meeting of stockholders for a particular year and ending on the day immediately prior to the date of our annual meeting of stockholders for the next subsequent year, taken together with any cash fees paid by us to such non-employee director with respect to such period for serving on our board, will not exceed $500,000 in total value (the value of any such stock awards to be based on their grant date fair market value for financial reporting purposes), or, with respect to such period in which a non-employee director is first appointed or elected to our board, $700,000.

Changes to Capital Structure. In the event there is a specified type of change in our capital structure, such as a stock split, reverse stock split or recapitalization, appropriate and proportionate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the 2020 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued on the exercise of ISOs and (4) the class and number of shares and exercise price, strike price or purchase price of outstanding stock awards.

Corporate Transactions. The following applies to stock awards under the 2020 Plan in the event of a corporate transaction, unless otherwise provided in a participant’s stock award agreement or other written agreement with us or one of our affiliates or unless otherwise expressly provided by the administrator at the time of grant.

In the event of a corporate transaction, any stock awards outstanding under the 2020 Plan may be assumed, continued or substituted for by any surviving or acquiring corporation (or its parent company), and any reacquisition or repurchase rights held by us with respect to the stock award may be assigned to the successor (or its parent company). If the surviving or acquiring corporation (or its parent company) does not assume, continue or substitute for such stock awards, then (i) with respect to any such stock awards that are held by participants whose continuous service has not terminated prior to the effective time of the corporate transaction, or current participants, the vesting (and exercisability, if applicable) of such stock awards will be accelerated in full (meaning at 100% of target level for certain performance awards, unless the administrator or relevant award agreement provides otherwise) to a date prior to the effective time of the corporate transaction (contingent upon the effectiveness of the corporate transaction), and such stock awards will terminate if not exercised (if applicable) at or prior to the effective time of the corporate transaction, and any reacquisition or repurchase rights held by us with respect to such stock awards will lapse (contingent upon the effectiveness of the corporate transaction), and (ii) any such stock awards that are held by persons other than current participants will terminate if not exercised (if applicable) prior to the effective time of the corporate transaction, except that any reacquisition or repurchase rights held by us with respect to such stock awards will not terminate and may continue to be exercised notwithstanding the corporate transaction.

In the event a stock award will terminate if not exercised prior to the effective time of a corporate transaction, the administrator may provide, in its sole discretion, that the holder of such stock award may not exercise such stock award but instead will receive a payment equal in value to the excess (if any) of (i) the value of the property the holder would have received upon the exercise of the stock award, over (ii) any per share exercise price payable by such holder provided in the stock award. In addition, any escrow, holdback, earn out or similar provisions in the definitive agreement for the corporate transaction may apply to such payment to the same extent and in the same manner as such provisions apply to the holders of our common stock.

Under the 2020 Plan, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger, consolidation or similar transaction where we do not survive the transaction or (4) a merger, consolidation or similar transaction where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

Change in Control. The administrator may provide, in an individual award agreement or in any other written agreement between us and the participant, that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change in control (as defined in the 2020 Plan). In the absence of such a provision, no such acceleration of the stock award will automatically occur, except as described above.

Under the 2020 Plan, a change in control is generally (1) the acquisition by any person or company of more than 50% of the combined voting power of our then-outstanding stock, (2) a consummated merger, consolidation or similar transaction in which our stockholders immediately before the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity) in substantially the same proportions as their ownership immediately prior to such transaction, (3) a sale, lease, exclusive license or other disposition of all or substantially all of our assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such transaction or (4) when a majority of our board of directors becomes comprised of individuals who were not serving on our board of directors on the date the 2020 Plan was adopted by the board of directors, or the incumbent board, or whose nomination, appointment, or election was not approved by a majority of the incumbent board still in office.

Amendment or Termination. Our board has the authority to amend, suspend, or terminate our 2020 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. No ISOs may be granted after the tenth anniversary of the date our board of directors adopts our 2020 Plan.

2017 Stock Incentive Plan

Our board of directors adopted the 2017 Plan in February 2017, and our stockholders approved the 2017 Plan in March 2017. The 2017 Plan was most recently amended in March 2020. As of December 31, 2019, there were

64,088 shares remaining available for the future grant of stock awards under the 2017 Plan. As of December 31, 2019, there were outstanding stock options covering a total of 1,164,017 shares of our common stock that were granted under the 2017 Plan. We expect that any shares remaining available for issuance under the 2017 Plan will become available for issuance under the 2020 Plan in connection with this offering.

Stock Awards. The 2017 Plan provides for the grant of ISOs within the meaning of Section 422 of the Code to our employees, including employees of any parent or subsidiary, and for the grant of NSOs, restricted stock, restricted stock units and other forms of stock-based awards to our employees, officers, directors, consultants and advisors, including employees, officers, directors, consultants and advisors of any parent or subsidiary. To date, we have only granted stock options under the 2017 Plan.

Authorized Shares. Subject to certain capitalization adjustments, the aggregate number of shares of our common stock that may be issued pursuant to stock awards under the 2017 Plan will not exceed 2,283,618 shares.

If any stock award granted under the 2017 Plan (1) expires or is terminated, surrendered or cancelled without being exercised in full, (2) is forfeited in whole or in part (including as the result of shares of our common stock subject to such stock award being repurchased pursuant to a contractual repurchase right) or (3) results in shares of our common stock not being issued, the unused shares subject to such stock award will revert to and again become available for the grant of stock awards under the 2017 Plan. Additionally, shares tendered to us by a participant to exercise a stock award will be added to the number of shares available for the grant of stock awards under the 2017 Plan. As described below, in connection with a "reorganization event," the plan administrator may grant stock awards under the 2017 Plan in substitution for any stock-based awards granted by an acquiring or succeeding corporation; such awards will not count against the overall share limit set forth above, unless required by the Code.

Plan Administration. Our board of directors, or a duly authorized committee of our board of directors to which the board delegates its administrative authority, will administer the 2017 Plan and is referred to as the "plan administrator" herein. The plan administrator may also delegate to one or more of our officers the authority to grant stock awards to employees or officers (other than any "executive officer," as defined by Rule 3b-7 under the Exchange Act, or to any "officer," as defined by Rule 16a-1 under the Exchange Act) and to exercise such other powers under the 2017 Plan as the plan administrator may determine; provided, however, that the plan administrator will fix (1) the terms of the stock awards to be granted by such officers and (2) the maximum number of shares subject to such stock awards.

Under the 2017 Plan, the plan administrator has the authority to, among other things, (1) grant awards, (2) construe and interpret the terms of the 2017 Plan and any stock award agreements entered into under it, (3) adopt, amend and repeal administrative rules, guidelines and practices relating to the 2017 Plan, (4) correct any defect, supply any omission or reconcile any inconsistency in the 2017 Plan or any stock award and (5) accelerate stock awards in full or in part.

The plan administrator also has the authority to amend, modify or terminate any outstanding stock award, including but not limited to, substituting another stock award of the same or a different type, changing the date of exercise or realization, and converting an ISO into an NSO. The participant's consent to such action is required unless (1) the plan administrator determines that the action would not materially and adversely affect the participant's rights under the 2017 Plan, (2) the change is permitted under the terms of the 2017 Plan governing changes in our capital structure and reorganization events or (3) the change is to ensure that a stock option intended to qualify as an ISO qualifies as such. Additionally, the plan administrator has the authority to, without stockholder approval, (1) amend any outstanding stock award granted under the 2017 Plan to provide an exercise price per share that is lower than the then-current exercise price per share of such outstanding stock award and (2) cancel any outstanding stock award and grant in substitution new stock awards under the 2017 Plan covering the same or a different number of shares of our common stock and having an exercise price per share that is lower than the then-current exercise price per share of the cancelled award.

Stock Options. ISOs and NSOs are generally granted under stock option agreements adopted by the plan administrator. The plan administrator determines the number of shares covered by each stock option and the applicable exercise price, within the terms and conditions of the 2017 Plan, provided that the exercise price of an

NSO (for California residents) or an ISO (except as described below) generally cannot be less than 85% or 100%, respectively, of the fair market value of our common stock on the date of grant. Subject to the provisions of the 2017 Plan, stock options granted under the 2017 Plan are exercisable at such times and subject to such terms and conditions as the plan administrator may specify in the applicable stock option agreement.

The plan administrator determines the term of stock options granted under the 2017 Plan, which is generally a maximum of ten years. If an optionholder's service relationship with us (or any parent or subsidiary) ceases for any reason other than death, disability or cause, the optionholder may generally exercise any exercisable options for a period of up to three months following the cessation of service. If an optionholder's service relationship with us (or any parent or subsidiary) ceases due to death or disability, the optionholder or an authorized transferee, in the event of death, may generally exercise any exercisable options for a period of up to one year following the date of death or disability. In the event of a termination for cause, options generally terminate upon the termination date. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of our common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include: (1) cash or check payable to us; (2) a broker-assisted cashless exercise; (3) the tender of shares of our common stock previously owned by the optionholder; (4) delivery of a promissory note of the optionholder to us on terms determined by the plan administrator; (5) payment of other lawful consideration as the plan administrator may determine; or (6) any combination of the foregoing permitted forms of payment.

Transferability. Unless the plan administrator provides otherwise, stock options granted under the 2017 Plan generally may not be sold, assigned, transferred, pledged or otherwise encumbered by the optionholder to whom they are granted, except by will or the laws of descent and distribution or, other than in the case of an ISO, pursuant to a qualified domestic relations order. During the lifetime of the optionholder, stock options are exercisable only by the optionholder.

Tax Limitations on ISOs. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed $100,000. Stock options or portions thereof that exceed such limit will be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our parent or subsidiary corporations unless (1) the exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the ISO does not exceed five years from the date of grant.

Changes to Capital Structure. In the event of any stock split, reverse stock split, stock dividend, recapitalization, combination of shares, reclassification of shares, spin-off or other similar change in capitalization or event, or any dividend or distribution to holders of our common stock other than an ordinary cash dividend, the plan administrator, in its discretion, will make equitable adjustments to (1) the number and class of securities available under the 2017 Plan and (2) the number and class of securities and exercise price per share of each outstanding stock option.

Reorganization Events. The 2017 Plan provides that, in the event of a "reorganization event," the plan administrator may take any one or more of the following actions as to all or any outstanding stock options on such terms as the plan administrator determines:

- provide for the assumption or substitution of a stock option by an acquiring or succeeding corporation (or any affiliate thereof);
- upon written notice to the participant, provide that a participant's unexercised stock options will terminate immediately prior to the consummation of such reorganization event unless exercised by the participant within a specified period following the date of such notice;
- provide that outstanding stock options will become exercisable, realizable or deliverable, as applicable, or restrictions applicable to a stock option will lapse, in whole or in part, prior to or upon such reorganization event;
- in the event of a reorganization event under the terms of which holders of our common stock will receive a cash payment for each share surrendered in the reorganization event upon its consummation (the

"acquisition price"), make or provide for a cash payment equal to the excess, if any, of (A) the acquisition price times the number of shares of our common stock subject to the participant's stock options (to the extent the exercise price does not exceed the acquisition price) over (B) the aggregate exercise price of all such outstanding stock options and any applicable tax withholdings, in exchange for the termination of such stock options;

- provide that, in connection with our liquidation or dissolution, stock options will convert into the right to receive liquidation proceeds; or
- any combination of the foregoing.

The plan administrator is not obligated to treat all stock options or all stock options held by a participant.

Under the 2017 Plan, a "reorganization event" is generally defined as: (1) our merger or consolidation with or into another entity, resulting in all of our common stock being (i) converted into or exchanged for the right to receive cash, securities or other property or (ii) cancelled; (2) any exchange of all of our common stock for cash, securities or other property pursuant to a share exchange transaction; or (3) our liquidation or dissolution.

Plan Amendment or Termination. The plan administrator has the authority to amend, suspend or terminate the 2017 Plan or any portion of it at any time, provided (i) that any such amendment does not materially and adversely affect the rights of participants under the 2017 Plan and (ii) that if at any time the approval of our stockholders is required as to any modification or amendment under Section 422 of the Code with respect to ISOs, our plan administrator may not effect such modification or amendment without such approval. Unless terminated sooner, the 2017 Plan will automatically terminate on February 5, 2027. No stock awards may be granted under the 2017 Plan after it is terminated.

2020 Employee Stock Purchase Plan

In March 2020, our board of directors adopted and our stockholders approved our 2020 Employee Stock Purchase Plan, or ESPP. The ESPP will become effective immediately prior to and contingent upon the execution of the underwriting agreement for this offering. The purpose of the ESPP is to secure the services of new employees, to retain the services of existing employees and to provide incentives for such individuals to exert maximum efforts toward our success. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code.

Share Reserve. Following this offering, the ESPP will authorize the issuance of shares of our common stock pursuant to purchase rights granted to our employees or to employees of any of our designated affiliates. The ESPP will initially provide participating employees with the opportunity to purchase up to an aggregate of 182,341 shares of our common stock. The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, from January 1, 2021 through January 1, 2030, by the lesser of (i) 1.0% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, and (ii) 455,852 shares; provided, that prior to the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth in clauses (i) and (ii). If purchase rights granted under the ESPP terminate without having been exercised, the shares of our common stock not purchased under such purchase rights will again become available for issuance under the ESPP.

Administration. Our board of directors intends to delegate concurrent authority to administer the ESPP to our compensation committee. The ESPP is implemented through a series of offerings under which eligible employees are granted purchase rights to purchase shares of our common stock on specified dates during such offerings. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering under the ESPP may be terminated under certain circumstances.

Payroll Deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to 15% of their earnings (as defined in the ESPP) for the purchase of our common stock under the ESPP. Unless otherwise determined by our board of directors, common stock will be purchased for the accounts of employees

participating in the ESPP at a price per share that is at least the lesser of (i) 85% of the fair market value of a share of our common stock on the first trading date of an offering or (ii) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by our board of directors, including: (i) being customarily employed for more than 20 hours per week; (ii) being customarily employed for more than five months per calendar year; or (iii) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the ESPP at a rate in excess of $25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value pursuant to Section 424(d) of the Code.

Changes to Capital Structure. In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or similar transaction, the board of directors will make appropriate adjustments to (i) the maximum number of shares reserved under the ESPP, (ii) the maximum number of shares by which the share reserve may increase automatically each year, (iii) the number of shares and purchase price applicable to all outstanding offerings and purchase rights and (iv) the number of shares that are subject to purchase limits under ongoing offerings.

Corporate Transactions. In the event of certain significant corporate transactions, including (i) the consummation of a sale of all or substantially all of our assets, (ii) the consummation of a sale or disposition of more than 50% of our outstanding securities, (iii) the consummation of a merger or consolidation where we do not survive the transactions and (iv) the consummation of a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction, any then-outstanding rights to purchase our stock under the ESPP may be assumed, continued or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within ten business days prior to such corporate transaction, and such purchase rights will terminate immediately after such purchase.

Amendments or Termination. Our board of directors has the authority to amend or terminate our ESPP, provided that except in certain circumstances such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP, as required by applicable law or listing requirements.

401(k) Plan

We maintain a 401(k) plan intended to qualify as a tax-qualified plan under Section 401 of the Code, with the 401(k) plan's related trust intended to be tax exempt under Section 501(a) of the Code. The 401(k) plan provides that each participant may contribute up to the lesser of 100% of his or her compensation or the statutory limit, which is $19,000 for calendar year 2019. We have the ability to make discretionary contributions to the 401(k) plan but have not done so to date. Employees' pre-tax contributions are allocated to each participant's individual account and are then invested in selected investment alternatives according to the participant's directions. Employees are immediately and fully vested in their contributions. As a tax-qualified retirement plan, contributions to the 401(k) plan and earnings on those contributions are not taxable to the employees until distributed from the 401(k) plan.

Rule 10b5-1 Sales Plans

Our directors and executive officers may adopt written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or officer when entering into the plan,

without further direction from the director or officer. It is also possible that the director or officer could amend or terminate the plan when not in possession of material, nonpublic information. In addition, our directors and executive officers may buy or sell additional shares outside of a Rule 10b5-1 plan when they are not in possession of material, nonpublic information.

Limitations on Liability and Indemnification Matters

Upon the closing of this offering, our amended and restated certificate of incorporation will contain provisions that limit the liability of our current and former directors for monetary damages to the fullest extent permitted by Delaware law. Delaware law provides that directors of a corporation will not be personally liable for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to the corporation or its stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not apply to liabilities arising under federal securities laws and do not affect the availability of equitable remedies, such as injunctive relief or rescission.

We plan to enter into separate indemnification agreements with our directors and officers in connection with this offering and in addition to the indemnification provided for in our bylaws. These indemnification agreements provide, among other things, that we will indemnify our directors and officers for certain expenses, including damages, judgments, fines, penalties, settlements and costs and attorneys' fees and disbursements, incurred by a director or officer in any claim, action or proceeding arising in his or her capacity as a director or officer of our company or in connection with service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or officer makes a claim for indemnification.

We also maintain a directors' and officers' insurance policy pursuant to which our directors and officers are insured against liability for actions taken in their capacities as directors and officers. We believe that these indemnification provisions and insurance are useful to attract and retain qualified directors and officers.

The limitation of liability and indemnification provisions that will be contained in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Other than compensation arrangements, we describe below transactions and series of similar transactions, since January 1, 2017, to which we were a party or will be a party, in which:

- the amount involved exceeded or will exceed the lesser of $120,000 and one percent of the average of our total assets at year-end for the last two completed fiscal years; and
- any of our directors, executive officers or holders of more than 5% of any class of our capital stock at the time of such transaction, or any member of the immediate family of the foregoing persons, which we refer to as our related parties, had or will have a direct or indirect material interest.

We have entered into various employment-related agreements and compensatory arrangements with our directors and executive officers that, among other things, provide for compensatory benefits. For a description of these agreements and arrangements, see the sections titled “Management” and “Executive Compensation.”

Massachusetts General Hospital Exclusive Patent License Agreement

In April 2016, we entered into an exclusive patent license agreement with The General Hospital Corporation, or MGH, as subsequently amended in May 2017 and February 2018, or the MGH Agreement, pursuant to which we obtained an exclusive, worldwide license of certain intellectual property owned by MGH. MGH is an affiliate of Partners Innovation Fund, LLC, a 5% holder of our capital stock. For a more detailed description of the MGH Agreement, see “Business—Collaborations and License Agreements—2016 Exclusive Patent License Agreement with The General Hospital Corporation.”

Private Placements of Securities

Series A Preferred Stock Financing

In April 2016, April 2017 and November 2017, we sold an aggregate of 4,607,652 shares of our Series A preferred stock in multiple closings at a purchase price of $2.17 per share for an aggregate amount of $10.0 million. The following table summarizes purchases of our Series A preferred stock by related parties:

RELATED PARTY	SHARES OF SERIES A PREFERRED STOCK	TOTAL PURCHASE PRICE
Entities affiliated with Pontifax (1)	2,764,593	$ 6,000,000
Arkin Bio Ventures Limited Partnership (2)	1,382,295	$ 3,000,000
Entities affiliated with Partners Innovation Fund (3)	460,764	$ 1,000,000

(1) Represents (i) 1,363,542 shares of Series A preferred stock purchased by Pontifax (Israel) IV, L.P., or Pontifax Israel, (ii) 663,825 shares of Series A preferred stock purchased by Pontifax (Cayman) IV, L.P., or Pontifax Cayman, and (iii) 737,226 shares of Series A preferred stock purchased by Pontifax (China) IV, L.P., or Pontifax China. Pontifax Israel, Pontifax Cayman and Pontifax China are collectively referred to as the Pontifax IV Funds. Tomer Kariv and Ran Nussbaum, both members of our board of directors, are the Managing Partners of Pontifax Management 4 G.P. (2015) Ltd., or Pontifax Management, the general partner of each of the Pontifax IV Funds, and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Pontifax IV Funds. The Pontifax Entities (as defined below) collectively hold more than 5% of our capital stock prior to this offering.

(2) Alon Lazarus, Ph.D., a member of our board of directors, is the Biotech Investment Manager of Arkin Holdings Ltd., or Arkin Holdings, the ultimate general partner of Arkin Bio Ventures Limited Partnership, and, as a result, may be deemed to share voting and investment power with respect to the shares held by Arkin Bio Ventures Limited Partnership. Arkin Bio Ventures Limited Partnership is a holder of more than 5% our capital stock prior to this offering.

(3) Represents (i) 276,459 shares of Series A preferred stock purchased by Partners Innovation Fund, LLC, or PIF I, and (ii) 184,305 shares of Series A preferred stock purchased by Partners Innovation Fund II, L.P., or PIF II. PIF I and PIF II are collectively referred to as the Partners Entities. Julius Knowles, a member of our board of directors, is a partner of each of Partners Innovation Fund, LLC, or Partners GP I, the ultimate general partner of PIF I, and Partners Innovation Fund II, LLC, or Partners GP II, the ultimate general partner of PIF II, and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Partners Entities. The Partners Entities collectively hold more than 5% of our capital stock prior to this offering.

Series B-1 and Series B-2 Preferred Stock Financing

In November 2018, we sold an aggregate of 1,579,043 shares of our Series B-1 preferred stock at a purchase price of $7.28 per share for an aggregate amount of approximately $11.5 million. The following table summarizes purchases of our Series B-1 preferred stock by related parties:

RELATED PARTY	SHARES OF SERIES B-1 PREFERRED STOCK	TOTAL PURCHASE PRICE
Entities affiliated with Pontifax (1)	411,924	$ 3,000,000
Arkin Bio Ventures Limited Partnership (2)	343,270	$ 2,500,000
Entities affiliated with Partners Innovation Fund (3)	343,270	$ 2,500,000

(1) Represents (i) 169,307 shares of Series B-1 preferred stock purchased by Pontifax Israel, (ii) 82,425 shares of Series B-1 preferred stock purchased by Pontifax Cayman, (iii) 91,538 shares of Series B-1 preferred stock purchased by Pontifax China and (iv) 68,654 shares of Series B-1 preferred stock purchased by Pontifax Late Stage Fund L.P., or Pontifax Late Stage. The Pontifax IV Funds and Pontifax Late Stage are collectively referred to as the Pontifax Entities. Tomer Kariv and Ran Nussbaum, both members of our board of directors, are the Managing Partners of Pontifax Management, the general partner of each of the Pontifax IV Funds, and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Pontifax IV Funds. Pursuant to Strategic Alliance Agreement, dated August 9, 2018, between Pontifax Late Stage and the Pontifax IV Funds, Pontifax Late Stage invests side-by-side with the Pontifax IV Funds. By virtue of the strategic relationship, each of Pontifax Management, Mr. Kariv and Mr. Nussbaum may be deemed to share voting and dispositive power with respect to the shares held by Pontifax Late Stage in a manner similar to the voting and investment power with respect to the shares held by each of the Pontifax IV Funds. The Pontifax Entities collectively hold more than 5% of our capital stock prior to this offering.

(2) Alon Lazarus, Ph.D., a member of our board of directors, is the Biotech Investment Manager of Arkin Holdings, the ultimate general partner of Arkin Bio Ventures Limited Partnership, and, as a result, may be deemed to share voting and investment power with respect to the shares held by Arkin Bio Ventures Limited Partnership. Arkin Bio Ventures Limited Partnership is a holder of more than 5% our capital stock prior to this offering.

(3) Represents (i) 205,962 shares of Series B-1 preferred stock purchased by PIF I and (ii) 137,308 shares of Series B-1 preferred stock purchased by PIF II. Julius Knowles, a member of our board of directors, is a partner of each of Partners GP I, the ultimate general partner of PIF I, and Partners GP II, the ultimate general partner of PIF II, and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Partners Entities. The Partners Entities collectively hold more than 5% of our capital stock prior to this offering.

In addition to our Series B-1 preferred stock financing described above, certain investors committed to purchase up to 1,411,275 shares of Series B-2 preferred stock in a separate closing upon the achievement of a specified clinical development milestone. In March 2020, we and the investors agreed to terminate and waive any future issuance and sale of shares of Series B-2 preferred stock and the related purchase of the shares of Series B-2 preferred stock by such investors.

Series C Preferred Stock Financing

In March 2020, we sold an aggregate of 4,169,822 shares of our Series C preferred stock at a purchase price of $13.43 per share for an aggregate amount of approximately $56.0 million. The following table summarizes purchases of our Series C preferred stock by related parties:

RELATED PARTY	SHARES OF SERIES C PREFERRED STOCK	TOTAL PURCHASE PRICE
Foresite Capital Fund IV, L.P. (1)	1,303,071	$ 17,500,004
Entities affiliated with OrbiMed (2)	1,116,917	$ 15,000,015
Entities affiliated with Pontifax (3)	368,583	$ 4,950,016
Arkin Bio Ventures Limited Partnership (4)	167,537	$ 2,250,000
Entities affiliated with Partners Innovation Fund (5)	111,691	$ 1,500,002
Jasbir Seehra, Ph.D. (6)	11,169	$ 150,003

(1) Foresite Capital Fund IV, L.P. is a holder of more than 5% of our capital stock prior to this offering.

(2) Represents (i) 744,612 shares of Series C preferred stock purchased by OrbiMed Private Investments VII, LP, or OPI VII, (ii) 223,383 shares of Series C preferred stock purchased by The Biotech Growth Trust PLC, or BIOG, and (iii) 148,922 shares of Series

C preferred stock purchased by OrbiMed Genesis Master Fund, L.P., or Genesis. OPI VII, BIOG and Genesis are collectively referred to as the OrbiMed Entities. OrbiMed Capital GP VII, or OrbiMed GP VII, is the general partner of OPI VII and OrbiMed Advisors LLC. OrbiMed Advisors, is the managing member of OrbiMed GP VII. OrbiMed Genesis GP LLC, or Genesis GP, is the general partner of Genesis. OrbiMed Advisors is the managing member of Genesis GP. OrbiMed Capital LLC, or OrbiMed Capital, is the investment advisor of BIOG. OrbiMed Capital is a relying adviser of OrbiMed Advisors. Carl Gordon, Ph.D., C.F.A., a member of our board of directors, is a managing partner of OrbiMed Advisors and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the OrbiMed Entities. The OrbiMed Entities collectively hold more than 5% of our capital stock prior to this offering.

(3) Represents (i) 163,612 shares of Series C preferred stock purchased by Pontifax Israel, (ii) 88,460 shares of Series C preferred stock purchased by Pontifax Cayman, (iii) 79,653 shares of Series C preferred stock purchased by Pontifax China and (iv) 36,858 shares of Series C preferred stock purchased by Pontifax Late Stage. Tomer Kariv and Ran Nussbaum, both members of our board of directors, are the Managing Partners of Pontifax Management, the general partner of each of the Pontifax Entities, and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Pontifax Entities. The Pontifax Entities collectively hold more than 5% of our capital stock prior to this offering.

(4) Alon Lazarus, Ph.D., a member of our board of directors, is the Biotech Investment Manager of Arkin Holdings and, as a result, may be deemed to share voting and investment power with respect to the shares held by Arkin Bio Ventures Limited Partnership. Arkin Bio Ventures Limited Partnership is a holder of more than 5% our capital stock prior to this offering.

(5) Represents (i) 67,015 shares of Series C preferred stock purchased by PIF I and (ii) 44,676 shares of Series C preferred stock purchased by PIF II. Julius Knowles, a member of our board of directors, is a partner of Partners GP, the ultimate general partner of the Partners Entities, and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Partners Entities. The Partners Entities collectively hold more than 5% of our capital stock prior to this offering.

(6) Dr. Seehra is our Chief Executive Officer and a member of our board of directors.

Transactions with HepatoChem, Inc.

We have, from time to time, purchased goods and services from HepatoChem, Inc., or HepatoChem, a contract research organization providing bioanalytical support and drug metabolite identification and characterization. Approximately 70% of the capital stock of HepatoChem is held by Marc Bazin, the husband of our Chief Scientific Officer, Jennifer Lachey, Ph.D. The aggregate amount of all goods and services we have purchased from HepatoChem since January 1, 2017 is approximately $170,000.

Investors' Rights, Voting and Stockholders Agreements

In connection with our convertible preferred stock financings, we entered into investors' rights, voting and stockholder agreements containing registration rights, information rights, voting rights and rights of first refusal, among other things, with certain holders of our convertible preferred stock and certain holders of our common stock including the Pontifax Entities, Arkin Bio Ventures Limited Partnership, Foresite Capital Fund IV, L.P., the Partners Entities and the OrbiMed Entities. These stockholder agreements will terminate upon the closing of this offering, except for the registration rights granted under our amended and restated investors' rights agreement, as more fully described in the section of this prospectus titled "Description of Capital Stock—Registration Rights."

Employment Arrangements

We have entered into employment agreements or offer letter agreements with certain of our executive officers. For more information regarding these agreements with our named executive officers, see "Executive Compensation—Agreements with our Named Executive Officers."

Indemnification Agreements

We plan to enter into indemnification agreements with each of our directors and executive officers in connection with this offering.
The indemnification agreements and our amended and restated bylaws, each to be in effect upon the closing of this offering, require us to indemnify our directors and executive officers to the fullest extent permitted by Delaware law. For more information regarding these agreements, see "Executive Compensation—Limitations on Liability and Indemnification Matters."

Executive and Director Compensation

We have granted stock options to certain of our executive officers and directors. See the section titled "Executive Compensation" for a description of these stock options.

Related Party Transaction Policy

Prior to this offering, we have not had a formal policy regarding approval of transactions with related parties. We have adopted a written related party transaction policy that sets forth our procedures for the identification, review, consideration and approval or ratification of related party transactions. The policy will become effective immediately upon the execution of the underwriting agreement for this offering. For purposes of our policy only, a related party transaction is a transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we and any related party are, were or will be participants and in which the amount involved exceeds the lesser of $120,000 and one percent of the average of our total assets at year-end for the last two completed fiscal years. Transactions involving compensation for services provided to us as an employee or director are not covered by this policy. A related party is any executive officer, director or beneficial owner of more than 5% of any class of our voting securities, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, if a transaction has been identified as a related party transaction, including any transaction that was not a related party transaction when originally consummated or any transaction that was not initially identified as a related party transaction prior to consummation, our management must present information regarding the related party transaction to our audit committee, or, if audit committee approval would be inappropriate, to another independent body of our board of directors, for review, consideration and approval or ratification. The presentation must include a description of, among other things, the material facts, the interests, direct and indirect, of the related parties, the benefits to us of the transaction and whether the transaction is on terms that are comparable to the terms available to or from, as the case may be, an unrelated third party or to or from employees generally. Under the policy, we will collect information that we deem reasonably necessary from each director, executive officer and, to the extent feasible, significant stockholder to enable us to identify any existing or potential related-person transactions and to effectuate the terms of the policy.

In addition, under our Code of Conduct, which we have adopted in connection with this offering, our employees and directors have an affirmative responsibility to disclose any transaction or relationship that reasonably could be expected to give rise to a conflict of interest.

In considering related party transactions, our audit committee, or other independent body of our board of directors, will take into account the relevant available facts and circumstances including, but not limited to:

- the risks, costs and benefits to us;
- the impact on a director’s independence in the event that the related party is a director, immediate family member of a director or an entity with which a director is affiliated;
- the availability of other sources for comparable services or products; and
- the terms available to or from, as the case may be, unrelated third parties or to or from employees generally.

The policy requires that, in determining whether to approve, ratify or reject a related party transaction, our audit committee, or other independent body of our board of directors, must consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, our best interests and those of our stockholders, as our audit committee, or other independent body of our board of directors, determines in the good faith exercise of its discretion.

All of the transactions described above were entered into prior to the adoption of the written policy, but all were approved by our board of directors considering similar factors to those described above.

PRINCIPAL STOCKHOLDERS

The following table sets forth the beneficial ownership of our common stock as of December 31, 2019, as adjusted to reflect the sale of common stock offered by us in this offering, for:

- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our common stock;
- each of our named executive officers;
- each of our directors; and
- all of our executive officers and directors as a group.

The percentage ownership information shown in the table prior to this offering is based on 13,189,391 shares of common stock (which includes 34,557 shares of restricted common stock subject to repurchase) outstanding as of December 31, 2019, after giving effect to the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 10,725,129 shares of our common stock upon the closing of this offering, which includes the conversion of the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020.

The percentage ownership information shown in the table after this offering is based on 18,189,391 shares outstanding, assuming the sale of 5,000,000 shares of our common stock by us in this offering and no exercise of the underwriters' option to purchase additional shares.

We have determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. In addition, the rules include shares of common stock issuable pursuant to the exercise of stock options that are exercisable on or before February 29, 2020, which is 60 days after December 31, 2019. These shares are deemed to be outstanding and beneficially owned by the person holding those options for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them, subject to applicable community property laws.

Except as otherwise noted below, the address for persons listed in the table is c/o Keros Therapeutics, Inc., 99 Hayden Avenue, Suite 120, Building E, Lexington, Massachusetts 02421.

NAME OF BENEFICIAL OWNER	NUMBER OF SHARES BENEFICIALLY OWNED	PERCENTAGE OF SHARES BENEFICIALLY OWNED	
		BEFORE OFFERING	AFTER OFFERING
5% or greater stockholders:			
Entities affiliated with Pontifax (1)	4,297,008	32.6%	23.6%
Arkin Bio Ventures Limited Partnership (2)	1,893,102	14.4	10.4
Foresite Capital Fund IV, L.P. (3)	1,303,071	9.9	7.2
Entities Affiliated with Partners Innovation Fund (4)	1,146,107	8.7	6.3
Entities affiliated with OrbiMed (5)	1,116,917	8.5	6.1
Named executive officers and directors:			
Jasbir Seehra, Ph.D. (6)	537,939	4.0	2.9
Jennifer Lachey, Ph.D. (7)	234,417	1.7	1.3
Claudia Ordonez, M.D.	—	—	—
Nima Farzan	—	—	—
Carl Gordon, Ph.D., C.F.A. (5)	1,116,917	8.5	6.1
Tomer Kariv (1)	4,297,008	32.6	23.6
Julius Knowles (4)	1,146,107	8.7	6.3
Alon Lazarus, Ph.D. (8)	1,916,140	14.5	10.5
Ran Nussbaum (1)	4,297,008	32.6	23.6
All current executive officers and directors as a group (10 persons)(1)(2)(4)(5)(9)	9,248,528	67.3	49.3

(1) Consists of (a)(i) 370,853 shares of common stock, (ii) 1,363,542 shares of common stock issuable upon the conversion of Series A preferred stock, (iii) 169,307 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (iv) 163,612 shares of common stock issuable upon the conversion of Series C preferred stock held by Pontifax (Israel) IV L.P., or Pontifax Israel, (b)(i) 180,546 shares of common stock, (ii) 663,825 shares of common stock issuable upon the conversion of Series A preferred stock, (iii) 82,425 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (iv) 88,460 shares of common stock issuable upon the conversion of Series C preferred stock held by Pontifax (Cayman) IV L.P., or Pontifax Cayman, (c)(i) 200,509 shares of common stock, (ii) 737,226 shares of common stock issuable upon the conversion of Series A preferred stock, (iii) 91,538 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (iv) 79,653 shares of common stock issuable upon the conversion of Series C preferred stock held by Pontifax (China) IV L.P., or Pontifax China and (d)(i) 68,654 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (ii) 36,858 shares of common stock issuable upon the conversion of Series C preferred stock held by Pontifax Late Stage Fund, L.P., or Pontifax Late Stage. Pontifax Israel, Pontifax Cayman and Pontifax China are collectively referred to as the Pontifax IV Funds, and together with Pontifax Late Stage are collectively referred to as the Pontifax Entities. Pontifax Management 4 G.P. (2015) Ltd., or Pontifax Management, is the ultimate general partner of each of the Pontifax IV Funds. Ran Nussbaum and Tomer Kariv, both members of our board of directors, are the Managing Partners of Pontifax Management and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Pontifax IV Funds. Pontifax Late Stage GP Ltd., or Pontifax Late Stage GP, is the general partner of Pontifax Late Stage and the sole shareholder of Pontifax Late Stage GP is Mr. Shlomo Karako. Pursuant to Strategic Alliance Agreement, dated August 9, 2018, between Pontifax Late Stage and the Pontifax IV Funds, Pontifax Late Stage invests side-by-side with the Pontifax IV Funds. By virtue of the strategic relationship, each of Pontifax Management, Mr. Kariv and Mr. Nussbaum may be deemed to share voting and dispositive power with respect to the shares held by Pontifax Late Stage in a manner similar to the voting and investment power with respect to the shares held by each of the Pontifax IV Funds. The address of each of the Pontifax Entities is c/o The Pontifax Group, 14 Shenkar Street, Beit Ofek, Herzliya Pituach, 46140 Israel.

(2) Consists of (a) 1,382,295 shares of common stock issuable upon the conversion of Series A preferred stock, (b) 343,270 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (c) 167,537 shares of common stock issuable upon the conversion of Series C preferred stock held by Arkin Bio Ventures Limited Partnership. Arkin Holdings Ltd., or Arkin Holdings, is the ultimate general partner of Arkin Bio Ventures Limited Partnership and the sole shareholder and chairman of the board of Arkin Holdings is Moshe Arkin. As a result, Mr. Arkin may be deemed to share voting and investment power with respect to the shares held by Arkin Bio Ventures Limited Partnership. Alon Lazarus, Ph.D., a member of our board of directors, is the Biotech Investment Manager of Arkin Holdings and, as a result, may be deemed to share voting and investment power with respect to the shares held by Arkin Bio Ventures Limited Partnership. The address of Arkin Bio Ventures Limited Partnership is 6 Ha'Choshlim Street, Building C, Herzliya, 46724 Israel.

(3) Consists of 1,303,071 shares of common stock issuable upon the conversion of Series C preferred stock held by Foresite Capital Fund IV, L.P., or FCF IV. Foresite Capital Management IV, LLC, or FCM IV, the sole general partner of FCF IV, may be deemed to have sole voting and dispositive power over these shares. James B. Tananbaum, in his capacity as managing member of FCM IV, may be deemed to have sole voting and dispositive power over these shares. The address of Mr. Tananbaum and each of the entities identified in this footnote is c/o Foresite Capital Management, 600 Montgomery Street, Suite 4500, San Francisco, CA 94111.

(4) Consists of (a)(i) 138,229 shares of common stock, (ii) 276,459 shares of common stock issuable upon the conversion of Series A preferred stock, (iii) 205,962 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (iv) 67,015 shares of common stock issuable upon the conversion of Series C preferred stock held by Partners Innovation Fund, LLC, or PIF I and (b)(i) 92,153 shares of common stock, (ii) 184,305 shares of common stock issuable upon the conversion of Series A preferred stock, (iii) 137,308 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (iv) 44,676 shares of common stock issuable upon the conversion of Series C preferred stock held by Partners Innovation Fund II, L.P., or PIF II. PIF I and PIF II are collectively referred to as the Partners Entities. Partners Innovation Fund, LLC, or Partners GP I, is the ultimate general partner of PIF I, and Partners Innovation Fund II, LLC, or Partners GP II, is the ultimate general partner of PIF II. Julius Knowles, a member of our board of directors, is a partner of each of Partners GP and Partners GP II, and, as a result, may be deemed to share voting and investment power with respect to the shares held by each of the Partners Entities. The address of each of the Partners Entities is 215 First Street, Suite 500, Cambridge, Massachusetts 02142.

(5) Consists of (a) 744,612 shares of common stock issuable upon the conversion of Series C preferred stock held by OrbiMed Private Investments VII, LP, or OPI, (b) 223,383 shares of common stock issuable upon the conversion of Series C preferred stock held by The Biotech Growth Trust PLC, or BIOG, and (c) 148,922 shares of common stock issuable upon the conversion of Series C preferred stock held by OrbiMed Genesis Master Fund, L.P., or Genesis. OPI VII, BIOG and Genesis are collectively referred to as the OrbiMed Entities. OrbiMed Capital GP VII LLC, or OrbiMed GP VII, is the general partner of OPI VII and OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of OrbiMed GP VII. By virtue of such relationships, OrbiMed GP VII and OrbiMed Advisors may be deemed to have voting and investment power over the securities held by OPI VII and as a result may be deemed to have beneficial ownership over such securities. OrbiMed Genesis GP LLC, or Genesis GP, is the general partner of Genesis. OrbiMed Advisors is the managing member of Genesis GP. By virtue of such relationships, Genesis GP and OrbiMed Advisors may be deemed to have voting and investment power over the securities held by Genesis and as a result may be deemed to have beneficial ownership over such securities. OrbiMed Capital LLC, or OrbiMed Capital, is the investment advisor of BIOG. OrbiMed Capital is a relying adviser of OrbiMed Advisors. OrbiMed Advisors and OrbiMed Capital exercise voting and investment power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and Jonathan T. Silverstein, each of whom disclaims beneficial ownership of the shares held by the OrbiMed Entities. Carl Gordon, Ph.D., C.F.A., a member of OrbiMed Advisors, is a member of our board of directors. The business address of each of the OrbiMed Entities is 601 Lexington Avenue, 54th Floor, New York, NY 10022.

(6) Consists of (a) 178,131 shares of common stock held by Dr. Seehra, (b) 11,169 shares of common stock issuable upon the conversion of Series C preferred stock and (c) 348,639 shares issuable upon the exercise of options granted to Dr. Seehra that are exercisable within 60 days of December 31, 2019.

(7) Consists of (a) 27,991 shares of common stock held by Dr. Lachey and (b) 206,426 shares issuable upon the exercise of options granted to Dr. Lachey that are exercisable within 60 days of December 31, 2019.

(8) Consists of (a) 23,038 shares of common stock held by Dr. Lazarus and (b) 1,893,102 shares of common stock held by Arkin Bio Ventures Limited Partnership referred to in footnote (2) above. Dr. Lazarus is the Biotech Investment Manager of Arkin Holdings and, as a result, may be deemed to share voting and investment power with respect to the shares held by Arkin Bio Ventures Limited Partnership.

(9) Consists of (a) 1,211,450 shares of common stock, (b) 4,607,652 shares of common stock issuable upon the conversion of Series A preferred stock, (c) 1,098,464 shares of common stock issuable upon the conversion of Series B-1 preferred stock, (d) 1,775,897 shares of common stock issuable upon the conversion of Series C preferred stock and (e) 555,065 shares issuable upon the exercise of options granted to our executive officers that are exercisable within 60 days of December 31, 2019. The shares held by the Pontifax Entities referred to in footnote (1) above of which Mr. Kariv and Mr. Nussbaum may be deemed to share voting and investment power with respect to have been counted once for purposes of calculating the number of shares beneficially owned by all current executive officers and directors as a group.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock, certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws, as each will be in effect upon the closing of this offering, and certain provisions of Delaware law are summaries. You should also refer to the amended and restated certificate of incorporation and the amended and restated bylaws, which are filed as exhibits to the registration statement of which this prospectus is part. We refer in this section to our amended and restated certificate of incorporation and amended and restated bylaws that we intend to adopt in connection with this offering as our certificate of incorporation and bylaws, respectively.

General

Upon the closing of this offering, our certificate of incorporation will authorize us to issue up to 200,000,000 shares of common stock, $0.0001 par value per share, and 10,000,000 shares of preferred stock, $0.0001 par value per share, all of which shares of preferred stock will be undesignated. Our board of directors may establish the rights and preferences of the preferred stock from time to time.

As of December 31, 2019, after giving effect to the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 10,725,129 shares of our common stock upon the closing of this offering, which includes the conversion of the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020, there would have been 13,189,391 shares of common stock issued and outstanding (which includes 34,557 shares of restricted common stock subject to repurchase), held of record by 38 stockholders.

Common Stock

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Under our certificate of incorporation and bylaws, our stockholders will not have cumulative voting rights. Because of this, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they should so choose.

Dividends

Subject to preferences that may be applicable to any then-outstanding preferred stock, holders of common stock are entitled to receive ratably those dividends, if any, as may be declared from time to time by the board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then-outstanding shares of preferred stock.

Rights and Preferences

Holders of common stock have no preemptive, conversion or subscription rights and there are no redemption or sinking fund provisions applicable to the common stock. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future.

Preferred Stock

As of December 31, 2019, including the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020, there were 10,725,129 shares of preferred stock outstanding, which will convert, immediately prior to the closing of this offering, into 10,725,129 shares of our common stock. All series of our convertible preferred stock will convert at a ratio of one share of common stock for each share of convertible preferred stock. All shares of common stock (including fractions thereof) issuable upon conversion of convertible preferred stock by a holder thereof shall be aggregated for purposes of determining whether the conversion would result in the issuance of any

fractional share. If, after such aggregation, the conversion results in the issuance of any fractional share, we will, in lieu of issuing any fractional share, pay cash equal to the product of such fraction multiplied by the initial public offering price.

Upon the closing of this offering, our board of directors may, without further action by our stockholders, fix the rights, preferences, privileges and restrictions of up to an aggregate of 10,000,000 shares of preferred stock in one or more series and authorize their issuance. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of our common stock. The issuance of our preferred stock could adversely affect the voting power of holders of our common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change of control or other corporate action. Upon the closing of this offering, no shares of preferred stock will be outstanding, and we have no present plan to issue any shares of preferred stock.

Options

As of December 31, 2019, options to purchase an aggregate of 1,164,017 shares of common stock were outstanding under our 2017 Stock Incentive Plan, as amended, or the 2017 Plan, at a weighted average exercise price of $0.35 per share. See “Executive Compensation—Equity Incentive Plans” for additional information regarding the terms of our 2017 Plan.

In addition, in March 2020, our board of directors, based on the recommendation of our compensation committee, approved grants of an aggregate of 1,147,434 options under the 2020 Equity Incentive Plan, or the 2020 Plan, to be granted contingent and effective upon the execution of the underwriting agreement for this offering, with an exercise price equal to the initial public offering price per share, to our named executive officers, Mr. Regnante and employees hired in the first quarter of 2020. The shares of common stock underlying the options vest and become exercisable over a four-year period, with 25% of the shares subject to the option vesting on the first anniversary of the vesting commencement date and 6.25% of the shares subject to the option vesting at the end of each successive three-month period following the first anniversary of the vesting commencement date, subject to the option holder’s continuous service with us as of each such vesting date and to potential acceleration under certain circumstances. See “Executive Compensation—Equity Incentive Plans” for additional information regarding the terms of our 2020 Plan.

Registration Rights

Upon the closing of this offering, certain holders of shares of our common stock, including those shares of our common stock that will be issued upon conversion of our convertible preferred stock upon the closing of this offering, will be entitled to certain rights with respect to registration of such shares under the Securities Act pursuant to the terms of an amended and restated investors’ rights agreement by and among us and certain of our stockholders. These shares are collectively referred to herein as registrable securities.

The amended and restated investors’ rights agreement provides the holders of registrable securities with demand, piggyback and S-3 registration rights as described more fully below. As of December 31, 2019, holders of an aggregate of 11,855,550 registrable securities, which includes the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020, were entitled to these demand, piggyback and S-3 registration rights. Under the terms of the investor’s rights agreement, holders of registrable securities will have equivalent registration rights with respect to any additional shares of our common stock acquired by these holders.

Demand Registration Rights

At any time beginning 180 days following the effective date of the registration statement of which this prospectus forms a part, the holders of at least a majority of the registrable securities then outstanding have the right to make up to two demands that we file a registration statement under the Securities Act, subject to specified conditions and exceptions.

Piggyback Registration Rights

If we register any securities for public sale, the holders of our registrable securities then outstanding will each be entitled to notice of the registration and will have the right to include their shares in the registration statement, subject to specified exceptions. The underwriters of any underwritten offering will have the right to limit the number of shares having registration rights to be included in such registration statement, but not below 30% of the total amount of securities included in such registration.

Registration on Form S-3

If we are eligible to file a registration statement on Form S-3, the holders of at least 20% of our registrable securities then outstanding have the right to demand that we file registration statements on Form S-3, provided that the aggregate amount of securities to be sold under the registration statement is at least $3.0 million, net of underwriting discounts and commissions and specified expenses. We are not obligated to effect a demand for registration on Form S-3 by holders of our registrable securities more than two times during any 12-month period. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations.

Expenses of Registration

We will pay all expenses relating to any demand, piggyback or Form S-3 registration, other than underwriting discounts and commissions, subject to specified conditions and limitations.

Termination of Registration Rights

The demand, piggyback and Form S-3 registration rights described above will terminate on the earliest to occur of (1) the closing of a deemed liquidation event, as defined in our certificate of incorporation, (2) the five-year anniversary of the closing of this offering and (3) with respect to each stockholder, at such time as Rule 144 under the Securities Act or another similar exemption is available for the sale of all of such holder's shares without limitation during a three-month period without registration.

Anti-Takeover Provisions

Anti-Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a publicly held Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, those shares owned (1) by persons who are directors and also officers and (2) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a "business combination" to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or

- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an “interested stockholder” as an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

Anti-Takeover Effects of Certain Provisions of our Certificate of Incorporation and Bylaws to be in Effect upon the Closing of this Offering

Our certificate of incorporation to be in effect upon the closing of this offering will provide for our board of directors to be divided into three classes with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the voting power of our shares of common stock outstanding will be able to elect all of our directors. The directors may be removed by the stockholders only for cause upon the vote of holders of 66 2/3% of the shares then entitled to vote at an election of directors. Furthermore, the authorized number of directors may be changed only by resolution of our board of directors, and vacancies and newly created directorships on our board of directors may, except as otherwise required by law or determined by our board, only be filled by a majority vote of the directors then serving on the board, even though less than a quorum. Our certificate of incorporation and bylaws will provide that all stockholder actions must be effected at a duly called meeting of stockholders and not by a consent in writing. A special meeting of stockholders may be called only by a majority of our whole board of directors, the chair of our board of directors or our chief executive officer. Our bylaws will also provide that stockholders seeking to present proposals before a meeting of stockholders to nominate candidates for election as directors at a meeting of stockholders must provide timely advance notice in writing, and will specify requirements as to the form and content of a stockholder’s notice.

Our certificate of incorporation will further provide that, immediately after this offering, the affirmative vote of holders of at least 66 2/3% of the voting power of all of the then outstanding shares of voting stock, voting as a single class, will be required to amend certain provisions of our certificate of incorporation, including provisions relating to the structure of our board of directors, the size of the board, removal of directors, special meetings of stockholders, actions by written consent and cumulative voting. The affirmative vote of holders of at least 66 2/3% of the voting power of all of the then outstanding shares of voting stock, voting as a single class, will be required to amend or repeal our bylaws, although our bylaws may be amended by a simple majority vote of our whole board of directors.

The foregoing provisions will make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of our company by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change the control of our company.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage certain types of transactions that may involve an actual or threatened acquisition of our company. These provisions are also designed to reduce our vulnerability to an unsolicited acquisition proposal and to discourage certain tactics that may be used in proxy rights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of deterring hostile takeovers or delaying changes in control of our company or our management. As a consequence, these provisions also may inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts.

Choice of Forum

Our amended and restated certificate of incorporation to be in effect immediately prior to the completion of this offering will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for: (1) any derivative action or proceeding brought on our behalf; (2) any action or proceeding asserting a breach of fiduciary

duty owed by any of our current or former directors, officers or employees to us or our stockholders; (3) any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws; (4) any action or proceeding to interpret, apply, enforce or determine the validity of our certificate of incorporation or our by-laws; or (5) any action or proceeding asserting a claim against us that is governed by the internal affairs doctrine, provided that, the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Securities Act, the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction; and provided further that, if and only if the Court of Chancery of the State of Delaware dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in the State of Delaware. It is possible that a court of law could rule that the choice of forum provision contained in our amended and restated certificate of incorporation is inapplicable or unenforceable if it is challenged in a proceeding or otherwise.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent's address is 250 Royall Street, Canton, Massachusetts 02021.

Listing

We have applied for listing of our common stock on the Nasdaq Global Market under the trading symbol "KROS."

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, no public market existed for our common stock, and although we expect that our common stock will be approved for listing on the Nasdaq Global Market, we cannot assure investors that there will be an active public market for our common stock following this offering. We cannot predict what effect, if any, sales of our shares in the public market or the availability of shares for sale will have on the market price of our common stock. Future sales of substantial amounts of common stock in the public market, including shares issued upon exercise of outstanding options or warrants, or the perception that such sales may occur, however, could adversely affect the market price of our common stock and also could adversely affect our future ability to raise capital through the sale of our common stock or other equity-related securities at times and prices we believe appropriate.

Based on our shares outstanding as of December 31, 2019, upon the closing of this offering, 18,189,391 shares of our common stock will be outstanding, or 18,939,391 shares of common stock if the underwriters exercise in full their option to purchase additional shares.

All of the shares of common stock sold in this offering will be freely tradable without restrictions or further registration under the Securities Act, except for any shares sold to our "affiliates," as that term is defined under Rule 144 under the Securities Act. The remaining 13,189,391 outstanding shares of common stock held by existing stockholders are "restricted securities," as that term is defined in Rule 144 under the Securities Act. Restricted securities may be sold in the public market only if the offer and sale is registered under the Securities Act or if the offer and sale of those securities qualifies for exemption from registration, including exemptions provided by Rules 144 and 701 promulgated under the Securities Act.

As a result of lock-up agreements and market standoff provisions described below and the provisions of Rules 144 and 701, the restricted securities will be available for sale in the public market as follows:

- 5,000,000 shares will be eligible for immediate sale upon the closing of this offering; and
- approximately 13,189,391 shares will be eligible for sale upon expiration of lock-up agreements and market standoff provisions described below, beginning 181 days after the date of this prospectus, subject in certain circumstances to the volume, manner of sale and other limitations under Rule 144 and Rule 701.

We may issue shares of our common stock from time to time for a variety of corporate purposes, including in capital-raising activities through future public offerings or private placements, in connection with exercise of stock options and warrants, vesting of restricted stock units and other issuances relating to our employee benefit plans and as consideration for future acquisitions, investments or other purposes. The number of shares of our common stock that we may issue may be significant, depending on the events surrounding such issuances. In some cases, the shares we issue may be freely tradable without restriction or further registration under the Securities Act; in other cases, we may grant registration rights covering the shares issued in connection with these issuances, in which case the holders of the common stock will have the right, under certain circumstances, to cause us to register any resale of such shares to the public.

Rule 144

In general, non-affiliate persons who have beneficially owned restricted shares of our common stock for at least six months, and any of our affiliates who owns restricted shares of our common stock, are entitled to sell their securities without registration with the SEC under an exemption from registration provided by Rule 144 under the Securities Act.

Non-Affiliates

Any person who is not deemed to have been one of our affiliates at the time of, or at any time during the three months preceding, a sale may sell an unlimited number of restricted securities under Rule 144 if:

- the restricted securities have been held for at least six months, including the holding period of any prior owner other than one of our affiliates;

- we have been subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale; and
- we are current in our Exchange Act reporting at the time of sale.

Any person who is not deemed to have been an affiliate of ours at the time of, or at any time during the three months preceding, a sale and has held the restricted securities for at least one year, including the holding period of any prior owner other than one of our affiliates, will be entitled to sell an unlimited number of restricted securities without regard to the length of time we have been subject to Exchange Act periodic reporting or whether we are current in our Exchange Act reporting. Non-affiliate resales are not subject to the manner of sale, volume limitation or notice filing provisions of Rule 144.

Affiliates

Persons seeking to sell restricted securities who are our affiliates at the time of, or any time during the three months preceding, a sale, would be subject to the restrictions described above. They are also subject to additional restrictions, by which such person would be required to comply with the manner of sale and notice provisions of Rule 144 and would be entitled to sell within any three-month period only that number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately 181,893 shares immediately after the closing of this offering based on the number of shares outstanding as of December 31, 2019; or
- the average weekly trading volume of our common stock on the Nasdaq Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Additionally, persons who are our affiliates at the time of, or any time during the three months preceding, a sale may sell unrestricted securities under the requirements of Rule 144 described above, without regard to the six month holding period of Rule 144, which does not apply to sales of unrestricted securities.

Rule 701

In general, under Rule 701 a person who purchased shares of our common stock pursuant to a written compensatory plan or contract and who is not deemed to have been one of our affiliates during the immediately preceding 90 days may sell these shares in reliance upon Rule 144, but without being required to comply with the notice, manner of sale or public information requirements or volume limitation provisions of Rule 144. Rule 701 also permits affiliates to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required to wait until 90 days after the date of this prospectus before selling such shares pursuant to Rule 701. As of December 31, 2019, 133,982 shares of our outstanding common stock had been issued in reliance on Rule 701 as a result of exercises of stock options and issuances of restricted stock. However, substantially all such Rule 701 shares are subject to lock-up agreements as described below and in the section of this prospectus titled “Underwriting” and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Form S-8 Registration Statements

As of December 31, 2019, options to purchase an aggregate 1,164,017 shares of our common stock were outstanding. As soon as practicable after the closing of this offering, we intend to file with the SEC one or more registration statements on Form S-8 under the Securities Act to register the shares of our common stock that are issuable pursuant to our equity incentive plans. See “Executive Compensation—Equity Incentive Plans” for a description of our equity incentive plans. These registration statements will become effective immediately upon filing. Shares covered by these registration statements will then be eligible for sale in the public markets, subject to vesting restrictions, any applicable lock-up agreements described below and Rule 144 limitations applicable to affiliates.

Lock-Up Agreements

We, all of our directors and officers and substantially all of our stockholders and option holders are subject to lock-up agreements that prohibit them from offering for sale, selling, contracting to sell, granting any option for the

sale of, transferring or otherwise disposing of any shares of our common stock, options or warrants to acquire shares of our common stock or any security or instrument related to our common stock, or entering into any swap, hedge or other arrangement that transfers any of the economic consequences of ownership of our common stock, for a period of 180 days following the date of this prospectus without the prior written consent of Jefferies LLC, SVB Leerink LLC and Piper Sandler & Co. on behalf of the underwriters. See the section of this prospectus titled “Underwriting.”

In addition to the restrictions contained in the lock-up agreements described above, we have entered into agreements with certain security holders, including the investors’ rights agreement and our standard form option agreement, that contain market stand-off provisions imposing restrictions on the ability of such security holders to offer, sell or transfer our equity securities for a period of 180 days following the date of this prospectus.

Registration Rights

Upon the closing of this offering and the conversion of all outstanding shares of our convertible preferred stock, including the 4,169,822 shares of Series C preferred stock we issued and sold in March 2020, into shares of our common stock, the holders of 11,885,550 shares of our common stock, or their permitted transferees, will be entitled to specified rights with respect to the registration of the offer and sale of their shares under the Securities Act. Registration of the offer and sale of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration. See the section of this prospectus titled “Description of Capital Stock—Registration Rights” for additional information.

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS

The following discussion is a summary of the material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the ownership and disposition of our common stock issued pursuant to this offering. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the Medicare contribution tax on net investment income or the alternative minimum tax, and does not address any estate or gift tax consequences or any tax consequences arising under any state, local or foreign tax laws, or any other U.S. federal tax laws. This discussion is based on the Internal Revenue Code of 1986, as amended, or the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the Internal Revenue Service, or the IRS, all as in effect on the date of this prospectus. These authorities are subject to differing interpretations and may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock pursuant to this offering and who hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all of the U.S. federal income tax consequences that may be relevant to an individual holder in light of such holder's particular circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to holders subject to special rules under the U.S. federal income tax laws, including:

- certain former citizens or long-term residents of the United States;
- partnerships or other pass-through entities (and investors therein);
- "controlled foreign corporations";
- "passive foreign investment companies";
- corporations that accumulate earnings to avoid U.S. federal income tax;
- banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities;
- tax-exempt organizations and governmental organizations;
- tax-qualified retirement plans;
- persons subject to special tax accounting rules under Section 451(b) of the Code;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
- "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds;
- persons that own or have owned, actually or constructively, more than 5% of our common stock;
- persons who have elected to mark securities to market; and
- persons holding our common stock as part of a hedging or conversion transaction or straddle, or a constructive sale, or other risk reduction strategy or integrated investment.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner and the activities of the partnership. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors about the particular U.S. federal income tax consequences to them of holding and disposing of our common stock.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS.

Definition of Non-U.S. Holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is not a "U.S. person" or a partnership (including any entity or arrangement treated as a partnership) for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation (including any entity treated as a corporation for U.S. federal income tax purposes) created or organized under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust (1) whose administration is subject to the primary supervision of a U.S. court and which has one or more U.S. persons who have the authority to control all substantial decisions of the trust or (2) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

Distributions on Our Common Stock

As described in the section entitled "Dividend Policy," we do not anticipate declaring or paying dividends to holders of our common stock in the foreseeable future. However, if we distribute cash or other property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and will first be applied against and reduce a holder's tax basis in our common stock, but not below zero. Any excess amount distributed will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described under "—Gain On Disposition of Our Common Stock" below.

Subject to the discussion below regarding effectively connected income, backup withholding and FATCA (as defined below), dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish us or our withholding agent with a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or applicable successor form) certifying such holder's qualification for the reduced rate. This certification must be provided to us or our withholding agent before the payment of dividends and must be updated periodically. If the non-U.S. holder holds our common stock through a financial institution or other agent acting on the non-U.S. holder's behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our withholding agent, either directly or through other intermediaries.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such holder's U.S. trade or business (and are attributable to such holder's permanent establishment or fixed base in the United States if required by an applicable tax treaty), the non-U.S. holder will be exempt from U.S. federal withholding tax. To claim the exemption, the non-U.S. holder must generally furnish a valid IRS Form W-8ECI (or applicable successor form) to the applicable withholding agent, certifying that the dividends are effectively connected with the non-U.S. holder's conduct of trade or business within the United States.

However, any such effectively connected dividends paid on our common stock generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items.

Non-U.S. holders that do not provide the required certification on a timely basis, but that qualify for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain on Disposition of Our Common Stock

Subject to the discussion below regarding backup withholding and FATCA, a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized on the sale or other disposition of our common stock, unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States and, if required by an applicable income tax treaty, is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States;
- the non-U.S. holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition, and certain other requirements are met; or
- our common stock constitutes a "United States real property interest" by reason of our status as a United States real property holding corporation, or a USRPHC, for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock, and our common stock is not regularly traded on an established securities market during the calendar year in which the sale or other disposition occurs.

Determining whether we are a USRPHC depends on the fair market value of our U.S. real property interests relative to the fair market value of our other trade or business assets and our foreign real property interests. We believe that we are not currently and we do not anticipate becoming a USRPHC for U.S. federal income tax purposes, although there can be no assurance we will not in the future become a USRPHC.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Gain described in the second bullet point above will be subject to U.S. federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty), but may be offset by certain U.S.-source capital losses (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules. Gain described in the third bullet point above will generally be subject to U.S. federal income tax in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business (subject to any provisions under an applicable income tax treaty), except that the branch profits tax generally will not apply.

Information Reporting and Backup Withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of dividends on our common stock paid to such holder and the amount of any tax withheld with respect to those dividends. These information reporting requirements apply even if no withholding was required because the dividends were effectively connected with the holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established. Backup withholding, currently at a 24% rate, generally will not apply to payments to a non-U.S. holder of dividends on or the gross proceeds of a disposition of our common stock provided the non-U.S. holder furnishes the required certification for its non-U.S. status, such as by providing a valid IRS Form W-8BEN, IRS Form W-8BEN-E or IRS Form W-8ECI, or certain other requirements are met. Backup withholding may apply if the payor has actual knowledge, or reason to know, that the holder is a U.S. person who is not an exempt recipient.

Backup withholding is not an additional tax. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

Withholding on Foreign Entities

Sections 1471 through 1474 of the Code, which are commonly referred to as FATCA, impose a U.S. federal withholding tax of 30% on certain payments made to a "foreign financial institution" (as specially defined under

these rules) unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding certain U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. FATCA also generally will impose a U.S. federal withholding tax of 30% on certain payments made to a non-financial foreign entity unless such entity provides the withholding agent a certification identifying certain direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. FATCA currently applies to dividends paid on our common stock. FATCA will also apply to gross proceeds from sales or other dispositions of our common stock after December 31, 2018. However, the Treasury Department has recently proposed regulations which, if finalized in their present form, would eliminate the federal withholding tax of 30% applicable to gross proceeds from a disposition of our common stock. In its preamble to such proposed regulations, the Treasury Department stated that taxpayers may generally rely on the proposed regulations until final regulations are issued.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of this legislation on their investment in our common stock.

UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated , 2020, among us and Jefferies LLC, SVB Leerink LLC and Piper Sandler & Co., as the representatives of the underwriters named below and the joint book-running managers of this offering, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the respective number of shares of common stock shown opposite its name below:

UNDERWRITER	NUMBER OF SHARES
Jefferies LLC	
SVB Leerink LLC	
Piper Sandler & Co.	
H.C. Wainwright & Co., LLC	
Total	5,000,000

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the shares of common stock if any of them are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

The underwriters have advised us that, following the completion of this offering, they currently intend to make a market in the common stock as permitted by applicable laws and regulations. However, the underwriters are not obligated to do so, and the underwriters may discontinue any market-making activities at any time without notice in their sole discretion. Accordingly, no assurance can be given as to the liquidity of the trading market for the common stock, that you will be able to sell any of the common stock held by you at a particular time or that the prices that you receive when you sell will be favorable.

The underwriters are offering the shares of common stock subject to their acceptance of the shares of common stock from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part. In addition, the underwriters have advised us that they do not intend to confirm sales to any account over which they exercise discretionary authority.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers, which may include the underwriters, at that price less a concession not in excess of $ per share of common stock. The underwriters may allow, and certain dealers may reallow, a discount from the concession not in excess of $ per share of common stock to certain brokers and dealers. After the offering, the initial public offering price, concession and reallowance to dealers may be reduced by the representatives. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	PER SHARE		TOTAL	
	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES
Public offering price	$	$	$	$
Underwriting discounts and commissions paid by us	$	$	$	$
Proceeds to us, before expenses	$	$	$	$

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately $2.6 million. We have agreed to reimburse the underwriters for certain of their expenses incurred in connection with this offering in an amount not to exceed $40,000.

Determination of Offering Price

Prior to this offering, there has not been a public market for our common stock. Consequently, the initial public offering price for our common stock will be determined by negotiations between us and the representatives. Among the factors to be considered in these negotiations will be prevailing market conditions, our financial information, market valuations of other companies that we and the underwriters believe to be comparable to us, estimates of our business potential, the present state of our development and other factors deemed relevant.

We offer no assurances that the initial public offering price will correspond to the price at which the common stock will trade in the public market subsequent to the offering or that an active trading market for the common stock will develop and continue after the offering.

Listing

We have applied for listing of our common stock on the Nasdaq Global Market under the trading symbol "KROS."

Stamp Taxes

If you purchase shares of common stock offered in this prospectus, you may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus.

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase, from time to time, in whole or in part, up to an aggregate of 750,000 shares from us at the public offering price set forth on the cover page of this prospectus, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus.

No Sales of Similar Securities

We, our officers, directors and holders of substantially all our outstanding capital stock and other securities have agreed, subject to specified exceptions, not to directly or indirectly:

- sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-l(h) under the Exchange Act;

- otherwise dispose of any shares of common stock, options or warrants to acquire shares of common stock, or securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially; or
- publicly announce an intention to do any of the foregoing for a period of 180 days after the date of this prospectus without the prior written consent of Jefferies LLC, SVB Leerink LLC and Piper Sandler & Co.

This restriction terminates after the close of trading of the common stock on and including the 180th day after the date of this prospectus.

Jefferies LLC, SVB Leerink LLC and Piper Sandler & Co. may, in their sole discretion and at any time or from time to time before the termination of the 180-day period, release all or any portion of the securities subject to lock-up agreements. There are no existing agreements between the underwriters and any of our shareholders who will execute a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period.

Stabilization

The underwriters have advised us that, pursuant to Regulation M under the Exchange Act, certain persons participating in the offering may engage in short sale transactions, stabilizing transactions, syndicate covering transactions or the imposition of penalty bids in connection with this offering. These activities may have the effect of stabilizing or maintaining the market price of the common stock at a level above that which might otherwise prevail in the open market. Establishing short sales positions may involve either “covered” short sales or “naked” short sales.

“Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares of our common stock in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares of our common stock or purchasing shares of our common stock in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares.

“Naked” short sales are sales in excess of the option to purchase additional shares of our common stock. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares of our common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

A stabilizing bid is a bid for the purchase of shares of common stock on behalf of the underwriters for the purpose of fixing or maintaining the price of the common stock. A syndicate covering transaction is the bid for or the purchase of shares of common stock on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriter’s purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the common stock originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

The underwriters may also engage in passive market making transactions in our common stock on The Nasdaq Global Market in accordance with Rule 103 of Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker’s bid, that bid must then be lowered when specified purchase limits are exceeded.

Electronic Distribution

A prospectus in electronic format may be made available by e-mail or on the web sites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares of common stock for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the underwriters' web sites and any information contained in any other web site maintained by any of the underwriters is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Other Activities and Relationships

The underwriter and certain of its affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriter and certain of its affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriter and certain of its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments issued by us and our affiliates. If the underwriters or their respective affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their respective affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the common stock offered hereby. Any such short positions could adversely affect future trading prices of the common stock offered hereby. The underwriters and certain of their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

Notice to Prospective Investors in EEA

In relation to each member state of the European Economic Area which has implemented the Prospectus Regulation, or each, a Relevant Member State, no offer of shares of our common stock which are the subject of the offering contemplated by this prospectus supplement has been or will be made to the public in that Relevant Member State, except that with effect from and including the Relevant Implementation Date, an offer of such shares of our common stock may be made to the public in that Relevant Member State:

- to any legal entity which is a "qualified investor" as defined in the Prospectus Regulation;
- to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation), as permitted under the Prospectus Regulation, subject to obtaining the prior consent of the representatives of the underwriters; or
- in any other circumstances falling within Article 3(2) of the Prospectus Regulation,

provided that no such offer of shares of our common stock shall require the Company or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 16 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares of our common stock in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the shares of our common stock to be offered so as to enable an investor to

decide to purchase or subscribe the shares of our common stock, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Regulation in that Relevant Member State, and the expression “Prospectus Regulation” means Prospectus Regulation (EU) 2017/1129 (and amendments thereto, to the extent implemented in the Relevant Member States) and includes any relevant implementing measure in the Relevant Member State.

Notice to Prospective Investors in United Kingdom

In the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are “qualified investors” (as defined in the Prospectus Regulation) (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the “Order”) and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as “relevant persons”). Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

Notice to Prospective Investors in Bermuda

Securities may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Notice to Prospective Investors in Australia

This prospectus supplement is not a disclosure document for the purposes of Australia’s Corporations Act 2001 (Cth) of Australia, or Corporations Act, has not been lodged with the Australian Securities & Investments Commission and is only directed to the categories of exempt persons set out below. Accordingly, if you receive this prospectus supplement in Australia, you confirm and warrant that you are either:

- a “sophisticated investor” under section 708(8)(a) or (b) of the Corporations Act;
- a “sophisticated investor” under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant’s certificate to the company which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made;
- a person associated with the Company under Section 708(12) of the Corporations Act; or
- a “professional investor” within the meaning of section 708(11)(a) or (b) of the Corporations Act.

To the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor, associated person or professional investor under the Corporations Act any offer made to you under this prospectus is void and incapable of acceptance.

You warrant and agree that you will not offer any of the shares of our common stock issued to you pursuant to this prospectus supplement for resale in Australia within 12 months of those shares of our common stock being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Notice to Prospective Investors in Hong Kong

No shares of our common stock have been offered or sold, and no shares of our common stock may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to “professional investors” as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or in other circumstances which do not result in the document being a “prospectus” as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32) or the Securities and Futures Ordinance (Cap. 571) of Hong Kong. No document, invitation or advertisement relating to the shares of our common stock has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which

are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to shares of our common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance.

This prospectus supplement has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus supplement may not be issued, circulated or distributed in Hong Kong, and the shares of our common stock may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the shares of our common stock will be required, and is deemed by the acquisition of the shares of our common stock, to confirm that he is aware of the restriction on offers of the shares of our common stock described in this prospectus supplement and the relevant offering documents and that he is not acquiring, and has not been offered any shares of our common stock in circumstances that contravene any such restrictions.

Notice to Prospective Investors in Japan

The offering has not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948 of Japan, as amended), or FIEL, and the underwriters will not offer or sell any shares of our common stock, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means, unless otherwise provided herein, any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from S-30 the registration requirements of, and otherwise in compliance with, the FIEL and any other applicable laws, regulations and ministerial guidelines of Japan.

Notice to Prospective Investors in Singapore

This prospectus supplement has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus supplement and any other document or material in connection with the offer or sale, or the invitation for subscription or purchase, of the shares of our common stock may not be issued, circulated or distributed, nor may the shares of our common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares of our common stock are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares of our common stock pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- where no consideration is or will be given for the transfer;
- where the transfer is by operation of law;
- as specified in Section 276(7) of the SFA; or
- as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Notice to Prospective Investors in Switzerland

The shares of our common stock may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or the SIX, or on any other stock exchange or regulated trading facility in Switzerland. This prospectus supplement has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this prospect supplement nor any other offering or marketing material relating to the shares of our common stock or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this prospectus supplement nor any other offering or marketing material relating to the offering, the Company or the shares of our common stock have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with and the offer of shares of our common stock will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA (FINMA) and the offer of shares of our common stock has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or the CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares of our common stock.

Notice to Prospective Investors in Canada

(A) Resale Restrictions

The distribution of shares of our common stock in Canada is being made only in the provinces of Ontario, Quebec, Alberta and British Columbia on a private placement basis exempt from the requirement that we prepare and file a prospectus with the securities regulatory authorities in each province where trades of these shares of our common stock are made. Any resale of the shares of our common stock in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the shares of our common stock.

(B) Representations of Canadian Purchasers

By purchasing shares of our common stock in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to us and the dealer from whom the purchase confirmation is received that:

- the purchaser is entitled under applicable provincial securities laws to purchase the shares of our common stock without the benefit of a prospectus qualified under those securities laws as it is an “accredited investor” as defined under National Instrument 45-106—Prospectus Exemptions,
- the purchaser is a “permitted client” as defined in National Instrument 31-103—Registration Requirements, Exemptions and Ongoing Registrant Obligations,
- where required by law, the purchaser is purchasing as principal and not as agent, and
- the purchaser has reviewed the text above under Resale Restrictions.

(C) Conflicts of Interest

Canadian purchasers are hereby notified that each of the underwriters are relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105—Underwriting Conflicts from having to provide certain conflict of interest disclosure in this document.

(D) Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the prospectus (including any amendment thereto) such as this document contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser’s province or territory. The purchaser of these securities in Canada should refer to any applicable provisions of the securities legislation of the purchaser’s province or territory for particulars of these rights or consult with a legal advisor.

(E) Enforcement of Legal Rights

All of our directors and officers as well as the experts named herein may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon us or those

persons. All or a substantial portion of our assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against us or those persons in Canada or to enforce a judgment obtained in Canadian courts against us or those persons outside of Canada.

(F) Taxation and Eligibility for Investment

Canadian purchasers of shares of our common stock should consult their own legal and tax advisors with respect to the tax consequences of an investment in the shares of our common stock in their particular circumstances and about the eligibility of the shares of our common stock for investment by the purchaser under relevant Canadian legislation.

LEGAL MATTERS

The validity of the shares of common stock being offered by this prospectus will be passed upon for us by Cooley LLP, Boston, Massachusetts. As of the date of this prospectus, an entity comprised of partners and associates of Cooley LLP beneficially own an aggregate of 3,722 shares of our Series C preferred stock. Certain legal matters will be passed upon for the underwriters by Latham & Watkins LLP.

EXPERTS

The consolidated financial statements as of December 31, 2019 and 2018 and for each of the two years in the period ended December 31, 2019 included in this prospectus, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report appearing herein (which report expresses an unqualified opinion on the consolidated financial statements and includes an explanatory paragraph referring to our ability to continue as a going concern). Such consolidated financial statements have been so included in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the shares of common stock being offered by this prospectus, which constitutes a part of the registration statement. This prospectus, which constitutes part of the registration statement, does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the internet at the SEC's website at www.sec.gov.

Upon the closing of this offering, we will be subject to the information reporting requirements of the Exchange Act, and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available over the internet at the SEC's web site referred to above. We also maintain a website at www.kerostx.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. **However, the information contained in or accessible through our website is not part of this prospectus or the registration statement of which this prospectus forms a part, and investors should not rely on such information in making a decision to purchase our common stock in this offering.**

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and the Stockholders of Keros Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Keros Therapeutics, Inc. and its subsidiary (the "Company") as of December 31, 2018 and 2019, the related consolidated statements of operations, convertible preferred stock and stockholders' deficit, and cash flows, for each of the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2019, and the results of its operations and its cash flows for each of the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company's recurring losses from operations incurred since inception, expectation of continuing operating losses for the foreseeable future, and the need to raise additional capital to finance its future operations raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

February 26, 2020 (April 1, 2020, as to the subsequent events described in Note 15)

We have served as the Company's auditor since 2019.

KEROS THERAPEUTICS, INC.

Consolidated Balance Sheets
(In thousands, except share and per share data)

	DECEMBER 31,		PRO FORMA DECEMBER 31,
	2018	2019	2019 (Unaudited)
ASSETS			
CURRENT ASSETS:			
Cash and cash equivalents	$ 23,259	$ 7,020	$ 7,020
Prepaid expenses and other current assets	2,272	381	381
Deferred IPO costs	—	604	604
Research and development incentive receivable	—	922	922
Total current assets	25,531	8,927	8,927
Operating lease right-of-use assets	735	1,205	1,205
Property and equipment, net	645	708	708
Research and development incentive receivable	370	—	—
Restricted cash	131	115	115
TOTAL ASSETS	$ 27,412	$ 10,955	$ 10,955
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT			
CURRENT LIABILITIES:			
Accounts payable	$ 501	$ 2,088	$ 2,088
Current portion of operating lease liabilities	166	376	376
Deferred revenue	10,000	—	—
Accrued expenses and other current liabilities	802	2,022	2,022
Total current liabilities	11,469	4,486	4,486
Operating lease liabilities, net of current portion	622	899	899
Preferred stock tranche liability	2,392	4,956	—
Other liabilities	171	119	119
Total liabilities	14,654	10,460	5,504
COMMITMENTS AND CONTINGENCIES (Note 13)			
Series A convertible preferred stock, par value of $0.0001 per share; 10,000,000 shares authorized as of December 31, 2018 and 2019; 4,607,652 shares issued and outstanding as of December 31, 2018 and 2019; liquidation and redemption value of $12,271 as of December 31, 2019; no shares authorized, issued or outstanding, pro forma as of December 31, 2019 (unaudited)	9,891	9,891	—
Series A-1 convertible preferred stock, par value of $0.0001 per share; 800,000 shares authorized as of December 31, 2018 and 2019; 368,612 shares issued and outstanding as of December 31, 2018 and 2019; liquidation and redemption value of $1,171 as of December 31, 2019; no shares authorized, issued or outstanding, pro forma as of December 31, 2019 (unaudited)	944	944	—
Series B-1 convertible preferred stock, par value of $0.0001 per share; 3,427,004 shares authorized as of December 31, 2018 and 2019; 1,579,043 shares issued and outstanding as of December 31, 2018 and 2019; liquidation and redemption value of $12,596 as of December 31, 2019; no shares authorized, issued or outstanding, pro forma as of December 31, 2019 (unaudited)	9,106	9,106	—
STOCKHOLDERS' DEFICIT:			
Common stock, par value of $0.0001 per share; 27,000,000 shares authorized as of December 31, 2018 and 2019; 2,243,648 and 2,429,705 shares issued and outstanding as of December 31, 2018 and 2019, respectively; 8,985,012 shares issued and outstanding, pro forma as of December 31, 2019 (unaudited)	1	1	2
Additional paid-in capital	130	203	25,099
Accumulated deficit	(7,314)	(19,650)	(19,650)
Total stockholders' deficit	(7,183)	(19,446)	5,451
TOTAL LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT	$ 27,412	$ 10,955	$ 10,955

See notes to consolidated financial statements.

KEROS THERAPEUTICS, INC.

Consolidated Statements of Operations
(In thousands, except share and per share data)

	YEAR ENDED DECEMBER 31,	
	2018	2019
REVENUE:		
Research collaboration revenue	$ 10,000	$ 10,000
Total revenue	10,000	10,000
OPERATING EXPENSES:		
Research and development	(10,111)	(17,379)
General and administrative	(1,580)	(3,184)
Total operating expenses	(11,691)	(20,563)
LOSS FROM OPERATIONS	(1,691)	(10,563)
OTHER INCOME, NET:		
Interest income (expense), net	6	(8)
Research and development incentive income	370	558
Change in fair value of preferred stock tranche obligation	(43)	(2,564)
Other income, net	280	241
Total other income (expense), net	613	(1,773)
Loss before income taxes	(1,078)	(12,336)
Income tax provision	(257)	—
Net loss	$ (1,335)	$ (12,336)
Net loss attributable to common stockholders—basic and diluted (Note 12)	$ (2,346)	$ (14,136)
Net loss per share attributable to common stockholders—basic and diluted	$ (1.08)	$ (6.08)
Weighted-average common stock outstanding—basic and diluted	2,174,514	2,326,857
Pro forma net loss per share attributable to common stockholders—basic and diluted (unaudited)		$ (1.39)
Pro forma weighted average common shares outstanding—basic and diluted (unaudited)		8,882,168

See notes to consolidated financial statements.

KEROS THERAPEUTICS, INC.

Consolidated Statements of Convertible Preferred Stock and Stockholders' Deficit
(In thousands, except share and per share data)

	CONVERTIBLE PREFERRED STOCK						COMMON STOCK				
	$0.0001 PAR VALUE SERIES A		$0.0001 PAR VALUE SERIES A-1		$0.0001 PAR VALUE SERIES B-1		$0.0001 PAR VALUE		ADDITIONAL PAID-IN CAPITAL	ACCUMULATED DEFICIT	TOTAL STOCKHOLDERS' DEFICIT
	SHARES	AMOUNT	SHARES	AMOUNT	SHARES	AMOUNT	SHARES	AMOUNT			
BALANCE, January 1, 2018	4,607,652	$ 9,891	368,612	$ 944	—	$ —	2,088,387	$ 1	$ 41	$ (5,979)	$ (5,937)
Issuance of Series B-1 convertible preferred stock, net of issuance costs of $45 and net of $2,349 discount associated with preferred stock tranche rights	—	—	—	—	1,579,043	9,106	—	—	—	—	—
Exercise of common stock options	—	—	—	—	—	—	51,591	—	8	—	8
Vesting of restricted stock	—	—	—	—	—	—	103,670	—	—	—	—
Stock-based compensation	—	—	—	—	—	—	—	—	81	—	81
Net loss	—	—	—	—	—	—	—	—	—	(1,335)	(1,335)
BALANCE, December 31, 2018	4,607,652	$ 9,891	368,612	$ 944	1,579,043	$ 9,106	2,243,648	$ 1	$ 130	$ (7,314)	$ (7,183)
Exercise of common stock options	—	—	—	—	—	—	82,387	—	14	—	14
Vesting of restricted stock	—	—	—	—	—	—	103,670	—	—	—	—
Stock-based compensation	—	—	—	—	—	—	—	—	59	—	59
Net loss	—	—	—	—	—	—	—	—	—	(12,336)	(12,336)
BALANCE, December 31, 2019	4,607,652	$ 9,891	368,612	$ 944	1,579,043	$ 9,106	2,429,705	$ 1	$ 203	$ (19,650)	$ (19,446)

See notes to consolidated financial statements.

KEROS THERAPEUTICS, INC.

Consolidated Statements of Cash Flows
(In thousands)

	YEAR ENDED DECEMBER 31, 2018	2019
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$ (1,335)	$ (12,336)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Depreciation expense	153	208
Stock-based compensation expense	81	59
Non-cash lease expense	151	230
Changes in fair value of preferred stock tranche obligation	43	2,565
Changes in operating assets and liabilities:		
Research and development incentive receivable	(370)	(552)
Prepaid expenses and other current assets	(2,210)	1,891
Deferred IPO costs	—	(300)
Accounts payable	(2)	1,312
Operating lease liabilities	(147)	(213)
Proceeds from Novo Nordisk A/S collaboration and license agreement	20,000	—
Deferred revenue	(10,000)	(10,000)
Accrued expenses and other current liabilities	506	1,191
Other liabilities	172	(53)
Net cash provided by (used in) operating activities	7,042	(15,998)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchase of property and equipment	(217)	(271)
Net cash used in investing activities	(217)	(271)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from issuance of Series B1 preferred stock	11,500	—
Payment of issuance costs	(45)	—
Proceeds from exercise of stock options	8	14
Net cash provided by financing activities	11,463	14
NET INCREASE (DECREASE) IN CASH, CASH EQUIVALENTS AND RESTRICTED CASH	18,288	(16,255)
Cash, cash equivalents and restricted cash at beginning of year	5,102	23,390
Cash, cash equivalents and restricted cash at end of year	$ 23,390	$ 7,135
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:		
Cash paid for taxes	$ —	$ 256
Preferred stock tranche obligation in connection with the issuance of Series B-1 convertible preferred stock	$ 2,349	$ —
Right-of-use assets obtained in exchange for operating lease obligation	$ —	$ 700
Deferred IPO costs in accounts payable and accrued expenses	$ —	$ 304

The following table provides a reconciliation of the cash and cash equivalents and restricted cash as of each of the periods shown above:

	YEAR ENDED DECEMBER 31, 2018	2019
Cash and cash equivalents	$ 23,259	$ 7,020
Restricted cash	131	115
Total cash, cash equivalents and restricted cash	$ 23,390	$ 7,135

See notes to consolidated financial statements.

KEROS THERAPEUTICS, INC.

Notes to Consolidated Financial Statements

1. NATURE OF BUSINESS AND BASIS OF PRESENTATION

Keros Therapeutics, Inc. ("Keros" or the "Company") was incorporated in 2015 as a Delaware corporation. Its principal offices are in Lexington, Massachusetts. The Company is a clinical stage company dedicated to the discovery and development of breakthrough therapeutics for neuromuscular diseases.

The accompanying consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") and include the accounts of the Company and its wholly owned Australian subsidiary, Keros Therapeutics Australia Pty Ltd ("Keros Australia").

Going Concern

The Company has evaluated whether there are certain conditions and events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the financial statements are issued.

Since its inception in 2015, the Company has devoted the majority of its resources on business planning, research and development of its product candidates, including by conducting clinical trials and preclinical studies, raising capital and recruiting management and technical staff to support these operations. To date, the Company has not generated any revenue from product sales as none of its product candidates have been approved for commercialization. The Company has historically financed its operations primarily through the sale of convertible preferred stock and through its collaboration agreement.

The Company has incurred recurring losses since its inception, including net losses of $1.3 million and $12.3 million for the years ended December 31, 2018 and 2019, respectively. In addition, as of December 31, 2019, the Company had an accumulated deficit of $19.7 million. The Company expects to continue to generate operating losses and negative operating cash flows for the foreseeable future as it continues to develop its product candidates. As of February 21, 2020, the Company expects that its then-existing cash and cash equivalents of $3.6 million will be sufficient to fund its operating expenses and capital expenditure requirements into the second quarter of 2020.

The Company will not generate any revenue from product sales unless and until it successfully completes clinical development and obtains regulatory approval for one or more of its product candidates. If the Company obtains regulatory approval for any of its product candidates, it expects to incur significant expenses related to developing its internal commercialization capability to support product sales, marketing and distribution.

As a result, the Company will need substantial additional funding to support its operating activities as it advances its product candidates through clinical development, seeks regulatory approval and prepares for and, if any of its product candidates are approved, proceeds to commercialization. Until such time as the Company can generate significant revenue from product sales, if ever, the Company expects to finance its operating activities through a combination of equity offerings, debt financings, and license and development agreements in connection with any future collaborations. Adequate funding may not be available to the Company on acceptable terms, or at all.

If the Company is unable to obtain funding, the Company will be forced to delay, reduce or eliminate some or all of its research and development programs, product portfolio expansion or commercialization efforts, which could adversely affect its business prospects, or the Company may be unable to continue operations. Although management continues to pursue these plans, there is no assurance that the Company will be successful in obtaining sufficient funding on terms acceptable to the Company to fund continuing operations, if at all.

Based on its recurring losses from operations incurred since inception, expectation of continuing operating losses for the foreseeable future, and need to raise additional capital to finance its future operations, the Company has concluded that there is substantial doubt about its ability to continue as a going concern within one year after the date that the consolidated financial statements are issued.

The accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. These financial statements do not include any adjustments that might result from the outcome of this uncertainty.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and Keros Australia. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, and expenses, and the disclosure of contingent assets and liabilities as of and during the reporting period. The Company bases its estimates and assumptions on historical experience when available and on various factors that it believes to be reasonable under the circumstances. This process may result in actual results differing materially from those estimated amounts used in the preparation of the financial statements if these results differ from historical experience, or other assumptions do not turn out to be substantially accurate, even if such assumptions are reasonable when made. Significant estimates and assumptions reflected in these consolidated financial statements include, but are not limited to, useful lives assigned to property and equipment, the fair values of common and preferred stock and the fair value of the preferred stock tranche obligation. The Company assesses estimates on an ongoing basis; however, actual results could materially differ from those estimates.

Fair Value Measurements

Certain assets and liabilities are reported on a recurring basis at fair value. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

Level 1—Quoted prices in active markets for identical assets or liabilities.

Level 2—Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

To the extent that the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

An entity may choose to measure many financial instruments and certain other items at fair value at specified election dates. Subsequent unrealized gains and losses on items for which the fair value option has been elected will be reported in earnings.

Cash, Cash Equivalents, and Restricted Cash

Cash and cash equivalents consist of standard checking accounts and money market funds. The Company considers all highly liquid investments with an original maturity of 90 days or less at the date of purchase to be cash equivalents.

The Company's cash equivalents, which are funds held in a money market account, are measured at fair value on a recurring basis. The carrying amount of cash equivalents was $18.4 million and $5.0 million as of December 31, 2018 and 2019, respectively, which approximates fair value and was determined based upon Level 1 inputs. The money market account is valued using quoted market prices with no valuation adjustments applied and is categorized as Level 1.

The Company had restricted cash of $0.1 million in the form of a certificate of deposit related to its operating leases in Lexington, Massachusetts as of December 31, 2018 and 2019.

Concentrations of Credit Risk

Financial instruments that potentially subject us to significant concentration of credit risk consist primarily of cash and cash equivalents. The Company may maintain deposits in financial institutions in excess of government insured limits. The Company believes that it is not exposed to significant credit risk as its deposits are held at financial institutions that management believes to be of high credit quality and the Company has not experienced any losses on these deposits. As of December 31, 2018 and 2019, the Company's cash and cash equivalents were held with three financial institutions. The Company believes that the market risk arising from its holdings of these financial instruments is mitigated based on the fact that many of these securities are either government-backed or of high credit rating.

Property and Equipment

Property and equipment are recorded at cost. Expenditures for repairs and maintenance are expensed as incurred. When assets are retired or disposed of, the assets and related accumulated depreciation are derecognized from the accounts, and any resulting gain or loss is included in the determination of net loss. Depreciation is calculated using the straight-line method over the estimated useful lives of the related assets as follows:

	ESTIMATED USEFUL LIFE
Computer equipment and software	3 years
Laboratory equipment	5 years
Office furniture	5 years
Leasehold improvements	lesser of useful life or remaining lease term

Impairment of Long-Lived Assets

The Company evaluates its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceed the fair value of the assets. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell. To date, no impairments have been recognized for these assets.

Leases

The Company accounts for its leases under ASC Topic 842, *Leases* ("ASC 842"). At the inception of an arrangement, the Company determines whether the arrangement is or contains a lease based on the unique facts and circumstances present in the arrangement. Leases with a term greater than 12 months are recognized on the balance sheet as ROU assets and current and non-current lease liabilities, as applicable. The Company has elected not to recognize on the balance sheet leases with terms of 12 months or less. The Company typically only includes an initial lease term in its assessment of a lease arrangement. Options to renew a lease are not included in the Company's assessment unless there is reasonable certainty that the Company will renew. The Company monitors its material leases on a quarterly basis.

Operating lease liabilities and their corresponding ROU assets are recorded based on the present value of future lease payments over the expected remaining lease term. Lease cost for operating leases is recognized on a straight-line basis over the lease term as an operating expense. Certain adjustments to the ROU asset may be required for items such as lease prepayments or incentives received. The interest rate implicit in lease contracts is typically not

readily determinable. As a result, the Company utilizes its incremental borrowing rate, which reflects the fixed rate at which the Company could borrow on a collateralized basis the amount of the lease payments in the same currency, for a similar term, in a similar economic environment. In transition to ASC 842, the Company utilized the remaining lease term of its lease in determining the appropriate incremental borrowing rate.

For all asset classes of its leases, the Company has elected to account for the lease and non-lease components together for existing classes of underlying assets.

Guarantees and Indemnifications

As permitted under Delaware law, the Company indemnifies its officers, directors, consultants and employees for certain events or occurrences that happen by reason of the relationship with, or position held at, the Company. Through December 31, 2019, the Company had not experienced any losses related to these indemnification obligations, and no claims were outstanding. The Company does not expect significant claims related to these indemnification obligations and, consequently, concluded that the fair value of these obligations is negligible, and no related liabilities have been established.

Research and Development Costs

Research and development costs are charged to expense as incurred. Research and development costs consist of expenses incurred in performing research and development activities, including salaries and benefits, materials and supplies, preclinical expenses, stock-based compensation expense, depreciation of equipment, contract services, facilities, and other outside expenses. Costs for external development activities are recognized based on an evaluation of the progress to completion of specific tasks using information provided to the Company by its vendors. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the consolidated financial statements as prepaid expense or accrued research and development expense.

Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses and expensed as the related goods are delivered or the services are performed.

Research and Development Incentive

The Australian research and development tax incentive program provides tax offsets to eligible companies that engage in research and development activities and has two core components:

- 43.5% refundable tax offset for certain eligible research and development entities with an aggregated turnover of less than $20.0 million per annum; and
- 38.5% non-refundable tax offset for all other eligible research and development entities. Unused offset amounts may be able to be carried forward for use in future income years.

The Company is eligible to participate in an Australian research and development tax incentive program under which the Company is eligible to receive a cash refund from the Australian Taxation Office for a percentage of the research and development costs expended by the Company in Australia.

The Company's estimate of the cash refund it expects to receive related to the Australian research and development tax incentive program is included in other assets in the accompanying consolidated balance sheet and such amounts are recorded as research and development incentive income in the statement of operations. The Company recognizes research and development incentive income when there is reasonable assurance that the income will be received, the relevant expenditure has been incurred, and the consideration can be reliably measured. The Company has recorded a research and development incentive receivable of $0.4 million and $0.9 million and other income from Australian research and development incentives of $0.4 million and $0.6 million for the years ended December 31, 2018 and 2019, respectively, related to refundable research and development incentive program payments in Australia.

Revenue Recognition

To date, the Company has earned revenue solely under the license agreement with Novo Nordisk A/S.

The Company recognizes revenue in accordance with ASC Topic 606, *Revenue from Contracts with Customers* ("ASC 606"). The Company enters into certain agreements that are within the scope of ASC 606, under which the

Company licenses, may license or grants an option to license rights to certain of the Company's product candidates and performs research and development services in connection with such arrangements. The terms of these arrangements typically include payment of one or more of the following: non-refundable, upfront fees; reimbursement of research and development costs; development, clinical, regulatory and commercial sales milestone payments, and royalties on net sales of licensed products.

Under ASC 606, an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the entity expects to receive in exchange for those goods or services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, the Company performs the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. The Company only applies the five-step model to contracts when it is probable that the entity will collect consideration it is entitled to in exchange for the goods or services it transfers to the customer.

The promised goods or services in the Company's arrangements typically consist of a license, or option to license, rights to the Company's intellectual property or research and development services. The Company provides options to additional items in such arrangements, which are accounted for as separate contracts when the customer elects to exercise such options, unless the option provides a material right to the customer. Performance obligations are promised goods or services in a contract to transfer a distinct good or service to the customer and are considered distinct when (i) the customer can benefit from the good or service on its own or together with other readily available resources and (ii) the promised good or service is separately identifiable from other promises in the contract. In assessing whether promised goods or services are distinct, the Company considers factors such as the stage of development of the underlying intellectual property, the capabilities of the customer to develop the intellectual property on its own or whether the required expertise is readily available and whether the goods or services are integral or dependent to other goods or services in the contract.

The Company estimates the transaction price based on the amount expected to be received for transferring the promised goods or services in the contract. The consideration may include fixed consideration and variable consideration. At the inception of each arrangement that includes variable consideration, the Company evaluates the amount of potential payment and the likelihood that the payments will be received. The Company utilizes either the most likely amount method or expected value method to estimate the amount expected to be received based on which method best predicts the amount expected to be received. The amount of variable consideration that is included in the transaction price may be constrained and is included in the transaction price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period.

The Company's contracts often include development and regulatory milestone payments that are assessed under the most likely amount method and constrained if it is probable that a significant revenue reversal would occur. Milestone payments that are not within the Company's control or the licensee's control, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. At the end of each reporting period, the Company re-evaluates the probability of achievement of such development and clinical milestones and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect collaboration and other research and development revenue in the period of adjustment.

For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). To date, the Company has not recognized any royalty revenue resulting from any of the Company's collaboration or strategic alliance arrangements.

The Company allocates the transaction price based on the estimated standalone selling price. The Company must develop assumptions that require judgment to determine the stand-alone selling price for each performance

obligation identified in the contract. The Company utilizes key assumptions to determine the stand-alone selling price, which may include other comparable transactions, pricing considered in negotiating the transaction and the estimated costs. Variable consideration is allocated specifically to one or more performance obligations in a contract when the terms of the variable consideration relate to the satisfaction of the performance obligation and the resulting amounts allocated are consistent with the amounts the Company would expect to receive for the satisfaction of each performance obligation.

The consideration allocated to each performance obligation is recognized as revenue when control is transferred for the related goods or services. For performance obligations which consist of licenses and other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress. The Company evaluates the measure of progress each reporting period and, if necessary, adjusts the measure of performance and related revenue recognition.

The Company receives payments from its customers based on billing schedules established in each contract. Upfront payments and fees are recorded as deferred revenue upon receipt or when due until the Company performs its obligations under these arrangements. Amounts are recorded as accounts receivable when the Company's right to consideration is unconditional.

Foreign Currency Transactions

The functional currency for the Company's wholly owned foreign subsidiary, Keros Australia, is the United States dollar. All foreign currency transaction gains and losses are recognized in the consolidated statement of operations.

Segment Information

Operating segments are identified as components of an enterprise about which separate discrete financial information is made available for evaluation by the chief operating decision maker ("CODM") in making decisions regarding resource allocation and assessing performance. The CODM is the Company's chief executive officer. The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions. The Company's singular concentration is focused on the discovery and development of breakthrough therapeutics for neuromuscular diseases.

Common Stock Valuation

Due to the absence of an active market for the Company's common stock, the Company utilized methodologies in accordance with the framework of the American Institute of Certified Public Accountants Technical Practice Aid *(Valuation of Privately-Held Company Equity Securities Issued as Compensation*) to estimate the fair value of its common stock. In determining the exercise prices for options granted, the Company has considered the estimated fair value of the common stock as of the measurement date. The estimated fair value of the common stock has been determined at each grant date based upon a variety of factors, including the illiquid nature of the common stock, arm's-length sales of the Company's capital stock (including convertible preferred stock), the effect of the rights and preferences of the preferred stockholders, and the prospects of a liquidity event. Among other factors are the Company's financial position and historical financial performance, the status of technological developments within the Company's research, the composition and ability of the current research and management team, an evaluation or benchmark of the Company's competition, and the current business climate in the marketplace. Significant changes to the key assumptions underlying the factors used could result in different fair values of common stock at each valuation date.

Convertible Preferred Stock

The Company has classified convertible preferred stock, referred to as preferred stock, as temporary equity in the accompanying consolidated balance sheet due to terms that allow for redemption of the shares in cash upon certain change in control events that are outside of the Company's control, including sale or transfer of control of the Company as holders of the preferred stock could cause redemption of the shares in these situations. The Company did not accrete the carrying values of the preferred stock to the redemption values since a liquidation event was not considered probable as of December 31, 2019. Subsequent adjustments of the carrying values to the ultimate redemption values will be made only when it becomes probable that such a liquidation event will occur.

Stock-Based Compensation

The Company accounts for all stock-based payment awards granted to employees and non-employees as stock-based compensation expense at fair value. The Company's stock-based payments include stock options and grants of common stock, including common stock subject to vesting. The measurement date for employee awards is the date of grant, and stock-based compensation costs are recognized as expense over the employees' requisite service period, which is the vesting period, on a straight-line basis. Prior to the adoption of Accounting Standards Update ("ASU") No. 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting* ("ASU No. 2018-07") as discussed below under "Recently Adopted Accounting Pronouncements", the measurement date for non-employee awards was generally the date the services were completed, resulting in financial reporting period adjustments to stock-based compensation during the vesting terms for changes in the fair value of the awards. Since the adoption of ASU 2018-07, the measurement date for non-employee awards is the date of grant without changes in the fair value of the award. Stock-based compensation costs for non-employees are recognized as expense over the vesting period on a straight-line basis. Stock-based compensation expense is classified in the accompanying consolidated statement of operations based on the function to which the related services are provided. The Company recognizes stock-based compensation expense for the portion of awards that have vested. Forfeitures are recorded as they occur.

The fair value of each stock option grant is estimated on the date of grant using the Black-Scholes option-pricing model. The Company has historically been a private company and lacks company-specific historical and implied volatility information. Therefore, it estimates its expected stock volatility based on the historical volatility of a publicly traded set of peer companies and expects to continue to do so until such time as it has adequate historical data regarding the volatility of its own traded stock price. The expected term of the Company's stock options has been determined utilizing the "simplified" method for awards that qualify as "plain-vanilla" options. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is based on the fact that the Company has never paid cash dividends on common stock and does not expect to pay any cash dividends in the foreseeable future.

Income Taxes

The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the Company's consolidated financial statements and tax returns. Deferred tax assets and liabilities are determined based upon the differences between the financial statement carrying amounts and the tax bases of existing assets and liabilities and for loss and credit carryforwards, using enacted tax rates expected to be in effect in the year in which the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that these assets may not be realized. The Company determines whether it is more likely than not that a tax position will be sustained upon examination. If it is not more likely than not that a position will be sustained, none of the benefit attributable to the position is recognized. The tax benefit to be recognized for any tax position that meets the more-likely-than-not recognition threshold is calculated as the largest amount that is more than 50% likely of being realized upon resolution of the contingency. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for income taxes.

Comprehensive Loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. Comprehensive loss is equal to net loss for all periods presented.

Net Loss Per Share

Basic net loss per share and diluted net loss per share are computed using the weighted-average number of shares of common stock outstanding for the period. Net loss per share attributable to common stockholders is calculated using the two-class method, which is an earnings allocation formula that determines net loss per share for the holders of shares of the Company's common stock and participating securities. The Company's preferred stock contains participation rights in any dividend paid by the Company and is deemed to be a participating security. The participating securities do not include a contractual obligation to share in losses of the Company and are not included in the calculation of net loss per share in the periods in which a net loss is recorded.

Diluted net loss per share is computed using the more dilutive of (a) the two-class method or (b) the if-converted method. The Company allocates earnings first to preferred stockholders based on dividend rights and then to common and preferred stockholders based on ownership interests. The weighted-average number of shares of common stock included in the computation of diluted net loss gives effect to all potentially dilutive common stock equivalent shares, including outstanding stock options and preferred stock.

Common stock equivalent shares are excluded from the computation of diluted net loss per share if their effect is antidilutive. In periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is generally the same as basic net loss per share attributable to common stockholders since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive. The Company reported net losses attributable to common stockholders for the years ended December 31, 2018 and 2019.

Unaudited Pro Forma Financial Information

The accompanying unaudited pro forma consolidated balance sheet as of December 31, 2019 has been prepared to give effect, upon the closing of a qualified initial public offering ("IPO"), to the automatic conversion of all outstanding preferred stock into 6,555,307 shares of common stock.

The unaudited pro forma basic and diluted weighted-average common shares outstanding used in the calculation of unaudited pro forma basic and diluted net loss per share attributable to common stockholders for the year ended December 31, 2019 have been prepared to give effect, upon a qualified IPO, to the automatic conversion of all outstanding shares of preferred stock into common stock as if the proposed IPO had occurred on the later of the beginning of each period or the issuance date of the preferred stock.

Recently Adopted Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* ("ASU No. 2014-09"), which modifies how all entities recognize revenue, and supersedes the current guidance found in ASC Topic 605, and various other revenue accounting standards for specialized transactions and industries. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date* ("ASU No. 2015-14"), which defers the effective date of ASU No. 2014-09 by one year and was issued in contemplation of ASU No. 2014-09. ASU No. 2014-09 outlines a comprehensive five-step revenue recognition model based on the principle that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. ASU No. 2014-09 may be applied using either a full retrospective approach, under which all years included in the financial statements will be presented under the revised guidance, or a modified retrospective approach, under which financial statements will be prepared under the revised guidance for the year of adoption, but not for prior years. Under the latter method, entities will recognize a cumulative catch-up adjustment to the opening balance of retained earnings at the effective date for contracts that still require performance by the entity at the date of adoption. The Company early adopted this guidance on January 1, 2018, applying the full retrospective method to all contracts that were not completed as of January 1, 2018. As such, there is no impact to the Company's audited consolidated financial statements as a result of this adoption. To date, the Company has earned revenue solely under the collaboration and license agreement with Novo Nordisk A/S. For greater detail around the accounting for the revenue related to this agreement refer to Note 14.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*. These amendments expand the scope of Topic 718, *Compensation—Stock Compensation* to include stock-based payments issued to nonemployees for goods or services. Consequently, the accounting for stock-based payments to nonemployees and employees will be substantially aligned. The ASU supersedes Subtopic 505-50, *Equity—Equity-Based Payments to Non-Employees.* This standard is effective for public companies for annual periods beginning after December 15, 2018, including interim periods within those fiscal years, with early adoption permitted as long as ASU No. 2014-09 has been adopted by the Company. The new standard was early adopted by the Company on January 1, 2018. Adoption of ASU No. 2018-07 did not have a material impact on the Company's consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13*, Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirement for Fair Value Measurement*, which changes the disclosure requirements on fair value measurements in Topic 820. The guidance eliminates certain disclosure requirements that are no longer considered cost beneficial and adds new disclosure requirement for Level 3 fair value measurements. The ASU is effective for fiscal years beginning after December 15, 2019 and interim periods within those fiscal years. The Company is currently evaluating whether or not the guidance will have an impact on its consolidated financial statements.

In November 2018, FASB issued Accounting Standards Update No. 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606.* The ASU amends ASC 808 to clarify ASC 606 should apply in entirety to certain transactions between collaborative arrangement participants. The amendments for ASU No. 2018-18 are effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. As the Company does not have any arrangements accounted for as collaborative arrangements it has determined that this guidance will not have a material impact on the its consolidated financial statements.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes-Simplifying the Accounting for Income Taxes* ("ASU No. 2019-12"). ASU No. 2019-12 eliminates certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. The new guidance also simplifies aspects of the accounting for franchise taxes, enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. The standard is effective for annual periods beginning after December 15, 2020 and interim periods within those fiscal years, with early adoption permitted. Adoption of the standard requires certain changes to be made prospectively and certain others to be made retrospectively. The Company is currently assessing the impact of this standard on its financial condition and results of operations.

3. FAIR VALUE MEASUREMENTS

The following table presents information about the Company's financial assets and liabilities measured at fair value on a recurring basis and indicates the level of the fair value hierarchy utilized to determine such fair values (in thousands):

DESCRIPTION	DECEMBER 31, 2018	QUOTED PRICES ACTIVE MARKETS FOR IDENTICAL ASSETS (LEVEL 1)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 3)
Asset				
Money market funds	$ 18,356	$ 18,356	$ —	$ —
Total financial assets	$ 18,356	$ 18,356	$ —	$ —
Liability				
Preferred stock tranche obligation	$ (2,392)	$ —	$ —	$ (2,392)
Total financial liabilities	$ (2,392)	$ —	$ —	$ (2,392)

DESCRIPTION	DECEMBER 31, 2019	QUOTED PRICES ACTIVE MARKETS FOR IDENTICAL ASSETS (LEVEL 1)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 3)
Asset				
Money market funds	$ 4,972	$ 4,972	$ —	$ —
Total financial assets	$ 4,972	$ 4,972	$ —	$ —
Liability				
Preferred stock tranche obligation	$ (4,956)	$ —	$ —	$ (4,956)
Total financial liabilities	$ (4,956)	$ —	$ —	$ (4,956)

There have been no transfers between fair value levels during the years ended December 31, 2018 and 2019. The Company's Preferred Stock Tranche Obligation (defined below) is carried at fair value determined according to Level 3 inputs in the fair value hierarchy as described below. The carrying values of other current assets, accounts payable and accrued expenses approximate their fair values due to the short-term nature of these assets and liabilities.

Preferred Stock Tranche Obligation

The Company determined that its obligation to issue, and the Company's investors' obligation to purchase additional shares of convertible preferred stock at a fixed price (i.e. the issuance price) in subsequent tranches following the initial closings of the series A, series A-1, and series B-1 convertible preferred stock ("Series A Preferred Stock," "Series A-1 Preferred Stock," "Series B-1 Preferred Stock", referred to collectively with the "Series B-2 Preferred Stock" as the "Preferred Stock") financings represented a freestanding financial instrument (the "Preferred Stock Tranche Obligation"). The freestanding financial instrument was classified as a liability on the Company's consolidated balance sheets and initially recorded at fair value, with changes in fair value for each reporting period recognized in other income, net in the consolidated statement of operations (see Note 8).

In connection with the Company's initial issuances of Series A Preferred Stock, Series A-1 Preferred Stock and Series B-1 Preferred Stock in April 2016, April 2017 and November 2018, respectively (see Note 8) the Company recognized the Preferred Stock Tranche Obligation at the fair value related to each issuance, which was determined based on significant inputs not observable in the market, which represented a Level 3 measurement within the fair value hierarchy. The initial fair value of each obligation was estimated based on results of a valuation performed. The obligation is remeasured prior to the issuance of subsequent tranches, and at each subsequent reporting period, as well as immediately prior to when the obligation is settled.

The Preferred Stock Tranche Obligation was determined using the binomial pricing model, which takes into account the probability of achievement and failure of tranche milestones and issuance of subsequent shares. The Preferred Stock Tranche Obligation is calculated as the difference between the future value of the Series B-2 Preferred Stock at the time the tranche milestone is met, estimated using the binomial pricing model, and the contractual purchase price for the Series B-2 Preferred Stock. The future value of the Series B-2 Preferred Stock was estimated by back-solving the future price of the Series B-2 Preferred Stock such that the initial proceeds of the Series B-1 Preferred Stock financing equaled the value of the Preferred Stock Tranche Obligation plus the standalone price paid for Series B-1 Preferred Stock.

The Preferred Stock Tranche Obligation value is discounted back to the initial issuance date and adjusted for probability of the tranche milestone achievement. In determining the fair values of the tranche obligations, estimates and assumptions impacting fair value include the estimated future values of the Company's Series B-2 Preferred Stock, discount rates, estimated time to liquidity, and probability of tranche closing/milestone achievement. The Company remeasured each tranche obligation at each reporting period and prior to settlement. Upon issuance of tranches two and three of Series A Preferred Stock and Series A-1 Preferred Stock, the Preferred Stock Tranche Obligation associated with Series A Preferred Stock and Series A-1 Preferred Stock were settled in 2017. The

following reflects the significant quantitative inputs used in the valuation of the Preferred Stock Tranche Obligation at issuance on November 9, 2018 and as of December 31, 2018 and 2019:

	NOVEMBER 9, 2018	DECEMBER 31, 2018	DECEMBER 31, 2019
Stand-alone Series B-1 Preferred Stock price (spot price)	$ 7.28	$ 7.28	$ 7.28
Estimated future value of Series B-2 Preferred Stock	$ 8.14	$ 8.14	$ 8.14
Discount rate	17.00%	17.50%	15.50%
Time to liquidity (years)	1.14	1.00	0.16
Probability of tranche closing	25%	25%	80%

A change in the assumptions related to the valuation of the Preferred Stock Tranche Obligation could have a significant impact on the value of the obligation. The purchase price of the Preferred Stock at initial issuance, and all subsequent issuances was higher than the fair value of the Company's common stock.

The following table sets forth a summary of changes in the fair value of the Company's Preferred Stock Tranche Obligation for which fair value is determined by Level 3 inputs (in thousands):

	PREFERRED STOCK TRANCHE OBLIGATION
Balance as of January 1, 2018	$ —
Issuance	2,349
Change in fair value	43
Balance as of December 31, 2018	2,392
Change in fair value	2,564
Balance as of December 31, 2019	$ 4,956

Fluctuations in the fair value of the Company's Preferred Stock is the primary cause for the significant changes in fair value of the Preferred Stock Tranche Obligation. In 2018 and 2019, the enterprise value of the Company was determined using the Market Approach, specifically the Subject Company Transaction Method, which considers all share class rights and preferences, as of the date of the most recent financing. During 2018, the Company closed the Series B-1 Preferred Stock financing, and as part of the Company's strategy, began considering the pursuit of longer-term liquidity options including a potential initial public offering, which caused an increase in the value of the Series B-1 Preferred Stock while reducing the value of the Preferred Stock Tranche Obligation, which relates to the future closing of Series B-2 Preferred Stock. During 2019, the Preferred Stock Tranche Obligation increased to $5.0 million as of December 31, 2019 from $2.4 million as of December 31, 2018, due to the increase in the probability of the Company achieving certain research and development milestones necessary to issue Series B-2 Preferred Stock, the increase in the value of the Series B-1 Preferred Stock and the consideration of an IPO scenario in the Company's valuation of its common and preferred stock.

4. PREPAID EXPENSES AND OTHER CURRENT ASSETS

Prepaid expenses and other current assets as of December 31, 2018 and 2019 consisted of the following (in thousands):

	DECEMBER 31,	
	2018	2019
Prepaid service contracts	2,018	21
Prepaid professional services	126	5
Prepaid tax	44	65
Prepaid rent	—	64
Other	84	226
Total prepaid expenses and other current assets	$ 2,272	$ 381

5. PROPERTY AND EQUIPMENT, NET

Property and equipment, net as of December 31, 2018 and 2019 consisted of the following (in thousands):

	DECEMBER 31,	
	2018	2019
Computer equipment and software	$ 35	$ 35
Laboratory equipment	610	843
Office furniture	27	42
Leasehold improvements	219	241
Total	891	1,161
Less: Accumulated depreciation	(246)	(453)
Property and equipment, net	$ 645	$ 708

Depreciation expense was $0.2 million for each of the years ended December 31, 2018 and 2019.

6. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses and other current liabilities as of December 31, 2018 and 2019 consisted of the following (in thousands):

	DECEMBER 31,	
	2018	2019
Accrued studies	$ 431	$ 1,123
Accrued compensation and benefits	41	749
Accrued tax	284	43
Other	46	107
Total accrued expenses and other current liabilities	$ 802	$ 2,022

Accrued compensation and benefits consists primarily of accrued vacation and accrued 401k withholding.

7. LICENSE AGREEMENTS

Massachusetts General Hospital

On April 5, 2016, the Company entered into an exclusive patent license agreement with The General Hospital Corporation d/b/a Massachusetts General Hospital (“MGH”). Under the license agreement with MGH (as amended in

May 2017 and February 2018, the “MGH Agreement”), the Company obtained an exclusive, worldwide license, with the right to sublicense, under certain patents and technical information of MGH, to make, have made, use, have used, sell, have sold, lease, have leased, import, have imported or otherwise transfer licensed products and processes for use in the treatment, diagnosis, palliation and prevention of diseases and disorders in humans and animals. The Company is required to use commercially reasonable efforts to develop and commercialize licensed products and processes and must achieve certain required diligence milestones.

Under the terms of the MGH Agreement, the Company paid an initial license payment of $0.1 million in 2016, and reimbursed MGH approximately $0.3 million of prior patent prosecution expenses related to the licensed patents in 2017. The Company also issued MGH an aggregate of 358,674 shares of its common stock. Additionally, the Company is required to pay a low-five digit to mid-five digit annual maintenance fee prior to the first commercial sale of its first product or process, a mid-five digit annual maintenance fee after the first commercial sale of its first product or process that is creditable against royalties, certain clinical and regulatory milestone payments for the first three products or indications to achieve such milestones, which milestone payments are $8.6 million in the aggregate, and certain commercial milestone payments for the first three products or indications to achieve such milestones, which milestone payments are $18.0 million in the aggregate. The Company is also obligated to pay tiered royalties on net sales of licensed products ranging in the low-single digits to mid-single digits. The royalty rates are subject to up to a maximum 50% reduction for lack of a valid claim, in the event that it is necessary for the Company to obtain a license to any third-party intellectual property related to the licensed products, and generic competition. The obligation to pay royalties under the MGH Agreement expires on a licensed product-by-licensed product and country-by-country basis upon the later of expiry of the last valid claim of the licensed patents that cover such licensed product in such country or ten years from the first commercial sale of such product in such country. The Company is also obligated to pay a percentage of non-royalty-related payments received by it from sublicensees ranging in the low-double digits and a change of control fee equal to a low-single digit percentage of the payments received as part of any completed transaction up to a low seven-digit amount.

The MGH Agreement expires upon expiry of the last remaining royalty obligation for a licensed product or process. Under the MGH Agreement, MGH may terminate the agreement upon the Company’s uncured material breach or insolvency, a challenge by the Company of the licensed patents and certain other specified breaches of the MGH Agreement. The Company may terminate the agreement for any reason upon specified prior written notice to MGH.

Novo Nordisk A/S

In addition, on December 14, 2017, the Company entered into a research collaboration and exclusive license agreement with Novo Nordisk A/S. Refer to Note 14, Revenue from Contracts with Customers, for more information regarding this agreement.

LakePharma, Inc.

On April 22, 2019, the Company entered into an exclusive license agreement with LakePharma, Inc. (“LakePharma”) whereby the Company licensed LakePharma’s intellectual property for research and development efforts for a license fee of $0.3 million, which is recorded as research and development expense in the Company’s consolidated statements of operations. The agreement will continue in perpetuity unless terminated by either party. LakePharma may terminate the agreement at any time.

8. CONVERTIBLE PREFERRED STOCK

On April 15, 2016, the Company authorized the sale and issuance of up to 10,000,000 shares of $0.0001 par value Series A Preferred Stock. The Series A Preferred Stock financing was structured to close in three tranches, each contingent upon the achievement of certain research and development milestones agreed upon by the Company’s board of directors (the “Board”). On April 15, 2016, the Company issued 1,535,884 shares of Series A Preferred Stock at $2.17 per share for gross proceeds of $3.3 million. Issuance costs were $68,000. The second tranche was contingent upon the achievement of the first milestone. The first milestone was completed on April 15, 2017 and the Company issued 1,535,884 shares of Series A Preferred Stock at $2.17 per share for gross proceeds of $3.3 million. The third tranche was contingent upon achievement of the second milestone. The completion of a second milestone was unanimously waived by the Board on October 25, 2017, and on November 3, 2017, the Company issued 1,535,884 shares of Series A Preferred Stock at $2.17 per share for gross proceeds of $3.3 million. Issuance costs related to the second and third tranches were $23,000.

On August 16, 2016, the Company authorized the sale and issuance of up to 800,000 shares of $0.0001 par value Series A-1 Preferred Stock. The Series A-1 Preferred Stock financing was structured to close in three tranches. On August 16, 2016, the Company issued 122,871 shares of Series A-1 Preferred Stock at $2.71 per share for gross proceeds of $0.3 million. The issuance costs were immaterial. The second tranche was contingent upon the achievement of the first milestone. The first milestone was completed on April 15, 2017 and the Company issued 122,871 shares of Series A-1 Preferred Stock at $2.71 per share for gross proceeds of $0.3 million. The third tranche was contingent upon achievement of the second milestone. The completion of a second milestone was unanimously waived by the Company's Board on October 25, 2017 and, on November 3, 2017, the Company issued 122,870 shares of Series A-1 Preferred Stock at $2.71 per share for gross proceeds of $0.3 million. Issuance costs related to the second and third tranches were $7,000.

On November 9, 2018, the Company authorized the sale and issuance of up to 3,427,004 shares of $0.0001 par value Series B-1 Preferred Stock and up to 3,062,891 shares of $0.0001 par value Series B-2 Preferred Stock. The Series B-1/B-2 Preferred Stock financing was structured to close in two tranches. On November 9, 2018, the Company issued 1,579,043 shares of Series B-1 Preferred Stock at $7.28 per share for gross proceeds of $11.5 million. Issuance costs were $45,000 and the Preferred Stock Tranche Obligation was $2.3 million. As part of the Company's Series B-1 Preferred Stock issuance, a portion of the shares were issued to entities affiliated with Pontifax, entities affiliated with Partners Innovation Fund, and Arkin Bio Ventures Limited Partnership, all of which are affiliates of members of our Board. There were no material transactions with these parties other than this purchase of preferred stock in 2018. The second tranche, referred to as the B-1/B-2 Milestone Closing, is contingent upon the Company successfully completing its first Phase I single ascending dose clinical trial in normal healthy volunteers. Upon the B-1/B-2 Milestone Closing, the Company will issue 1,411,275 shares of Series B-2 Preferred Stock at $8.14 per share for gross proceeds of $11.5 million.

As of December 31, 2018 and 2019, Preferred Stock consisted of the following (in thousands, except share data):

	DECEMBER 31, 2018				
	PREFERRED STOCK AUTHORIZED	PREFERRED STOCK ISSUED AND OUTSTANDING	CARRYING VALUE	LIQUIDATION VALUE	COMMON STOCK ISSUABLE UPON CONVERSION
Series A Preferred Stock	10,000,000	4,607,652	$ 9,891	$ 11,471	4,607,652
Series A1 Preferred Stock	800,000	368,612	944	1,091	368,612
Series B1 Preferred Stock	3,427,004	1,579,043	9,106	11,676	1,579,043
Series B2 Preferred Stock	3,062,891	—	—	—	—
	17,289,895	6,555,307	$ 19,941	$ 24,238	6,555,307

	DECEMBER 31, 2019				
	PREFERRED STOCK AUTHORIZED	PREFERRED STOCK ISSUED AND OUTSTANDING	CARRYING VALUE	LIQUIDATION VALUE	COMMON STOCK ISSUABLE UPON CONVERSION
Series A Preferred Stock	10,000,000	4,607,652	$ 9,891	$ 12,271	4,607,652
Series A1 Preferred Stock	800,000	368,612	944	1,171	368,612
Series B1 Preferred Stock	3,427,004	1,579,043	9,106	12,596	1,579,043
Series B2 Preferred Stock	3,062,891	—	—	—	—
	17,289,895	6,555,307	$ 19,941	$ 26,038	6,555,307

The following is a summary of the rights and privileges of the Preferred Stockholders as of December 31, 2018 and 2019.

Conversion: Shares of Preferred Stock are convertible, at the option of the holder, at any time, into shares of common stock. The number of shares is determined by dividing the original issuance price by the conversion price. As such, the shares of Preferred Stock effectively convert on a one-for-one basis. These rights terminate in the event of a liquidation or winding up of the Company. No fractional shares will be issued.

Liquidation Preference: While the Preferred Stock is not redeemable, the shares are redeemable for cash in certain change of control events that are beyond the control of the Company. In the event of any liquidation or Deemed Liquation Event (as defined in the Company's articles of incorporation), the Preferred Stockholders are entitled to the greater of (i) the original issue price of the Preferred Stock plus any accrued dividends not yet paid plus any other dividends declared and unpaid or ii) the amount payable had all classes of shares been converted to common stock. In the event of a Deemed Liquidation Event, if the assets of the Company available for distribution are insufficient to pay the Preferred Stockholders in the full amount to which they are entitled, the Preferred Stockholders shall share ratably in any distribution of the assets available for distribution in proportion to the number of shares of Preferred Stock that they hold. Note that in relation to the above, the holders of Series B-1/B-2 Preferred Stock are entitled to be paid out prior to the holders of common stock, Series A Preferred Stock and Series A-1 Preferred Stock.

Dividends: Dividends accrue at a rate of $0.17, $0.21, $0.582630 and $0.651888 per share, per year on the anniversary of the issuance date for Series A Preferred Stock, Series A-1 Preferred Stock, Series B-1 Preferred Stock and Series B-2 Preferred Stock, respectively. Dividends are cumulative; however, accrued dividends will be payable only if and when declared by the Board. Dividends on other classes of the Company's stock may not be declared or paid unless the Preferred Stockholders are first paid (i) all dividends accrued and not yet paid plus (ii) the product of (a) dividends declared on an as converted basis and (b) Preferred Stock on an as converted basis. That is, if the Company declared dividends on outstanding common stock, Preferred Stockholders would receive both the dividends owed for the Preferred Stock plus that which would be owed if the Preferred Stock were converted to common stock. No dividends have been declared through December 31, 2019.

Voting Rights: Each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of common stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Preferred Stockholders and common stockholders vote together as a single class.

9. COMMON STOCK

As of December 31, 2018 and 2019, the Company's certificate of incorporation authorized the Company to issue 27,000,000 shares of $0.0001 par value common stock. The voting, dividend and liquidation rights of the holders of the Company's common stock are subject to and qualified by the rights, powers and preference of the holders of the Preferred Stock set forth above.

Each share of common stock entitles the holder to one vote, together with the holders of Preferred Stock, on all matters submitted to the stockholders for a vote. As of December 31, 2018 and 2019, no cash dividends have been declared or paid.

As of December 31, 2018 and 2019, the Company has reserved the following shares of common stock for potential conversion of outstanding Preferred Stock, the vesting of restricted stock and exercise of stock options:

	DECEMBER 31,	
	2018	2019
Preferred Stock	6,555,307	6,555,307
Unvested restricted stock	138,227	34,557
Options to purchase common stock	849,039	1,164,017
Total	7,542,573	7,753,881

10. STOCK-BASED COMPENSATION

2017 Plan

The Company adopted the Keros Therapeutics, Inc. 2017 Stock Incentive Plan (the "2017 Plan") on February 2, 2017 for the issuance of stock options and other stock-based awards. On January 2, 2018, the 2017 Plan was amended to increase the number of shares of common stock authorized to be issued from 691,444 to 895,102. On October 9, 2018, the 2017 Plan was amended to increase the number of shares of common stock authorized to be issued to 931,963, and on March 4, 2019, the 2017 Plan was amended such that the number of shares of common stock authorized to be issued was increased to 1,362,087. Shares that are expired, terminated, surrendered or canceled under the 2017 Plan without having been fully exercised will be available for future awards. In addition, shares of common stock that are tendered to the Company by a participant to exercise an award are added to the number of shares of common stock available for the grant of awards. There were 31,333 and 64,088 shares available for future grant under the 2017 Plan as of December 31, 2018 and 2019, respectively.

The 2017 Plan is administered by the Board. The exercise prices, vesting and other restrictions are determined at the discretion of the Board, except that the exercise price per share of incentive stock options may not be less than 100% of the fair market value of the common stock on the date of grant. Stock options awarded under the 2017 Plan expire ten years after the grant date, unless the Board sets a shorter term. Vesting periods for awards under the plans are determined at the discretion of the Board. Incentive stock options granted to employees and shares of restricted stock awards granted to employees, officers, members of the Board, advisors, and consultants of the Company typically vest over four years. Non-statutory options and shares of restricted stock awards granted to employees, officers, members of the Board, advisors, and consultants of the Company typically vest over three or four years.

The Company granted options to purchase 722,992 and 470,909 shares of common stock during the years ended December 31, 2018 and 2019, respectively. The Company recorded stock-based compensation expense for options granted of $0.1 million during each of the years ended December 31, 2018 and 2019. During the years ended December 31, 2018 and 2019, the Company granted no shares of restricted stock. The Company recorded stock-based compensation expense for restricted stock of less than $1,000 during each of the years ended December 31, 2018 and 2019.

Stock Option Valuation

The assumptions that the Company used in Black-Scholes option-pricing model to determine the grant-date fair value of stock options granted for the years ended December 31, 2018 and 2019 were as follows:

	YEAR ENDED DECEMBER 31,	
	2018	2019
Weighted-average risk-free interest rate	2.70%	1.99%
Expected term (in years)	5.49	6.05
Expected volatility	74.55%	74.71%
Expected dividend yield	0.00%	0.00%
Fair value of underlying common stock	$ 0.19	$ 0.32

A summary of option activity under the 2017 Plan during the years ended December 31, 2018 and 2019 is as follows (in thousands except share and per share data):

	NUMBER OF OPTIONS	WEIGHTED-AVERAGE EXERCISE PRICE	WEIGHTED-AVERAGE REMAINING CONTRACTUAL TERM (IN YEARS)	AGGREGATE INTRINSIC VALUE
Outstanding as of December 31, 2017	193,511	$ 0.10	9.20	$ 37,800
Granted	722,992	0.30		
Exercised	(51,591)	0.16		$ 7,189
Cancelled or forfeited	(13,288)	0.30		
Expired	(2,585)	0.30		
Outstanding as of December 31, 2018	849,039	$ 0.26	9.10	$ 30,611
Granted	470,909	0.47		
Exercised	(82,387)	0.16		$ 25,756
Cancelled or forfeited	(73,544)	0.36		
Outstanding as of December 31, 2019	1,164,017	$ 0.35	8.64	$ 143,801
Options exercisable as of December 31, 2018	424,279	$ 0.27	9.08	$ 12,105
Options exercisable as of December 31, 2019	608,156	$ 0.29	8.17	$ 111,638

The aggregate intrinsic value of stock options is calculated as the difference between the exercise price of the stock options and the fair value of the Company's common stock for those stock options that had exercise prices lower than the fair value of the Company's common stock.

The weighted-average grant date fair value of options granted during each of the years ended December 31, 2018 and 2019 was $0.1 million. As of December 31, 2018 and 2019, respectively, there was $0.1 million of unrecognized stock-based compensation expense related to unvested stock options. The unrecognized stock-based compensation expense is estimated to be recognized over a period of 3.0 years as of December 31, 2019.

The total fair value of options vested during the years ended December 31, 2018 and 2019, was $0.1 million and less than $0.1 million, respectively.

Shares of Restricted Common Stock

The Company has granted shares of restricted common stock with time-based vesting conditions. A summary of restricted stock activity under the 2017 Plan during the years ended December 31, 2018 and 2019 is as follows:

	YEAR ENDED DECEMBER 31,	
	2018	2019
Unvested at the beginning of the year	241,897	138,227
Vested or released	(103,670)	(103,670)
Unvested at the end of the year	138,227	34,557

As of December 31, 2018 and 2019, respectively, there was less than $1,000 of unrecognized stock-based compensation expense related to unvested restricted stock. The unrecognized stock-based compensation expense is estimated to be recognized over a period of 0.3 years as of December 31, 2019.

The total fair value of restricted stock vested during the years ended December 31, 2018 and 2019 was de minimis.

Stock-Based Compensation Expense

Total stock-based compensation expense recorded as research and development and general and administrative expenses, respectively, for employees, directors and non-employees during the years ended December 31, 2018 and 2019 is as follows (in thousands):

	YEAR ENDED DECEMBER 31,	
	2018	2019
Research and development	$ 30	$ 31
General and administrative	51	28
Total stock-based compensation expense	$ 81	$ 59

11. INCOME TAXES

Loss before provision for (benefit from) income taxes for the years ended December 31, 2018 and 2019 consisted of the following (in thousands):

	YEAR ENDED DECEMBER 31,	
	2018	2019
United States	$ (1,286)	$ (5,563)
Foreign	208	(6,773)
Loss before provision for (benefit from) income taxes	$ (1,078)	$ (12,336)

The components of income tax expense for the years ended December 31, 2018 and 2019 consisted of the following (in thousands):

	YEAR ENDED DECEMBER 31,	
	2018	2019
Current income tax expense:		
United States	$ 257	$ —
Total income tax expense	$ 257	$ —
Total deferred income tax expense	$ —	$ —
Total income tax expense	$ 257	$ —

A reconciliation of the U.S. federal statutory income tax rate to the Company's effective income tax rate for the years ended December 31, 2018 and 2019 was as follows:

	YEAR ENDED DECEMBER 31,	
	2018	2019
Federal income tax (benefit) at statutory rate	21.0%	21.0%
Permanent Differences	(2.5)	(0.9)
Preferred stock tranche obligation remeasurement	—	(4.4)
Research and development credits	56.5	(2.1)
State income tax, net of federal benefit	28.5	3.9
Impact of Foreign Operations	(3.3)	3.6
Other	(0.4)	—
Change in valuation allowance	(123.6)	(21.1)
Effective tax rate	(23.8)%	0.0%

Net deferred tax assets as of December 31, 2018 and 2019 consisted of the following (in thousands):

	YEAR ENDED DECEMBER 31,	
	2018	2019
Net operating loss carryforwards	$ —	$ 3,127
Research and development credits	541	1,325
Accrueds	227	525
Other	3	1,180
Deferred revenue	2,732	—
Intangibles	108	151
Total deferred tax assets	$ 3,611	$ 6,308
Valuation allowance	(3,322)	(5,923)
Net deferred tax assets	$ 289	$ 385
Deferred tax liability		
Depreciation	(289)	(385)
Net deferred tax assets (liability)	$ —	$ —

As of December 31, 2018, the Company did not have any U.S. federal, state and foreign net operating loss carryforwards. As of December 31, 2019, the Company had U.S. federal, state and foreign net operating loss carryforwards of $11.5 million, $11.1 million and $4.3 million, respectively. The state net operating loss carryforwards begin to expire in 2039.

As of December 31, 2018, the Company had U.S. federal and state research and development tax credit carryforwards of $0.3 and $0.3 million, respectively. As of December 31, 2019, the Company had U.S. federal and state research and development tax credit carryforwards of $0.7 million and $0.7 million, respectively. The tax credits begin to expire in 2038.

Management of the Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets, which are comprised principally of research and development credits and deferred revenue. Under the applicable accounting standards, management has considered the Company's history of losses and concluded that it is more likely than not that the Company will not recognize the benefits of federal and state deferred tax assets. Accordingly, a full valuation allowance was maintained as of December 31, 2018 and 2019. A change in the Company's valuation allowance was recorded in 2018 and 2019, in the amount of $1.3 million and $2.6 million, respectively, due primarily to the generation of additional net deferred tax assets.

The calculation of the Company's tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations for both federal taxes and the many states in which it operates or does business in. A tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, on the basis of the technical merits.

The Company records tax positions as liabilities and adjusts these liabilities when its judgement changes as a result of the evaluation of new information not previously available. Because of the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from the Company's current estimate of the recognized tax benefit liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which new information is available. As of December 31, 2019, the Company has not recorded any uncertain tax positions in its financial statements.

The Company recognize interest and penalties related to unrecognized tax benefits on the income tax expense line in the accompanying consolidated statement of operations. As of December 31, 2019, no accrued interest or penalties are included on the related tax liability line in the consolidated balance sheet.

The Company files tax returns as prescribed by the tax laws of the jurisdictions in which it operates. In the normal course of business, the Company is subject to examination by federal and state jurisdictions, where applicable. There are currently no pending tax examinations. The Company's tax years are still open under statute from December 31, 2015, to the present. There are currently no pending income tax examinations. To the extent the Company has tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the Internal Revenue Service and state tax authorities to the extent utilized in a future period.

12. LOSS PER SHARE

Basic and diluted loss per share is computed by dividing net loss attributable to common stockholders by the weighted-average common shares outstanding (in thousands, except share and per share data):

	YEAR ENDED DECEMBER 31,	
	2018	2019
Numerator:		
Net loss	$ (1,335)	$ (12,336)
Less: Accruals of dividends of preferred stock	(1,011)	(1,800)
Net loss attributable to common stockholders—basic and diluted	$ (2,346)	$ (14,136)
Denominator:		
Weighted-average common stock outstanding	2,174,514	2,326,857
Net loss per share attributable to common stockholders—basic and diluted	$ (1.08)	$ (6.08)

The Company's potentially dilutive securities, which include Preferred Stock, restricted stock, and stock options, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following from the computation of diluted net loss per share attributable to common stockholders at December 31, 2018 and 2019 because including them would have had an anti-dilutive effect:

	DECEMBER 31,	
	2018	2019
Preferred stock	6,555,307	6,555,307
Unvested restricted stock	138,227	34,557
Options to purchase common stock	849,039	1,164,017
	7,542,573	7,753,881

Pro forma net loss per share was calculated as follows:

	YEAR ENDED DECEMBER 31, 2019 (Unaudited)
Numerator:	
Net loss attributable to common stockholders—basic and diluted	$ (14,136)
Plus: accruals of dividends of preferred stock	1,800
Pro forma net loss attributable to common stockholders—basic and diluted	$ (12,336)
Denominator:	
Weighted-average common stock outstanding—basic and diluted	2,326,857
Pro forma adjustment to reflect automatic conversion of convertible preferred stock to common stock upon the completion of the proposed initial public offering	6,555,307
Pro forma weighted-average common stock outstanding—basic and diluted	8,882,168
Pro forma net loss per share attributable to common stockholders—basic and diluted	$ (1.39)

13. COMMITMENTS AND CONTINGENCIES

Leases

The Company has historically entered into lease arrangements for its facilities and certain equipment. As of December 31, 2019, the Company had one operating lease with required future payments, related to its real estate. In applying the transition guidance under ASU No. 2016-02, *Leases (Topic 842)* ("ASC 842"), early adopted by the Company effective March 1, 2017, the Company determined the classification of its real estate lease to be operating and recorded a ROU asset and lease liability as of the effective date.

Operating Leases

In March 2017, the Company entered into a lease agreement (the "Lexington Lease") for its headquarters located in Lexington, Massachusetts. In July and August 2019, the Company entered into the first and second amendment, respectively, to its Lexington Lease to expand the rental space to 10,417 square feet. As required under the term of the lease agreement as collateral for the facility lease, the Company had restricted cash of $0.1 million in the form of a certificate of deposit as of December 31, 2018 and 2019. The Lexington Lease provides for scheduled annual rent increases throughout the lease term and does not include termination or purchase options.

From time to time, leases may include options to renew the lease after the expiration of the initial lease term. A renewal period is included in the lease term only when it is reasonably certain that the Company will exercise such renewal options. As of December 31, 2019, no renewal options existed that the Company believed were reasonably certain of being exercised.

The following table contains a summary of the lease costs recognized under ASC 842 and other information pertaining to the Company's operating lease for the years ended December 31, 2018 and 2019 (in thousands):

	FOR THE YEARS ENDED DECEMBER 31,	
	2018	2019
Lease cost		
Operating lease cost	$ 215	$ 278
Variable payments	—	—
Total lease cost	$ 215	$ 278
Other information		
Operating lease payments	$ 211	$ 278
Remaining lease term	4.0 years	2.9 years
Discount rate	8.44%	8.02%

The Lexington Lease does not include any variable payments. As the Lexington Lease does not provide an implicit rate, the Company utilized its incremental borrowing rate based on what it would normally pay to borrow on a collateralized basis over a similar term for an amount equal to the lease payments at the commencement date in determining the present value of lease payments. As of December 31, 2018 and 2019, the Company classified its short-term and long-term operating liabilities as short-term and long-term liabilities on the consolidated balance sheet, respectively.

As of December 31, 2019, future discounted lease payments under all lease arrangements accounted for under ASC 842 were as follows (in thousands):

MATURITY OF LEASE LIABILITY	
2020	$ 468
2021	482
2022	498
Total lease payments	1,448
Less: imputed interest	(173)
Total operating lease liabilities	$ 1,275
Included in the consolidated balance sheet:	
Current portion of lease liabilities	$ 376
Lease liabilities	899
Total operating lease liabilities	$ 1,275

Short-term Leases

The Company enters into short-term leasing arrangements related to storage of clinical trial materials. The Company did not have any expenses related to these arrangements for the year ended December 31, 2018, and had $1,544 related for the year ended December 31, 2019. As of December 31, 2018 and 2019, the Company classified its short-term operating lease liabilities within accrued expenses and other current liabilities, as the Company has elected the practical expedient whereby it will not recognize leases with terms of 12 months or less on the balance sheet.

Legal Proceedings

The Company is not a party to any litigation and does not have contingency reserves established for any litigation liabilities.

Other

In connection with the Lexington Lease, the Company received a loan from the landlord of $0.2 million related to its tenant improvement allowance, which is recorded as a non-current liability in the Company's consolidated balance sheets. The Company is required to repay interest only on the loan of 8.0% for the first 18 months of the lease and will then repay the full amount plus interest in installments over the remaining 3.5 year term of the lease, which expires in December 2022. The Company made payments totaling $32,337 related to the loan in 2019.

Future payments under the Company's loan obligation as of December 31, 2019, are as follows:

2020	$ 65
2021	65
2022	65
Total payments	$ 195

Refer to Note 7, License Agreements, for any potential future milestone or royalty payment amounts. These are not currently probable or estimable.

14. REVENUE FROM CONTRACTS WITH CUSTOMERS

The Company adopted ASC Topic 606 on January 1, 2018 applying the full retrospective method to all contracts that were not completed as of January 1, 2018. While the timing of future revenue under ASC Topic 606 may differ from the Company's historical accounting practices under ASC Topic 605, the cumulative effect recognized in the consolidated statement of stockholder's deficit was $0 because there was no change in timing or measurement of revenue for open contracts at January 1, 2018.

Novo Nordisk

On December 14, 2017, the Company entered into a research collaboration and exclusive license agreement with Novo Nordisk A/S ("Novo," agreement referred to as the "Novo Agreement"). The Novo Agreement stipulates that the two parties will work together on the discovery and development of new ligand traps for two years. Under the Novo Agreement, Keros granted Novo an exclusive license to develop and commercialize the licensed products listed as part of Keros' intellectual property and Novo granted Keros a non-exclusive license to Novo's intellectual property so that Keros could perform the activities for which it is responsible under the Novo Agreement. The Company does not share in the rights to the results of the Novo Agreement.

As consideration, the Company received an initial license payment in 2018 from Novo in the amount of $16.0 million. Novo has also paid the Company research collaboration budget funding payments of $2.0 million per each collaboration year, for $4.0 million total. Both of these research collaboration budget funding payments were received in 2018. Additionally, there are performance-based and sales-based milestone payments and sales-based royalties that have been determined to be variable consideration and constrained due to uncertainty of achievement. The sales-based royalties will be included in the transaction price and recognized as revenue once a sale occurs, and performance-based and sales-based milestone payments will be included in the transaction price and recognized as revenue if and when the cumulative revenue associated with the consideration is no longer probable of significant reversal.

The Company assessed this arrangement in accordance with ASC 606 and concluded that the contract counterparty, Novo, is a customer. The Company identified the following material promises at the outset of the Novo Agreement: (1) an exclusive license to use the Company's intellectual property to conduct research activities; (2) research and development ("R&D") services for activities under the research plan; (3) an option to extend the Novo Agreement; (4) participation on the joint steering committee ("JSC"); and (5) technology transfer associated with the research and development outputs. The Company determined that these promises were not capable of being distinct from one another and were not distinct in the context of the contract, as the license has no true value without the performance

of the R&D activities and the technology transfer and JSC participation depend on these activities. Novo would not be able to use the license without the performance of R&D activities by the Company, as the research is novel in nature and could not be performed by another company. Additionally, the technology transfer is inherently dependent on the outcome of the Company's R&D activities, and as such is not capable of being distinct. As indicated in number (3) above, Novo may elect to extend the term of the Novo Agreement to a third year on similar terms and conditions, subject to mutual written agreement of Novo and the Company. The Company assessed this option as a potential material right and determined that the additional work would be performed based on negotiated rates at the standalone selling price, and as such these services would not be provided at a significant or incremental discount and the option does not provide Novo with a material right. The Novo Agreement did not contain a significant financing component as of December 31, 2018 and 2019.

In accordance with the Company's ASC 606 assessment, the Novo Agreement was determined to contain a single combined performance obligation made up of the promises above, which does not require further allocation as the entire transaction price is allocated to this performance obligation. The Company determined the contract term of the Novo Agreement to be two years. The Company identified an appropriate measure of progress for the recognition of revenue and determined it would recognize the revenue over the term of the Novo Agreement using an input method based on full-time employee ("FTE") costs incurred, as this appropriately depicts the Company's performance in satisfaction of the performance obligation. As such, the Company is recognizing the transaction price for its single performance obligation as Novo uses the license and research and development services performed by the Company and as the Company participates on the JSC. Amounts received that have not yet been recognized as revenue are recorded in deferred revenue on the Company's consolidated balance sheet.

For the year ended December 31, 2018, the Company recognized $10.0 million as revenue in the consolidated statement of operations related to the Novo Agreement. The remaining $10.0 million of consideration was recorded as deferred revenue in the consolidated balance sheet as of December 31, 2018 and was recognized as revenue in the consolidated statements of operations according to costs incurred over the remaining term of the Novo Agreement in 2019. As the entire upfront payment and both collaboration funding payments were recognized as revenue in 2018 and 2019, the Company has no deferred revenue as of December 31, 2019.

15. SUBSEQUENT EVENTS

The Company has completed an evaluation of all subsequent events through February 26, 2020, the date these financial statements were available to be issued, and April 1, 2020 for the Series C preferred stock financing, the reverse stock split and the impact of COVID-19 referenced below. The Company has concluded that no subsequent events have occurred that require disclosure, except for those referenced below.

Series C Preferred Stock Financing

In March 2020, the Company sold an aggregate of 4,169,822 shares of its Series C preferred stock at a purchase price of $13.43 per share for an aggregate amount of approximately $56.0 million. Affiliates of the Board purchased 3,078,968 shares.

Reverse Stock Split

The Company's Board approved a one-for-2.1703 reverse stock split of its issued and outstanding common stock, stock options and preferred stock effective as of March 31, 2020. Accordingly, all share and per share amounts for all periods presented in the accompanying financial statements and notes thereto have been retroactively adjusted, where applicable, to reflect the reverse stock split.

COVID-19

The impact of the COVID-19 coronavirus outbreak on the financial performance of the Company will depend on future developments, including the duration and spread of the outbreak and related governmental advisories and restrictions. These developments and the impact of COVID-19 on the financial markets and the overall economy are highly uncertain and cannot be predicted. If the financial markets and/or the overall economy are impacted for an extended period, the Company's results may be materially adversely affected. The Company is currently unable to determine the extent of the impact of the pandemic to its operations and financial condition.

Appendix A

The following is a March 2020 online news article published by BioWorld. For clarification of certain information contained in the article, please see the risk factor entitled "*In making your investment decision, you should not rely on a recent online news article about us. The article, which is set forth in Appendix A to this prospectus, should not be considered in isolation and you should make your investment decision only after reading this entire prospectus carefully*" beginning on page 61 of this prospectus. Information contained in, or accessible through, the website links included in this Appendix A do not constitute a part of, and is not incorporated into, this prospectus.

Keros' pedal-down TGF-beta push touts safety, draws $56M series C

By Randy Osborne
March 5, 2020

Keros Therapeutics Inc.

(https://www.cortellis.com/intelligence/qsearch/Keros%20Therapeutics%20Inc&DT? indexBased=true&searchCategory=ALL) CEO Jasbir Seehra told *BioWorld* that he plans to use at his new company lessons learned as co-founder of Acceleron Pharma Inc., where work with receptors in the TGF-beta superfamily "taught me the potential of the biology and those molecules, but also the limitations" with regard to safety that need to be surmounted.

Jasbir Seehra, CEO, Keros

Lexington, Mass.-based Keros banked $56 million in a series C round, bringing its total venture funding to $78.5 million. Focused on rare hematologic and musculoskeletal disorders, Keros has KER-050, a protein therapeutic designed to correct cytopenias, including anemia and thrombocytopenia, in patients with myelodysplastic syndromes (MDS) and in patients with myelofibrosis. KER-047, the lead small-molecule candidate, is being developed for treatment of anemias resulting from high hepcidin levels and for fibrodysplasia ossificans progressiva (FOP).

Home-grown KER-050 is an engineered ligand trap comprising a modified ligand-binding domain of the TGF-beta receptor known as activin receptor type IIA that is fused to the Fc domain of the human antibody. The candidate is designed to increase red blood cell and platelet production by inhibiting the signaling of a subset of the TGF-beta family of proteins. Phase II investigation of MDS is starting in the first half of 2020, with data due toward the end of the year. A phase II bid will kick off in myelofibrosis next year.

KER-047 inhibits activin receptor-like kinase-2, or ALK2. Targeted specifically along with FOP is anemia resulting from high hepcidin levels as a direct consequence of elevated ALK2 signaling, including iron-refractory, iron-deficiency anemia. The drug, which emerged from a licensing deal, will enter phase II trials in the second half of this year. In FOP, Keros has "a number of competitors, but we believe we have a very safe molecule that can provide benefit," Seehra said.

Ultra-rare FOP is a disorder in which muscle tissue and connective tissue such as tendons and ligaments gradually ossify, forming bone outside the skeleton that constrains movement. The process generally becomes noticeable in early childhood, starting with the neck and shoulders and proceeding down the body into the limbs. A major, if ill-fated, deal in the FOP space came in February 2019 when Paris-based Ipsen SA agreed to buy Clementia Pharmaceuticals Inc., of Montreal, in a transaction valued at up to $1.31 billion. In October of the previous year, Clementia rolled out news (/articles/397836-clementia-tops-in-fop-plans-nda-earlier-on-phase-ii-data-chronic-dosing-also-in-works) that the company planned to file an NDA in the second half of 2019 – a full year earlier than previously planned – based on data from the completed phase II trial with its lead candidate, the oral retinoic acid

receptor gamma agonist palovarotene in FOP. In December 2019, the FDA placed a safety-related partial clinical hold (/articles/431626-ipsen-falls-on-fda-hold-for-bone-disorder-drug-palovarotene) for all patients under 14 years of age taking part in phase II and phase III studies, and in January 2020 the phase III trial called Move reached its pre-specified, second interim analysis futility criteria, factors that led to an Ipsen "impairment" of €669 million (US$750 million) before tax, the company reported in its 2019 results on Feb. 13, 2020.

With 25 employees, Keros officials knew from the start that they wanted to "control the early biology ourselves" and hire out only the later work, Seehra said. Taking clinical steps means "making decisions that are very expensive. You have to have a lot of confidence in the data." The company, which raised its first money in 2016, pulled down $23 million in a series B round in January 2019. Keros takes its name – proposed by one of the scientific founders, Paul Yu – from a Greek island that is remote and inaccessible, like the disease types pursued by the company.

Yu is an associate professor at Brigham and Women's Hospital and an associate professor at Harvard Medical School. His lab studies the function of bone morphogenetic protein (BMP) signaling in development as well as in vascular and musculoskeletal disease. The main thrust of his laboratory's work is to discern how BMP/TGF-beta signaling achieves spatiotemporal and functional specificity and modulates the tissue-specific consequences of inflammation and injury. Bringing Yu and others aboard has been the key to Keros' success so far, Seehra said. "At the end of the day it's about having great teams, and that, I think, is what we've been able to achieve." An undisclosed partner has agreed with him and details of the deal are to be made public in the coming weeks, he said.

The series C financing was led by new investors Foresite Capital, Orbimed, Cowen Healthcare Investments and Venrock. Certain of Keros' existing investors also participated, including Pontifax, Arkin Bio Ventures, Partners Innovation Fund, Global Health Sciences Fund and Medison Pharma. As part of the series C round, Nima Farzan, former CEO of Redwood City, Calif.-based Paxvax Inc., and Carl Gordon, managing partner at Orbimed, will join Keros' board. Paxvax, a specialty vaccines company, was bought for $270 million cash in August 2018 by Emergent Biosolutions Inc., of Cambridge, Mass.

Acceleron, of Cambridge, Mass., won FDA clearance in November 2019 of Reblozyl (luspatercept-aamt) for anemia in adults with beta-thalassemia who require regular red blood cell transfusions. The drug is an erythroid maturation agent that binds to the select TGF-beta superfamily ligands to reduce aberrant Smad2/3 signaling and enhance late-stage erythropoiesis.

5,000,000 Shares

Common Stock

PROSPECTUS

Joint Book-Running Managers

Jefferies **SVB Leerink** **Piper Sandler**

Co-Manager

H.C. Wainwright & Co.

, 2020

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all costs and expenses, other than underwriting discounts and commissions, payable by us in connection with the sale of the common stock being registered. All amounts shown are estimates except for the SEC registration fee, the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee and the Nasdaq initial listing fee.

	AMOUNT TO BE PAID
SEC registration fee	$ 11,196
FINRA filing fee	13,438
Nasdaq initial listing fee	150,000
Blue sky fees and expenses	5,000
Printing and engraving	175,000
Legal fees and expenses	1,400,000
Accounting fees and expenses	766,443
Transfer agent and registrar fees	3,500
Miscellaneous fees and expenses	75,423
Total	$ 2,600,000

Item 14. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, other than an action by or in the right of the corporation, by reason of the fact that the person is or was a director, officer, employee or agent of the corporation or is or was serving at the corporation's request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses, including attorneys' fees, judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with the action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful. The power to indemnify applies to actions brought by or in the right of the corporation as well, but only to the extent of expenses, including attorneys' fees but excluding judgments, fines and amounts paid in settlement, actually and reasonably incurred by the person in connection with the defense or settlement of the action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that a court of competent jurisdiction shall determine that such indemnity is proper.

Section 145(g) of the Delaware General Corporation Law provides that a corporation shall have the power to purchase and maintain insurance on behalf of its officers, directors, employees and agents, against any liability asserted against and incurred by such persons in any such capacity.

Section 102(b)(7) of the General Corporation Law of the State of Delaware provides that a corporation may eliminate or limit the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided that such provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the General Corporation Law of the State of Delaware or (iv) for any transaction from which the director derived an improper

personal benefit. No such provision shall eliminate or limit the liability of a director for any act or omission occurring prior to the date when such provision becomes effective.

Our amended and restated certificate of incorporation that we intend to adopt in connection with this offering provides that our directors shall not be liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except to the extent that the exculpation from liabilities is not permitted under the Delaware General Corporation Law as in effect at the time such liability is determined. In addition, our amended and restated certificate of incorporation that we intend to adopt in connection with this offering provides that we may indemnify our directors, officers and other agents of the company to the fullest extent permitted by the laws of the State of Delaware and our amended and restated bylaws that we intend to adopt in connection with this offering provide that we are required to indemnify our directors and executive officers to the fullest extent not prohibited by Delaware General Corporate Law. We plan to enter into indemnification agreements with each of our directors and officers in connection with this offering. These indemnification agreements provide, among other things, that we will indemnify our directors and officers for certain expenses, including damages, judgments, fines, penalties, settlements and costs and attorneys' fees and disbursements, incurred by a director or officer in any claim, action or proceeding arising in his or her capacity as a director or officer of our company or in connection with service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or officer makes a claim for indemnification. We expect to enter into a similar agreement with any new directors or officers.

Our amended and restated bylaws that we intend to adopt in connection with this offering provide that we may purchase and maintain insurance policies on behalf of our directors and officers against specified liabilities for actions taken in their capacities as such, including liabilities under the Securities Act. We have obtained directors' and officers' liability insurance to cover liabilities our directors and officers may incur in connection with their services to us, and plan to expand such coverage to include matters arising under the securities laws prior to the completion of this offering.

In addition, the underwriting agreement related to this offering will provide for indemnification by the underwriters of us and our officers and directors for certain liabilities arising under the Securities Act or otherwise. Our amended and restated investors' rights agreement with certain stockholders also provides for cross-indemnification in connection with the registration of our common stock on behalf of such investors.

Item 15. Recent Sales of Unregistered Securities.

The following list sets forth information regarding all unregistered securities issued by us since January 1, 2017 through the date of the prospectus that is a part of this registration statement:

Issuances of Common Stock

In April 2017 and November 2017, we issued and sold an aggregate of 358,674 shares of our common stock to one accredited investor at $0.0002 per share for aggregate consideration of $77.84 in connection with a licensing transaction.

Issuances of Options to Purchase Common Stock

From January 1, 2017 through the date of this registration statement, we granted stock options under our 2017 Stock Incentive Plan, as amended, or our 2017 Plan, to purchase up to an aggregate of 1,164,017 shares (net of expirations and cancellations) of our common stock to our employees, directors, and consultants, at a weighted average exercise price of $0.35 per share. From January 1, 2017 through the date of this registration statement, 178,664 shares of our common stock were issued upon the exercise of these options and the payment of approximately $31,558.

Issuances of Preferred Stock

In November 2018, we issued and sold an aggregate of 1,579,043 shares of Series B-1 preferred stock to nine accredited investors at $7.2829 per share for aggregate consideration of approximately $11.5 million.

In March 2020, we issued and sold an aggregate of 4,169,822 shares of Series C preferred stock to 20 accredited investors at $13.43 per share for aggregate consideration of approximately $56.0 million.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any public offering. Unless otherwise specified above, we believe these transactions were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act (and Regulation D or Regulation S promulgated thereunder) or Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer not involving any public offering or under benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed on the share certificates issued in these transactions. All recipients had adequate access, through their relationships with us, to information about us. The sales of these securities were made without any general solicitation or advertising.

Item 16. Exhibits and Financial Statement Schedules.

Exhibits

EXHIBIT NO.	DESCRIPTION
1.1	Form of Underwriting Agreement.
3.1	Amended and Restated Certificate of Incorporation, as amended and as presently in effect.
3.2*	Bylaws, as presently in effect.
3.3	Form of Amended and Restated Certificate of Incorporation, to be in effect upon closing of this offering.
3.4	Form of Amended and Restated Bylaws, to be in effect upon closing of this offering.
4.1*	Amended and Restated Investors' Rights Agreement by and among the registrant and certain of its stockholders, dated as of March 2, 2020.
4.2	Form of Common Stock Certificate.
5.1	Opinion of Cooley LLP.
10.1	Form of Indemnity Agreement between the registrant and its directors and officers.
10.2+*	2017 Stock Incentive Plan, as amended.
10.3+*	Form of Stock Option Grant Notice and Option Agreement for the 2017 Stock Incentive Plan, as amended.
10.4+	2020 Equity Incentive Plan.
10.5+	Forms of Stock Option Grant Notice, Option Agreement, Notice of Exercise, Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement for the 2020 Equity Incentive Plan.
10.6+	2020 Employee Stock Purchase Plan.
10.7+*	Offer Letter Agreement by and between the registrant and Jasbir Seehra, dated as of December 14, 2015.
10.8+*	Offer Letter Agreement by and between the registrant and Jenn Lachey, dated as of April 20, 2016.
10.9+*	Offer Letter Agreement by and between the registrant and Claudia Ordonez, dated as of August 20, 2019.
10.10#*	Exclusive Patent License Agreement by and between the registrant and The General Hospital Corporation, d/b/a Massachusetts General Hospital, or MGH, dated as of April 5, 2016, as amended by Amendment #1 by and between the registrant and The Brigham and Women's Hospital, Inc. on May 2, 2017 and by Amendment #2 by and between the registrant and MGH on February 23, 2018.
10.11#*	Research Collaboration and Exclusive License Agreement by and between the registrant and Novo Nordisk A/S, dated as of December 14, 2017.
10.12*	Lease Agreement by and between the registrant and 128 Spring Street Lexington, LLC, dated March 20, 2017, as amended by the First Amendment to Lease Agreement by and between the registrant and 128 Spring Street Lexington, LLC, dated July 1, 2019 and by the Second Amendment to Lease Agreement by and between the registrant and 128 Spring Street Lexington, LLC, dated August 8, 2019.
10.13+*	Offer Letter Agreement by and between the registrant and Keith Regnante, dated as of February 7, 2020.
10.14+	Employment Agreement by and between the registrant and Jasbir Seehra, dated as of March 31, 2020, to be effective upon the closing of this offering.
10.15+	Employment Agreement by and between the registrant and Jenn Lachey, dated as of March 31, 2020, to be effective upon the closing of this offering.

EXHIBIT NO.	DESCRIPTION
10.16+	Employment Agreement by and between the registrant and Claudia Ordonez, dated as of March 31, 2020, to be effective upon the closing of this offering.
10.17+	Employment Agreement by and between the registrant and Keith Regnante, dated as of March 31, 2020, to be effective upon the closing of this offering.
21.1*	Subsidiaries of Keros Therapeutics, Inc.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Cooley LLP (included in Exhibit 5.1)
24.1*	Power of Attorney (see signature page to the registration statement).

* Previously filed.
\+ Indicates management contract or compensatory plan.
\# Certain portions of this exhibit (indicated by asterisks) have been omitted because they are not material and would likely cause competitive harm to Keros Therapeutics, Inc. if publicly disclosed.

Item 17. Undertakings.

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the Underwriting Agreement, certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this Amendment No. 1 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Lexington, Massachusetts, on the 1st day of April, 2020.

KEROS THERAPEUTICS, INC.

By: /s/ Jasbir Seehra
Name: Jasbir Seehra, Ph.D.
Title: Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Amendment No. 1 to the Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

NAME	POSITION	DATE
/s/ Jasbir Seehra Jasbir Seehra, Ph.D.	Chief Executive Officer and Director (*Principal Executive Officer*)	April 1, 2020
/s/ Keith Regnante Keith Regnante	Chief Financial Officer (*Principal Financial Officer and Principal Accounting Officer*)	April 1, 2020
* Nima Farzan	Director	April 1, 2020
* Carl Gordon, Ph.D., C.F.A.	Director	April 1, 2020
* Tomer Kariv	Director	April 1, 2020
* Julius Knowles	Director	April 1, 2020
* Alon Lazarus, Ph.D.	Director	April 1, 2020
* Ran Nussbaum	Director	April 1, 2020

*By: /s/ Jasbir Seehra
Jasbir Seehra, Ph.D.
Attorney-in-Fact

Exhibit 1.1

[ ] Shares

Keros Therapeutics, Inc.

Common Stock

UNDERWRITING AGREEMENT

[ ], 2020

JEFFERIES LLC
SVB LEERINK LLC
PIPER SANDLER & CO.
As Representatives of the several Underwriters

c/o JEFFERIES LLC
520 Madison Avenue
New York, New York 10022

c/o SVB LEERINK LLC
One Federal Street, 37th Floor
Boston, Massachusetts 02110

c/o PIPER SANDLER & CO.
345 Park Avenue, Suite 1200
New York, New York 10154

Ladies and Gentlemen:

Introductory. Keros Therapeutics, Inc., a Delaware corporation (the "**Company**"), proposes to issue and sell to the several underwriters named in Schedule A (the "**Underwriters**") an aggregate of [ ] shares of its common stock, par value $[ ] per share (the "**Shares**"). The [ ] Shares to be sold by the Company are called the "**Firm Shares**." In addition, the Company has granted to the Underwriters an option to purchase up to an additional [ ] Shares as provided in Section 2. The additional [ ] Shares to be sold by the Company pursuant to such option are collectively called the "**Optional Shares**." The Firm Shares and, if and to the extent such option is exercised, the Optional Shares are collectively called the "**Offered Shares**." Jefferies LLC ("**Jefferies**"), SVB Leerink LLC ("**SVB Leerink**") and Piper Sandler & Co. ("**Piper Sandler**") have agreed to act as representatives of the several Underwriters (in such capacity, the "**Representatives**") in connection with the offering and sale of the Offered Shares. To the extent there are no additional underwriters listed on Schedule A, the term "Representatives" as used herein shall mean you, as Underwriters, and the term "Underwriters" shall mean either the singular or the plural, as the context requires.

The Company has prepared and filed with the Securities and Exchange Commission (the "**Commission**") a registration statement on Form S-1, File No. 333-237212 which contains a form of prospectus to be used in connection with the public offering and sale of the Offered Shares. Such registration statement, as amended, including the financial statements, exhibits and schedules thereto, in the form in which it became effective under the Securities Act of 1933, as amended, and the rules and

regulations promulgated thereunder (collectively, the "**Securities Act**"), including any information deemed to be a part thereof at the time of effectiveness pursuant to Rule 430A under the Securities Act, is called the "**Registration Statement**." Any registration statement filed by the Company pursuant to Rule 462(b) under the Securities Act in connection with the offer and sale of the Offered Shares is called the "**Rule 462(b) Registration Statement**," and from and after the date and time of filing of any such Rule 462(b) Registration Statement the term "Registration Statement" shall include the Rule 462(b) Registration Statement. The prospectus, in the form first used by the Underwriters to confirm sales of the Offered Shares or in the form first made available to the Underwriters by the Company to meet requests of purchasers pursuant to Rule 173 under the Securities Act, is called the "**Prospectus**." The preliminary prospectus dated [ ], 2020 describing the Offered Shares and the offering thereof is called the "**Preliminary Prospectus**," and the Preliminary Prospectus and any other prospectus in preliminary form that describes the Offered Shares and the offering thereof and is used prior to the filing of the Prospectus is called a "**preliminary prospectus**." As used herein, "**Applicable Time**" is [ ][a.m.][p.m.] (New York City time) on [ ], 2020. As used herein, "**free writing prospectus**" has the meaning set forth in Rule 405 under the Securities Act, and "**Time of Sale Prospectus**" means the Preliminary Prospectus together with the free writing prospectuses, if any, identified in Schedule B hereto. As used herein, **"Road Show"** means a "road show" (as defined in Rule 433 under the Securities Act) relating to the offering of the Offered Shares contemplated hereby that is a "written communication" (as defined in Rule 405 under the Securities Act). As used herein, "**Section 5(d) Written Communication**" means each written communication (within the meaning of Rule 405 under the Securities Act) that is made in reliance on Section 5(d) of the Securities Act by the Company or any person authorized to act on behalf of the Company to one or more potential investors that are qualified institutional buyers ("**QIBs**") and/or institutions that are accredited investors ("**IAIs**"), as such terms are respectively defined in Rule 144A and Rule 501(a) under the Securities Act, to determine whether such investors might have an interest in the offering of the Offered Shares; "**Section 5(d) Oral Communication**" means each oral communication, if any, made in reliance on Section 5(d) of the Securities Act by the Company or any person authorized to act on behalf of the Company made to one or more QIBs and/or one or more IAIs to determine whether such investors might have an interest in the offering of the Offered Shares; "**Marketing Materials**" means any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the offering of the Offered Shares, including any roadshow or investor presentations made to investors by the Company (whether in person or electronically); and "**Permitted Section 5(d) Communication**" means the Section 5(d) Written Communication(s) and Marketing Materials listed on Schedule C attached hereto.

All references in this Agreement to (i) the Registration Statement, any preliminary prospectus (including the Preliminary Prospectus), or the Prospectus, or any amendments or supplements to any of the foregoing, or any free writing prospectus, shall include any copy thereof filed with the Commission pursuant to its Electronic Data Gathering, Analysis and Retrieval System ("**EDGAR**") and (ii) the Prospectus shall be deemed to include any "electronic Prospectus" provided for use in connection with the offering of the Offered Shares as contemplated by Section 3(o) of this Agreement.

In the event that the Company has only one subsidiary, then all references herein to "subsidiaries" of the Company shall be deemed to refer to such single subsidiary, mutatis mutandis.

The Company hereby confirms its agreements with the Underwriters as follows:

Section 1. Representations and Warranties of the Company.

The Company hereby represents, warrants and covenants to each Underwriter, as of the date of this Agreement, as of the First Closing Date (as hereinafter defined) and as of each Option Closing Date (as hereinafter defined), if any, as follows:

(a) ***Compliance with Registration Requirements*****.** The Registration Statement has become effective under the Securities Act. The Company has complied, to the Commission's satisfaction with all requests of the Commission for additional or supplemental information, if any. No stop order suspending the effectiveness of the Registration Statement is in effect and no proceedings for such purpose have been instituted or are pending or, to the knowledge of the Company, are contemplated or threatened by the Commission.

(b) ***Disclosure*****.** Each preliminary prospectus and the Prospectus when filed complied in all material respects with the Securities Act and, if filed by electronic transmission pursuant to EDGAR, was identical (except as may be permitted by Regulation S-T under the Securities Act) to the copy thereof delivered to the Underwriters for use in connection with the offer and sale of the Offered Shares. Each of the Registration Statement and any post-effective amendment thereto, at the time it became or becomes effective, complied and will comply in all material respects with the Securities Act and did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. As of the Applicable Time, the Time of Sale Prospectus did not, and at the First Closing Date (as defined in Section 2) and at each applicable Option Closing Date (as defined in Section 2), will not, contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. The Prospectus as of its date, did not, and at the First Closing Date and at each applicable Option Closing Date, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the three immediately preceding sentences do not apply to statements in or omissions from the Registration Statement or any post-effective amendment thereto, or the Prospectus or the Time of Sale Prospectus, or any amendments or supplements thereto, made in reliance upon and in conformity with written information relating to any Underwriter furnished to the Company in writing by the Representatives expressly for use therein, it being understood and agreed that the only such information consists of the information described in Section 9(b) below. There are no contracts or other documents required to be described in the Time of Sale Prospectus or the Prospectus or to be filed as an exhibit to the Registration Statement which have not been described or filed as required.

(c) ***Free Writing Prospectuses; Road Show*****.** As of the determination date referenced in Rule 164(h) under the Securities Act, the Company was not, is not or will not be (as applicable) an "ineligible issuer" in connection with the offering of the Offered Shares pursuant to Rules 164, 405 and 433 under the Securities Act. Each free writing prospectus that the Company is required to file pursuant to Rule 433(d) under the Securities Act has been, or will be, filed with the Commission in accordance with the requirements of the Securities Act. Each free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) under the Securities Act or that was prepared by or on behalf of or used or referred to by the Company complies or will comply in all material respects with the requirements of Rule 433 under the Securities Act, including timely filing with the Commission or retention where required and legending, as applicable, and each such free writing prospectus, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Offered Shares did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement, the Prospectus or any preliminary prospectus unless such information has been superseded or modified as of such time. Except for the free writing prospectuses, if any, identified in Schedule B, and electronic road shows, if any, furnished to you before first use, the Company has not prepared, used or referred to, and will not, without your prior written consent, prepare, use or refer to, any free writing prospectus. Each Road Show, when considered together with the Time of Sale Prospectus, did not, as of the Applicable Time, contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(d) ***Distribution of Offering Material By the Company*****.** Prior to the later of (i) the expiration or termination of the option granted to the several Underwriters in Section 2, (ii) the completion of the Underwriters' distribution of the Offered Shares and (iii) the expiration of 25 days after the date of the Prospectus**,** the Company has not distributed and will not distribute any offering material in connection with the offering and sale of the Offered Shares other than the Registration Statement, the Time of Sale Prospectus, the Prospectus or any free writing prospectus reviewed and consented to by the Representatives, the free writing prospectuses, if any, identified on Schedule B hereto and any Permitted Section 5(d) Communications.

(e) ***The Underwriting Agreement*****.** This Agreement has been duly authorized, executed and delivered by the Company.

(f) ***Authorization of the Offered Shares*****.** The Offered Shares have been duly authorized for issuance and sale pursuant to this Agreement and, when issued and delivered by the Company against payment therefor pursuant to this Agreement, will be validly issued, fully paid and nonassessable, and the issuance and sale of the Offered Shares is not subject to any preemptive rights, rights of first refusal or other similar rights to subscribe for or purchase the Offered Shares.

(g) ***No Applicable Registration or Other Similar Rights*****.** There are no persons with registration or other similar rights to have any equity or debt securities registered for sale under the Registration Statement or included in the offering contemplated by this Agreement, except for such rights as have been duly waived.

(h) ***No Material Adverse Change*****.** Except as otherwise disclosed in the Registration Statement, the Time of Sale Prospectus and the Prospectus, subsequent to the respective dates as of which information is given in the Registration Statement, the Time of Sale Prospectus and the Prospectus: (i) there has been no material adverse change, or any development that would reasonably be expected to result in a material adverse change, in the condition, financial or otherwise, or in the earnings, business, properties, operations, assets, liabilities or prospects**,** whether or not arising from transactions in the ordinary course of business, of the Company and its subsidiaries, considered as one entity (any such change being referred to herein as a "**Material Adverse Change**"); (ii) the Company and its subsidiaries, considered as one entity, have not incurred any material liability or obligation, indirect, direct or contingent, including without limitation any losses or interference with its business from fire, explosion, flood, earthquakes, accident or other calamity, whether or not covered by insurance, or from any strike, labor dispute or court or governmental action, order or decree, that are material, individually or in the aggregate, to the Company and its subsidiaries, considered as one entity, and has not entered into any material transactions not in the ordinary course of business; and (iii) there has not been any material decrease in the capital stock or any material increase in any short-term or long-term indebtedness of the Company or its subsidiaries and there has been no dividend or distribution of any kind declared, paid or made by the Company or, except for dividends paid to the Company or other subsidiaries, by any of the Company's subsidiaries on any class of capital stock, or any repurchase or redemption by the Company or any of its subsidiaries of any class of capital stock.

(i) ***Independent Accountants*****.** Deloitte & Touche LLP, which has expressed its opinion with respect to the financial statements (which term as used in this Agreement includes the related notes thereto) filed with the Commission as a part of the Registration Statement, the Time of Sale Prospectus and the Prospectus, is (i) an independent registered public accounting firm as required by the Securities Act, the Securities Exchange Act of 1934, as amended ,and the rules and regulations promulgated thereunder (collectively, the "**Exchange Act**"), and the rules of the Public Company Accounting Oversight Board ("**PCAOB**"), (ii) in compliance with the applicable requirements relating to the qualification of accountants under Rule 2-01 of Regulation S-X under the Securities Act and (iii) a registered public accounting firm as defined by the PCAOB whose registration has not been suspended or revoked and who has not requested such registration to be withdrawn.

(j) ***Financial Statements*****.** The financial statements filed with the Commission as a part of the Registration Statement, the Time of Sale Prospectus and the Prospectus present fairly, in all material respects, the consolidated financial position of the Company and its subsidiaries as of the dates indicated and the results of their operations, changes in stockholders' equity and cash flows for the periods specified. Such financial statements have been prepared in conformity with generally accepted accounting principles as applied in the United States ("**GAAP**") applied on a consistent basis throughout the periods involved, except as may be expressly stated in the related notes thereto. No other financial statements or supporting schedules are required to be included in the Registration Statement, the Time of Sale Prospectus or the Prospectus. The financial data set forth in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus under the captions "Prospectus Summary—Summary Consolidated Financial Data," "Selected Consolidated Financial Data" and "Capitalization" fairly present, in all material respects, the information set forth therein on a basis consistent with that of the audited financial statements contained in the Registration Statement, the Time of Sale Prospectus and the Prospectus. All disclosures contained in the Registration Statement, any preliminary prospectus or the Prospectus and any free writing prospectus, that constitute non-GAAP financial measures (as defined by the rules and regulations under the Securities Act and the Exchange Act) comply with Regulation G under the Exchange Act and Item 10 of Regulation S-K under the Securities Act, as applicable. To the Company's knowledge, no person who has been suspended or barred from being associated with a registered public accounting firm, or who has failed to comply with any sanction pursuant to Rule 5300 promulgated by the PCAOB, has participated in or otherwise aided the preparation of, or audited, the financial statements supporting schedules or other financial data filed with the Commission as a part of the Registration Statement, the Time of Sale Prospectus and the Prospectus.

(k) ***Company's Accounting System*****.** The Company and each of its subsidiaries make and keep books and records that are accurate in all material respects and maintain a system of internal accounting controls designed, and which the Company believes is sufficient, to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(l) ***Disclosure Controls and Procedures; Deficiencies in or Changes to Internal Control Over Financial Reporting*****.** The Company has established and maintains disclosure controls and procedures (as defined in Rules 13a-15 and 15d-15 under the Exchange Act), which (i) are designed to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to the Company's principal executive officer and its principal financial officer by others within those entities; and (ii) are effective in all material respects to perform the functions for which they were established. Since the end of the Company's most recent audited fiscal year, there have been no significant deficiencies or material weakness in the Company's internal control over financial reporting (whether or not remediated) and no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting. The Company is not aware of any change in its internal control over financial reporting that has occurred during its most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

(m) ***Incorporation and Good Standing of the Company*****.** The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the jurisdiction of its incorporation and has the corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the Time of Sale Prospectus and the Prospectus and to enter into and perform its obligations under this Agreement. The Company is duly qualified as a foreign corporation to transact business and is in good standing in the Commonwealth of Massachusetts and each other jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure to so qualify or be in good standing would not reasonably be expected, individually or in the aggregate, to have a material adverse effect on the condition (financial or other), earnings, business, properties, operations, assets, liabilities or prospects of the Company and its subsidiaries, considered as one entity (a "**Material Adverse Effect**").

(n) ***Subsidiaries*****.** Each of the Company's **"**subsidiaries**"** (for purposes of this Agreement, as defined in Rule 405 under the Securities Act) has been duly incorporated or organized, as the case may be, and is validly existing as a corporation, partnership or limited liability company, as applicable, in good standing under the laws of the jurisdiction of its incorporation or organization and has the power and authority (corporate or other) to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the Time of Sale Prospectus and the Prospectus. Each of the Company's subsidiaries is duly qualified as a foreign corporation, partnership or limited liability company, as applicable, to transact business and is in good standing in each jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure to so qualify or to be in good standing would not reasonably be expected to have a Material Adverse Effect. All of the issued and outstanding capital stock or other equity or ownership interests of each of the Company's subsidiaries have been duly authorized and validly issued, are fully paid and nonassessable and are owned by the Company, directly or through its subsidiaries, free and clear of any security interest, mortgage, pledge, lien, encumbrance or adverse claim. None of the outstanding capital stock or equity interest in any subsidiary was issued in violation of preemptive or similar rights of any security holder of such subsidiary. The constitutive or organizational documents of each of the subsidiaries comply in all material respects with the requirements of applicable laws of its jurisdiction of incorporation or organization and are in full force and effect. The Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit 21 to the Registration Statement.

(o) ***Capitalization and Other Capital Stock Matters*****.** The authorized, issued and outstanding capital stock of the Company is as set forth in the Registration Statement, the Time of Sale Prospectus and the Prospectus under the caption "Capitalization" (other than for subsequent issuances, if any, pursuant to employee benefit plans, or upon the exercise of outstanding options or warrants, in each case described in the Registration Statement, the Time of Sale Prospectus and the Prospectus). The Shares (including the Offered Shares) conform in all material respects to the description thereof contained in the Time of Sale Prospectus. All of the issued and outstanding Shares have been duly authorized and validly issued, are fully paid and nonassessable and have been issued in compliance with all federal and state securities laws. None of the outstanding Shares were issued in violation of any preemptive rights, rights of first refusal or other similar rights to subscribe for or purchase securities of the Company. There are no authorized or outstanding options, warrants, preemptive rights, rights of first refusal or other rights to purchase, or equity or debt securities convertible into or exchangeable or exercisable for, any capital stock of the Company or any of its subsidiaries other than those described in the Registration Statement, the Time of Sale Prospectus and the Prospectus. The descriptions of the Company's stock option, stock bonus and other stock plans or arrangements, and the options or other rights granted thereunder, set forth in the Registration Statement, the Time of Sale Prospectus and the Prospectus accurately and fairly present, in all material respects, the information required to be shown with respect to such plans, arrangements, options and rights.

(p) ***Stock Exchange Listing*****.** The Offered Shares have been approved for listing on The Nasdaq Global Market ("**Nasdaq**"), subject only to official notice of issuance.

(q) ***Non-Contravention of Existing Instruments; No Further Authorizations or Approvals Required*****.** Neither the Company nor any of its subsidiaries is in violation of its charter or by-laws, partnership agreement or operating agreement or similar organizational documents, as applicable, or is in default (or, with the giving of notice or lapse of time, would be in default) ("**Default**") under any indenture, loan, credit agreement, note, lease, license agreement, contract, franchise or other instrument (including, without limitation, any pledge agreement, security agreement, mortgage or other instrument or agreement evidencing, guaranteeing, securing or relating to indebtedness) to which the Company or any of its subsidiaries is a party or by which it or any of them may be bound, or to which any of their respective properties or assets are subject (each, an "**Existing Instrument**"), except for such Defaults as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. The Company's execution, delivery and performance of this Agreement, consummation of the transactions contemplated hereby and by the Registration Statement, the Time of Sale Prospectus and the Prospectus and the issuance and sale of the Offered Shares (including the use of proceeds from the sale of the Offered Shares as described in the Registration Statement, the Time of Sale Prospectus and the Prospectus under the caption "Use of Proceeds") (i) have been duly authorized by all necessary corporate action and will not result in any violation of the provisions of the charter or by-laws, partnership agreement or operating agreement or similar organizational documents, as applicable, of the Company or any subsidiary (ii) will not conflict with or constitute a breach of, or Default or a Debt Repayment Triggering Event (as defined below) under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any of its subsidiaries pursuant to, or require the consent of any other party to, any Existing Instrument and (iii) will not result in any violation of any law, administrative regulation or administrative or court decree applicable to the Company or any of its subsidiaries, except in the case of clauses (ii) and (iii) as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. No consent, approval, authorization or other order of, or registration or filing with, any court or other governmental or regulatory authority or agency, is required for the Company's execution, delivery and performance of this Agreement and consummation of the transactions contemplated hereby and by the Registration Statement, the Time of Sale Prospectus and the Prospectus, except such as have been obtained or made by the Company and are in full force and effect under the Securities Act and such as may be required under applicable state securities or blue sky laws or the Financial Industry Regulatory Authority, Inc. ("**FINRA**"). As used herein, a "**Debt Repayment Triggering Event**" means any event or condition which gives, or with the giving of notice or lapse of time would give, the holder of any note, debenture or other evidence of indebtedness (or any person acting on such holder's behalf) the right to require the repurchase, redemption or repayment of all or a portion of such indebtedness by the Company or any of its subsidiaries.

(r) ***Compliance with Laws.*** The Company and its subsidiaries have been and are in compliance with all applicable laws, rules and regulations, except where failure to be so in compliance would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(s) ***No Material Actions or Proceedings*****.** There is no action, suit, proceeding, inquiry or investigation brought by or before any legal or governmental entity now pending or, to the knowledge of the Company, threatened, against or affecting the Company or any of its subsidiaries, which would reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect or materially and adversely affect the consummation of the transactions contemplated by this Agreement or the performance by the Company of its obligations hereunder. No material labor dispute with the employees of the Company or any of its subsidiaries, or with the employees of any principal supplier, manufacturer, customer or contractor of the Company, exists or, to the knowledge of the Company, is threatened or imminent.

(t) ***Intellectual Property Rights*****.** To the Company's knowledge, the Company and its subsidiaries own, or have obtained valid and enforceable licenses for, the inventions, patent applications, patents, trademarks, trade names, service names, copyrights, trade secrets and other intellectual property described in the Registration Statement, the Time of Sale Prospectus and the Prospectus as being owned or licensed by them or which are necessary for the conduct of their respective businesses as currently conducted or as currently proposed to be conducted (collectively, "**Intellectual Property**"), and, to the Company's knowledge, the conduct of their respective businesses does not and will not infringe, misappropriate or otherwise conflict in any material respect with any such rights of others. The Intellectual Property of the Company has not been adjudged by a court of competent jurisdiction to be invalid or unenforceable, in whole or in part, and the Company is unaware of any facts which would form a reasonable basis for any such adjudication. To the Company's knowledge: (i) there are no third parties who have rights to any Intellectual Property, except for customary reversionary rights of third-party licensors with respect to Intellectual Property that is disclosed in the Registration Statement, the Time of Sale Prospectus and the Prospectus as licensed to the Company or one or more of its subsidiaries, and such Intellectual Property is owned by the Company or its affiliates free and clear of all material liens, security interests, or encumbrances; (ii) there is no material infringement, misappropriation or dilution by third parties of any Intellectual Property; (iii) the Company is not infringing, misappropriating, diluting or otherwise violating the intellectual property rights of third parties; (iv) neither the Company nor any of its subsidiaries has received any notice of infringement of or conflict with asserted rights of others with respect to any of the foregoing which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, would have a material adverse effect on the Company and its subsidiaries, taken as a whole; and (v) the Company is the owner or co-owner of the Intellectual Property owned by it and has the valid right to use the Intellectual Property. There is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others: (A) challenging the Company's rights in or to any Intellectual Property; (B) challenging the validity, enforceability or scope of any Intellectual Property; or (C) asserting that the Company or any of its subsidiaries infringes or otherwise violates, or would, upon the commercialization of any product or service described in the Registration Statement, the Time of Sale Prospectus or the Prospectus as under development, infringe or violate, any patent, trademark, trade name, service name, copyright, trade secret or other proprietary rights of others. Other than as disclosed in the Registration Statement, the Time of Sale Prospectus and the Prospectus, neither the Company nor its subsidiaries is obligated to pay a material royalty, grant a license or option, or provide other material consideration to any third party in connection with the Company's Intellectual Property. Except as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect, the Company and its subsidiaries have complied with the terms of each agreement pursuant to which Intellectual Property has been licensed to the Company or any subsidiary, and all such agreements are in full force and effect. To the Company's knowledge, there are no material defects in any of the patents or patent applications owned by, co-owned by, or exclusively licensed to the Company or its subsidiaries. The Company and its subsidiaries have taken all reasonable steps to protect, maintain and safeguard their Intellectual Property, including the execution of appropriate nondisclosure, confidentiality agreements and invention assignment agreements and invention assignments with their employees, consultants or independent contractors, and, to the Company's knowledge, no employee, consultant, or independent contractor of the Company is in or has been in violation of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement, or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee's employment with the Company. To the Company's knowledge, all patents and patent applications owned by, co-owned by, or exclusively licensed to the Company or any of its affiliates or under which the Company or any of its affiliates has rights have are, to

the knowledge of the Company, being diligently maintained except as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. To the Company's knowledge, the duty of candor and good faith as required by the USPTO during the prosecution of the United States patents and patent applications included in the Intellectual Property have been complied with; and in all foreign offices having similar requirements, all such requirements have been complied with. To the Company's knowledge, none of the Company owned Intellectual Property or technology (including information technology and outsourced arrangements) employed by the Company or its subsidiaries has been obtained or is being used by the Company or its subsidiaries in violation of any contractual obligation binding on the Company or its subsidiaries or any of their respective officers, directors or employees or otherwise in violation of the rights of any persons. The product candidates described in the Registration Statement, the Time of Sale Prospectus and the Prospectus as under development by the Company or any subsidiary fall within the scope of the claims of one or more patents or patent applications owned by, or exclusively licensed to, the Company or any subsidiary.

(u) ***Regulatory Matters; Products and Product Candidates***. The Company: (i) has operated and currently operates its business in compliance in all material respects with applicable provisions of the Health Care Laws (as defined below); (ii) has not received any FDA Form 483, written notice of adverse finding, warning letter, untitled letter or other correspondence or written notice from any court or arbitrator or governmental or regulatory authority alleging or asserting non-compliance with (A) any Health Care Laws or (B) or any Permits (as hereinafter defined) required by any such Health Care Laws ("**Regulatory Authorizations**"); (iii) has possessed and possesses all Regulatory Authorizations required to conduct its business as currently conducted and such Regulatory Authorizations are valid and in full force and effect and the Company is not in violation, in any material respect, of any term of any such Regulatory Authorizations; (iv) has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from the Food and Drug Administration ("**FDA**"), the Department of Health and Human Services ("**HHS**") and any comparable foreign or other regulatory authority to which it is subject (collectively, the "**Applicable Regulatory Authorities**") or any other third party alleging that any product operation or activity is in material violation of any Health Care Laws or Regulatory Authorizations and has no knowledge that the Applicable Regulatory Authorities or any other third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (v) has not received notice that any of the Applicable Regulatory Authorities has taken, is taking or intends to take action to limit, suspend, modify or revoke any material Regulatory Authorizations and has no knowledge that any of the Applicable Regulatory Authorities is considering such action; (vi) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Health Care Laws or Regulatory Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were materially complete and correct on the date filed (or were materially corrected or supplemented by a subsequent submission); (vii) is not a party to or have any ongoing reporting obligations pursuant to any corporate integrity agreements, deferred prosecution agreements, monitoring agreements, consent decrees, settlement orders, plans of correction or similar agreements with or imposed by any Applicable Regulatory Authority; and (viii) along with its officers, directors, and, to the Company's knowledge, employees and agents, have not been excluded, suspended, debarred or is otherwise ineligible from participation in any government health care program or human clinical research or, to the knowledge of the Company, is subject to a governmental inquiry, investigation, proceeding, or other similar action that could reasonably be expected to result in debarment, suspension, exclusion or other ineligibility. The term "**Health Care Laws**" means Title XVIII of the Social Security Act, 42 U.S.C. §§ 1395-1395hhh (the Medicare statute); Title XIX of the Social Security Act, 42 U.S.C. §§ 1396-1396v (the Medicaid statute); the Federal Anti-Kickback Statute, 42 U.S.C. § 1320a-7b(b); the civil False Claims Act, 31 U.S.C. §§ 3729 et seq.; the criminal False Claims Act 42 U.S.C. 1320a-7b(a); any criminal laws relating to health care fraud and abuse, including but not limited to 18 U.S.C. Sections 286 and 287 and the health care fraud criminal provisions under the Health Insurance Portability and

Accountability Act of 1996, 42 U.S.C. §§ 1320d et seq., ("**HIPAA**"); the Civil Monetary Penalties Law, 42 U.S.C. §§ 1320a-7a; the Physician Payments Sunshine Act, 42 U.S.C. § 1320a-7h; the Exclusion Law, 42 U.S.C. § 1320a-7; HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, 42 U.S.C. §§ 17921 et seq.; the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 301 et seq.; the Public Health Service Act, 42 U.S.C. §§ 201 et seq.; the regulations promulgated pursuant to such laws; and any similar federal, state and local laws and regulations.

(v) ***Regulatory Matters: Clinical Trials***. The clinical and pre-clinical studies and trials conducted by or on behalf of or sponsored by the Company, or in which the Company has participated, with respect to the Company's product candidates, including any such studies and trials, that are described in, or the results of which are referred to in, the Registration Statement, the Time of Sale Prospectus and the Prospectus, as applicable (collectively, "**Company Trials**"), were, and if still pending are, being conducted in all material respects in accordance with all applicable Health Care Laws, including, without limitation, 21 C.F.R. Parts 50, 54, 56, 58, and 312; the descriptions in the Registration Statement, the Time of Sale Prospectus and the Prospectus of the results of any Company Trials are accurate and complete descriptions in all material respects and fairly present the data derived therefrom; the Company has no knowledge of any other studies or trials not described in the Registration Statement, the Time of Sale Prospectus and the Prospectus, the results of which are inconsistent with or call into question the results described or referred to in the Registration Statement, the Time of Sale Prospectus and the Prospectus; and the Company has not received any written notices, correspondence or other communications from the Applicable Regulatory Authorities or any other governmental entity requiring or threatening the termination, material modification or suspension of any Company Trials, other than ordinary course communications with respect to modifications in connection with the design and implementation of such studies or trials, and, to the Company's knowledge, there are no reasonable grounds for the same. No investigational new drug application or comparable submission filed by or on behalf of the Company with the FDA has been terminated or suspended by the FDA or any other Applicable Regulatory Authority.

(w) ***All Necessary Permits, etc*.** The Company and its subsidiaries possess such valid and current certificates, authorizations, exemptions, registrations, listings, clearances, approvals, consents or permits required by state, federal or foreign regulatory agencies or bodies to conduct their respective businesses as currently conducted and as described in the Registration Statement, the Time of Sale Prospectus or the Prospectus ("**Permits**"), except where the failure to so possess would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. Neither the Company nor any of its subsidiaries is in violation of, or in default under, any of the Permits or has received any notice of proceedings relating to the revocation or modification of, or non-compliance with, any such Permit, except as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(x) ***Title to Properties*.** Except as described in the Registration Statement, Time of Sale Prospectus and Prospectus, the Company and its subsidiaries have good and marketable title to all of the real and personal property and other assets reflected as owned in the financial statements referred to in Section 1(l) above (or elsewhere in the Registration Statement, the Time of Sale Prospectus or the Prospectus), in each case free and clear of any security interests, mortgages, liens, encumbrances, equities, adverse claims and other defects, except where the failure to so possess would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. The real property, improvements, equipment and personal property held under lease by the Company or any of its subsidiaries are held under valid and enforceable leases, with such exceptions as are not material and do not materially interfere with the use made or proposed to be made of such real property, improvements, equipment or personal property by the Company or such subsidiary.

(y) ***Tax Law Compliance*****.** The Company and its subsidiaries have filed all necessary federal, state and foreign income and franchise tax returns or have properly requested extensions thereof and have paid all taxes required to be paid by any of them and, if due and payable, any related or similar assessment, fine or penalty levied against any of them except as may be being contested in good faith and by appropriate proceedings and except where the failure to file or pay would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. The Company has made adequate charges, accruals and reserves in the applicable financial statements referred to in Section 1(k) above in respect of all federal, state and foreign income and franchise taxes for all periods as to which the tax liability of the Company or any of its subsidiaries has not been finally determined, except where the failure to make such adequate charge, accrual or reserve would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(z) ***Insurance*****.** Each of the Company and its subsidiaries are insured by recognized, financially sound and reputable institutions with policies in such amounts and with such deductibles and covering such risks as are generally deemed adequate and customary for their businesses including, but not limited to, policies covering real and personal property owned or leased by the Company and its subsidiaries against theft, damage, destruction, acts of vandalism and earthquakes and policies covering the Company and its subsidiaries for product liability claims and clinical trial liability claims. The Company has no reason to believe that it or any of its subsidiaries will not be able (i) to renew its existing insurance coverage as and when such policies expire or (ii) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not reasonably be expected to have a Material Adverse Effect. Neither the Company nor any of its subsidiaries has been denied any insurance coverage which it has sought or for which it has applied.

(aa) ***Compliance with Environmental Laws*****.** Except as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect: (i) neither the Company nor any of its subsidiaries is in violation of any applicable federal, state, local or foreign statute, law, rule, regulation, ordinance, code, policy or rule of common law or any judicial or administrative interpretation thereof, including any judicial or administrative order, consent, decree or judgment, relating to pollution or protection of human health, the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or wildlife, including, without limitation, laws and regulations relating to the release or threatened release of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum or petroleum products (collectively, "**Hazardous Materials**") or to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials (collectively, "**Environmental Laws**"); (ii) the Company and its subsidiaries have all permits, authorizations and approvals required under any applicable Environmental Laws and are each in compliance with their requirements; (iii) there are no pending or, to the Company's knowledge, threatened administrative, regulatory or judicial actions, suits, demands, demand letters, claims, liens, notices of noncompliance or violation, investigation or proceedings relating to any Environmental Law against the Company or any of its subsidiaries; and (iv) to the Company's knowledge, there are no events or circumstances that might reasonably be expected to form the basis of an order for clean-up or remediation, or an action, suit or proceeding by any private party or governmental body or agency, against or affecting the Company or any of its subsidiaries relating to Hazardous Materials or any Environmental Laws.

(bb) ***ERISA Compliance*****.** The Company and its subsidiaries and any "employee benefit plan" (as defined under the Employee Retirement Income Security Act of 1974, as amended, and the regulations and published interpretations thereunder (collectively, "**ERISA**")) established or maintained by the Company, its subsidiaries or their "ERISA Affiliates" (as defined below) are in compliance in all material respects with ERISA. "**ERISA Affiliate**" means, with respect to the Company or any of its subsidiaries, any member of any group of organizations described in Sections 414(b), (c), (m) or (o) of the Internal

Revenue Code of 1986, as amended, and the regulations and published interpretations thereunder (the "**Code**") of which the Company or such subsidiary is a member. No "reportable event" (as defined under ERISA) has occurred or is reasonably expected to occur with respect to any "employee benefit plan" established or maintained by the Company, its subsidiaries or any of their ERISA Affiliates. No "employee benefit plan" established or maintained by the Company, its subsidiaries or any of their ERISA Affiliates, if such "employee benefit plan" were terminated, would have any "amount of unfunded benefit liabilities" (as defined under ERISA). Neither the Company, its subsidiaries nor any of their ERISA Affiliates has incurred or reasonably expects to incur any liability under (i) Title IV of ERISA with respect to termination of, or withdrawal from, any "employee benefit plan" or (ii) Sections 412, 4971, 4975 or 4980B of the Code. Each employee benefit plan established or maintained by the Company, its subsidiaries or any of their ERISA Affiliates that is intended to be qualified under Section 401(a) of the Code is so qualified and, to the Company's knowledge, nothing has occurred, whether by action or failure to act, which would cause the loss of such qualification.

(cc) ***Company Not an "Investment Company."*** The Company is not, and will not be, either after receipt of payment for the Offered Shares or after the application of the proceeds therefrom as described under "Use of Proceeds" in the Registration Statement, the Time of Sale Prospectus or the Prospectus, required to register as an "investment company" under the Investment Company Act of 1940, as amended (the **"Investment Company Act")**.

(dd) ***No Price Stabilization or Manipulation; Compliance with Regulation M*****.** Neither the Company nor any of its subsidiaries has taken, directly or indirectly, and excluding any activities by the Underwriters, any action designed to or that would reasonably be expected to cause or result in stabilization or manipulation of the price of the Shares or of any "reference security" (as defined in Rule 100 of Regulation M under the Exchange Act (**"Regulation M"**)) with respect to the Shares, whether to facilitate the sale or resale of the Offered Shares or otherwise, and has taken no action which would directly or indirectly violate Regulation M.

(ee) ***Related-Party Transactions*****.** There are no business relationships or related-party transactions involving the Company or any of its subsidiaries or any other person required to be described in the Registration Statement, the Time of Sale Prospectus or the Prospectus that have not been described as required.

(ff) ***FINRA Matters*****.** All of the information provided to the Underwriters or to counsel for the Underwriters by the Company, its counsel, its officers and directors, and to the Company's knowledge, the holders of any securities (debt or equity) or options to acquire any securities of the Company in connection with the offering of the Offered Shares is true, complete and correct in all material respects and compliant with FINRA's rules and any letters, filings or other supplemental information provided to FINRA pursuant to FINRA Rules or NASD Conduct Rules is true, complete and correct in all material respects.

(gg) ***Parties to Lock-Up Agreements*****.** The Company has furnished to the Underwriters a letter agreement in the form attached hereto as Exhibit A (the "**Lock-up Agreement**") from each of its officers (as defined in Rule 16a-1(f) under the Exchange Act), directors and security holders. If any additional persons shall become directors or officers of the Company prior to the end of the Company Lock-up Period (as defined below), the Company shall cause each such person, prior to or contemporaneously with their appointment or election as a director or officer of the Company, to execute and deliver to the Representatives a Lock-up Agreement.

(hh) ***Statistical and Market-Related Data*****.** All statistical, demographic and market-related data included in the Registration Statement, the Time of Sale Prospectus or the Prospectus are based on or derived from sources that the Company believes, after reasonable inquiry, to be reliable and accurate in all material respects. To the extent required, the Company has obtained the written consent to the use of such data from such sources.

(ii) ***No Unlawful Contributions or Other Payments.*** Neither the Company nor any of its subsidiaries nor, to the Company's knowledge, any employee or agent of the Company or any subsidiary, has made any contribution or other payment to any official of, or candidate for, any federal, state or foreign office in violation of any law or of the character required to be disclosed in the Registration Statement, the Time of Sale Prospectus or the Prospectus.

(jj) ***Foreign Corrupt Practices Act.*** Neither the Company nor any of its subsidiaries nor any director, officer, or employee of the Company or any of its subsidiaries, nor to the knowledge of the Company, any agent, affiliate or other person acting on behalf of the Company or any of its subsidiaries has, in the course of its actions for, or on behalf of, the Company or any of its subsidiaries (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expenses relating to political activity; (ii) made or taken any act in furtherance of an offer, promise, or authorization of any direct or indirect unlawful payment or benefit to any foreign or domestic government official or employee, including of any government-owned or controlled entity or public international organization, or any political party, party official, or candidate for political office, or "foreign official" (as defined in the U.S. Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (collectively, the "**FCPA**")) from corporate funds; (iii) violated or is in violation of any applicable provision of the FCPA or any applicable non-U.S. anti-bribery or anti-corruption statute or regulation; or (iv) made, offered, authorized, requested, or taken an act in furtherance of any unlawful bribe, rebate, payoff, influence payment, kickback or other unlawful payment or benefit. The Company and its subsidiaries and, to the knowledge of the Company, the Company's affiliates have conducted their respective businesses in compliance with the FCPA and have instituted and maintain policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith.

(kk) ***Money Laundering Laws.*** The operations of the Company and its subsidiaries are, and have been conducted at all times, in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar applicable rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "**Money Laundering Laws**") and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(ll) ***Sanctions.*** Neither the Company nor any of its subsidiaries, any director, officer, employee, nor to the knowledge of the Company, any agent, affiliate or other person acting on behalf of the Company or any of its subsidiaries is currently the subject or the target of any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury ("**OFAC**") or the U.S. Department of State, the United Nations Security Council, the European Union, Her Majesty's Treasury of the United Kingdom, or other relevant sanctions authority (collectively, "**Sanctions**"); nor is the Company or any of its subsidiaries located, organized or resident in a country or territory that is the subject or the target of comprehensive Sanctions, including, without limitation, Crimea, Cuba, Iran, North Korea, and Syria ("**Sanctioned Countries**"); and the Company will not directly or indirectly use the proceeds of this offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, or any joint venture partner or other person or entity, for the purpose of financing the activities of or business with any person that at the time of such financing, is the subject or the target of Sanctions or with any Sanctioned Country or in any other manner that will result in a violation by any person (including any person participating in the transaction whether as underwriter, advisor, investor or otherwise) of applicable Sanctions. Since incorporation, the Company and its subsidiaries have not engaged in and are not now engaged in any dealings or transactions with any person that, at the time of the dealing or transaction, is or was the subject or the target of Sanctions or with any Sanctioned Country.

(mm) ***Brokers.*** Except pursuant to this Agreement, there is no broker, finder or other party that is entitled to receive from the Company any brokerage or finder's fee or other fee or commission as a result of any transactions contemplated by this Agreement.

(nn) ***Forward-Looking Statements.*** Each financial or operational projection or other "forward-looking statement" (as defined by Section 27A of the Securities Act or Section 21E of the Exchange Act) contained in the Registration Statement, the Time of Sale Prospectus or the Prospectus (i) was so included by the Company in good faith and with reasonable basis after due consideration by the Company of the underlying assumptions, estimates and other applicable facts and circumstances and (ii) is accompanied by meaningful cautionary statements identifying those factors that could cause actual results to differ materially from those in such forward-looking statement. No such statement, at the time that it was made, was made with the knowledge of an executive officer or director of the Company that it was false or misleading.

(oo) ***No Outstanding Loans or Other Extensions of Credit***. The Company does not have any outstanding extension of credit, in the form of a personal loan, to or for any director or executive officer (or equivalent thereof) of the Company except for such extensions of credit as are expressly permitted by Section 13(k) of the Exchange Act.

(pp) ***Cybersecurity***. The Company and its subsidiaries' information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications, and databases (collectively, "**IT Systems**") are adequate for, and operate and perform in all material respects as required in connection with the operation of the business of the Company and its subsidiaries as currently conducted. The IT Systems that are critical to the operation of the Company's business are free and clear of all material bugs, errors, defects, and, to the knowledge of the Company, are free and clear of all Trojan horses, time bombs, malware and other corruptants. The Company and its subsidiaries have implemented and maintained commercially reasonable policies, procedures and safeguards to maintain and protect: (a) their material confidential information; (b) the integrity and security of all IT Systems and the continuous operation and redundancy of those IT Systems that are critical to the operation of the Company's business; and (c) "Personal Data" used in connection with their businesses. "**Personal Data**" means (i) a natural person's name, street address, telephone number, e-mail address, photograph, social security number or tax identification number, driver's license number, passport number, credit card number, bank information, or customer or account number; (ii) any information which would qualify as "personally identifying information" under the Federal Trade Commission Act, as amended; (iii) "personal data" as defined by the European Union General Data Protection Regulation, to the extent the Company is required to comply with such regulation; (iv) "any information which would qualify as "protected health information" under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act (collectively, "**HIPAA"**); and (v) any other piece of information that allows the identification of such natural person, or his or her family, or permits the collection or analysis of any data related to an identified person's health or sexual orientation. To the Company's knowledge, there have been no material breaches, outages or unauthorized uses of or accesses to the Company's IT Systems and no material unauthorized uses or accesses to Personal Data, except for those that have been remedied without material cost or liability or the duty to notify any other person, nor any incidents under internal review or investigations relating to the same that would reasonably be expected to result in an obligation to notify a person or result in a Material Adverse Change. The Company and its subsidiaries are presently in material compliance with all applicable laws or statutes and all judgments and orders binding on Company, applicable binding rules and regulations of any court or arbitrator or governmental or regulatory authority, and internal policies and contractual obligations, each relating to the privacy and security of IT Systems and Personal Data and to the protection of such IT Systems and Personal Data from unauthorized use, access, misappropriation or modification.

(qq) ***Compliance with Data Privacy Laws***. The Company and its subsidiaries are, and at all prior times within the past three (3) years were, in material compliance with all applicable state and federal data privacy and security laws and regulations, including without limitation HIPAA (collectively, the "**Privacy Laws**"). The Company and its subsidiaries materially comply with their policies and procedures relating to data privacy and security and the collection, storage, use, disclosure, handling, and analysis of Personal Data (the "**Policies**"). The Company and its subsidiaries have at all times made all disclosures to users or customers required by applicable laws and regulatory rules or requirements, and none of such disclosures made or contained in any Policy have, to the knowledge of the Company, been inaccurate or in violation of any applicable laws and regulatory rules or requirements in any material respect. The Company further represents that neither it nor any subsidiary: (i) has received written notice of any actual or potential liability under, or actual or potential violation of, any of the Privacy Laws, and has no knowledge of any event or condition that would reasonably be expected to result in any such notice; (ii) is currently conducting or paying for, in whole or in part, any investigation, remediation, or other corrective action pursuant to any Privacy Law; or (iii) is a party to any order, decree, or agreement with a governmental authority that imposes any obligation or liability under any Privacy Law.

(rr) ***Emerging Growth Company Status***. From the time of initial confidential submission of the Registration Statement to the Commission (or, if earlier, the first date on which the Company engaged in any Section 5(d) Written Communication or any Section 5(d) Oral Communication) through the date hereof, the Company has been and is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "**Emerging Growth Company**").

(ss) ***Communications***. Except as disclosed to the Representatives, the Company (i) has not alone engaged in communications with potential investors in reliance on Section 5(d) of the Securities Act other than Permitted Section 5(d) Communications or Section 5(d) Oral Communications with the consent of the Representatives with entities that are QIBs or IAIs and (ii) has not authorized anyone other than the Representatives to engage in such communications; the Company reconfirms that the Representatives have been authorized to act on its behalf in undertaking Marketing Materials, Section 5(d) Oral Communications and Section 5(d) Written Communications; as of the Applicable Time, each Permitted Section 5(d) Communication, when considered together with the Time of Sale Prospectus, did not, as of the Applicable Time, include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; each Permitted Section 5(d) Communication, if any, does not, as of the date hereof, conflict with the information contained in the Registration Statement, the Preliminary Prospectus and the Prospectus; and the Company has filed publicly on EDGAR at least 15 calendar days prior to any "road show" (as defined in Rule 433 under the Securities Act), any confidentially submitted registration statement and registration statement amendments relating to the offer and sale of the Offered Shares.

(tt) ***No Rights to Purchase Preferred Stock.*** The issuance and sale of the Shares as contemplated hereby will not cause any holder of any shares of capital stock, securities convertible into or exchangeable or exercisable for capital stock or options, warrants or other rights to purchase capital stock or any other securities of the Company to have any right to acquire any shares of preferred stock of the Company.

(uu) ***No Contract Terminations.*** Neither the Company nor any of its subsidiaries has sent or received any communication regarding termination of, or intent not to renew, any of the contracts or agreements referred to or described in any preliminary prospectus, the Prospectus or any free writing prospectus, or referred to or described in, or filed as an exhibit to, the Registration Statement, and no such termination or non-renewal has been threatened by the Company or any of its subsidiaries or, to the Company's knowledge, any other party to any such contract or agreement, which threat of termination or non-renewal has not been rescinded as of the date hereof.

(vv) ***No Indebtedness.*** Except as otherwise disclosed in the Registration Statement, the Time of Sale Prospectus and the Prospectus, the Company has no outstanding indebtedness for borrowed money.

(ww) ***Dividend Restrictions.*** No subsidiary of the Company is prohibited or restricted, directly or indirectly, from paying dividends to the Company, or from making any other distribution with respect to such subsidiary's equity securities or from repaying to the Company or any other subsidiary of the Company any amounts that may from time to time become due under any loans or advances to such subsidiary from the Company or from transferring any property or assets to the Company or to any other subsidiary.

Any certificate signed by any officer of the Company or any of its subsidiaries and delivered to any Underwriter or to counsel for the Underwriters in connection with the offering, or the purchase and sale, of the Offered Shares shall be deemed a representation and warranty by the Company to each Underwriter as to the matters covered thereby.

The Company has a reasonable basis for making each of the representations set forth in this Section 1. The Company acknowledges that the Underwriters and, for purposes of the opinions to be delivered pursuant to Section 6 hereof, counsel to the Company and counsel to the Underwriters, will rely upon the accuracy and truthfulness of the foregoing representations and hereby consents to such reliance.

Section 2. Purchase, Sale and Delivery of the Offered Shares.

(a) ***The Firm Shares.*** Upon the terms herein set forth, the Company agrees to issue and sell to the several Underwriters an aggregate of [ ] Firm Shares. On the basis of the representations, warranties and agreements herein contained, and upon the terms but subject to the conditions herein set forth, the Underwriters agree, severally and not jointly, to purchase from the Company the respective number of Firm Shares set forth opposite their names on Schedule A. The purchase price per Firm Share to be paid by the several Underwriters to the Company shall be $[ ] per share.

(b) ***The First Closing Date*****.** Delivery of the Firm Shares to be purchased by the Underwriters and payment therefor shall be made at the offices of Latham & Watkins LLP, 885 3rd Avenue, New York, New York, 10022 (or such other place as may be agreed to by the Company and the Representatives) at [ ] New York City time, on [ ]**,** 2020 or such other time and date not later than [ ] New York City time, on [ ], 2020 as the Representatives shall designate by notice to the Company (the time and date of such closing are called the "**First Closing Date**"). The Company hereby acknowledges that circumstances under which the Representatives may provide notice to postpone the First Closing Date as originally scheduled include, but are not limited to, any determination by the Company or the Representatives to recirculate to the public copies of an amended or supplemented Prospectus or a delay as contemplated by the provisions of Section 11.

(c) ***The Optional Shares; Option Closing Date*****.** In addition, on the basis of the representations, warranties and agreements herein contained, and upon the terms but subject to the conditions herein set forth, the Company hereby grants an option to the several Underwriters to purchase, severally and not jointly, up to an aggregate of [ ] Optional Shares from the Company at the purchase price per share to be paid by the Underwriters for the Firm Shares. The option granted hereunder may be exercised at any time and from time to time in whole or in part upon notice by the Representatives to the

Company, which notice may be given at any time within 30 days from the date of this Agreement. Such notice shall set forth (i) the aggregate number of Optional Shares as to which the Underwriters are exercising the option and (ii) the time, date and place at which the Optional Shares will be delivered (which time and date may be simultaneous with, but not earlier than, the First Closing Date; and in the event that such time and date are simultaneous with the First Closing Date, the term "**First Closing Date**" shall refer to the time and date of delivery for the Firm Shares and such Optional Shares). Any such time and date of delivery, if subsequent to the First Closing Date, is called an "**Option Closing Date**," and shall be determined by the Representatives and shall not be earlier than two or later than five full business days after delivery of such notice of exercise. If any Optional Shares are to be purchased, (a) each Underwriter agrees, severally and not jointly, to purchase the number of Optional Shares (subject to such adjustments to eliminate fractional shares as the Representatives may determine) that bears the same proportion to the total number of Optional Shares to be purchased as the number of Firm Shares set forth on Schedule A opposite the name of such Underwriter bears to the total number of Firm Shares and (b) the Company agrees to sell the number of Optional Shares which the Underwriters have agreed to purchase, up to the number of Optional Shares set forth in the "Introductory" paragraph of this Agreement (subject to such adjustments to eliminate fractional shares as the Representatives may determine). The Representatives may cancel the option at any time prior to its expiration by giving written notice of such cancellation to the Company.

(d) ***Public Offering of the Offered Shares*****.** The Representatives hereby advise the Company that the Underwriters intend to offer for sale to the public, initially on the terms set forth in the Registration Statement, the Time of Sale Prospectus and the Prospectus, their respective portions of the Offered Shares as soon after this Agreement has been executed and the Registration Statement has been declared effective as the Representatives, in their sole judgment, have determined is advisable and practicable.

(e) ***Payment for the Offered Shares*****.** (i) Payment for the Firm Shares shall be made at the First Closing Date (and, if applicable, payment for the Optional Shares shall be made at the First Closing Date or at the applicable Option Closing Date, as the case may be) by wire transfer of immediately available funds to the order of the Company.

(ii) It is understood that the Representatives have been authorized, for their own account and the accounts of the several Underwriters, to accept delivery of and receipt for, and make payment of the purchase price for, the Firm Shares and any Optional Shares the Underwriters have agreed to purchase. Each of the Representatives, individually and not as the Representatives of the Underwriters, may (but shall not be obligated to) make payment for any Offered Shares to be purchased by any Underwriter whose funds shall not have been received by the Representatives by the First Closing Date or the applicable Option Closing Date, as the case may be, for the account of such Underwriter, but any such payment shall not relieve such Underwriter from any of its obligations under this Agreement.

(f) ***Delivery of the Offered Shares*****.** The Company shall deliver, or cause to be delivered to the Representatives for the accounts of the several Underwriters the Firm Shares at the First Closing Date, against release of a wire transfer of immediately available funds for the amount of the purchase price therefor. The Company shall also deliver, or cause to be delivered to the Representatives for the accounts of the several Underwriters, the Optional Shares the Underwriters have agreed to purchase at the First Closing Date or the applicable Option Closing Date, as the case may be, against the release of a wire transfer of immediately available funds for the amount of the purchase price therefor. If the Representatives so elect, delivery of the Offered Shares may be made by credit to the accounts designated by the Representatives through The Depository Trust Company's full fast transfer or Deposit/Withdrawal At Custodian ("**DWAC**") programs. If the Representatives so elect, the Offered Shares shall be registered in such names and denominations as the Representatives shall have requested at least two full business days prior to the First Closing Date (or the applicable Option Closing Date, as the case may be) and shall

be made available for inspection on the business day preceding the First Closing Date (or the applicable Option Closing Date, as the case may be) at a location in New York City as the Representatives may designate. Time shall be of the essence, and delivery at the time and place specified in this Agreement is a further condition to the obligations of the Underwriters.

Section 3. Additional Covenants of the Company.

The Company further covenants and agrees with each Underwriter as follows:

(a) ***Delivery of Registration Statement, Time of Sale Prospectus and Prospectus.*** The Company shall furnish to you in New York City, without charge, prior to 10:00 a.m. New York City time on the second business day following the date of this Agreement and during the period when a prospectus relating to the Offered Shares is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) in connection with sales of the Offered Shares, as many copies of the Time of Sale Prospectus, the Prospectus and any supplements and amendments thereto or to the Registration Statement as you may reasonably request.

(b) ***Representatives' Review of Proposed Amendments and Supplements.*** During the period when a prospectus relating to the Offered Shares is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule), the Company (i) will furnish to the Representatives for review, a reasonable period of time prior to the proposed time of filing of any proposed amendment or supplement to the Registration Statement, a copy of each such amendment or supplement and (ii) will not amend or supplement the Registration Statement without the Representatives' prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. Prior to amending or supplementing any preliminary prospectus, the Time of Sale Prospectus or the Prospectus, the Company shall furnish to the Representatives for review, a reasonable amount of time prior to the time of filing or use of the proposed amendment or supplement, a copy of each such proposed amendment or supplement. The Company shall not file or use any such proposed amendment or supplement without the Representatives' prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. The Company shall file with the Commission within the applicable period specified in Rule 424(b) under the Securities Act any prospectus required to be filed pursuant to such Rule.

(c) ***Free Writing Prospectuses.*** The Company shall furnish to the Representatives for review, a reasonable amount of time prior to the proposed time of filing or use thereof, a copy of each proposed free writing prospectus or any amendment or supplement thereto prepared by or on behalf of, used by, or referred to by the Company, and the Company shall not file, use or refer to any proposed free writing prospectus or any amendment or supplement thereto without the Representatives' prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. The Company shall furnish to each Underwriter, without charge, as many copies of any free writing prospectus prepared by or on behalf of, used by or referred to by the Company as such Underwriter may reasonably request. If at any time when a prospectus is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) in connection with sales of the Offered Shares (but in any event if at any time through and including the First Closing Date) there occurred or occurs an event or development as a result of which any free writing prospectus prepared by or on behalf of, used by, or referred to by the Company conflicted or would conflict with the information contained in the Registration Statement or included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances prevailing at such time, not misleading, the Company shall promptly amend or supplement such free writing prospectus to eliminate or correct such conflict or so that the statements in such free writing prospectus as so amended or supplemented will not include an untrue statement of a

material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances prevailing at such time, not misleading, as the case may be; *provided*, *however*, that prior to amending or supplementing any such free writing prospectus, the Company shall furnish to the Representatives for review, a reasonable amount of time prior to the proposed time of filing or use thereof, a copy of such proposed amended or supplemented free writing prospectus, and the Company shall not file, use or refer to any such amended or supplemented free writing prospectus without the Representatives' prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

(d) ***Filing of Underwriter Free Writing Prospectuses.*** The Company shall not take any action that would result in an Underwriter or the Company being required to file with the Commission pursuant to Rule 433(d) under the Securities Act a free writing prospectus prepared by or on behalf of such Underwriter that such Underwriter otherwise would not have been required to file thereunder.

(e) ***Amendments and Supplements to Time of Sale Prospectus.*** If the Time of Sale Prospectus is being used to solicit offers to buy the Offered Shares at a time when the Prospectus is not yet available to prospective purchasers, and any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Time of Sale Prospectus so that the Time of Sale Prospectus does not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances when delivered to a prospective purchaser, not misleading, or if any event shall occur or condition exist as a result of which the Time of Sale Prospectus conflicts with the information contained in the Registration Statement, or if, in the opinion of counsel for the Underwriters, it is necessary to amend or supplement the Time of Sale Prospectus to comply with applicable law, including the Securities Act, the Company shall (subject to Section 3(b) and Section 3(c) hereof) promptly prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to any dealer upon request, either amendments or supplements to the Time of Sale Prospectus so that the statements in the Time of Sale Prospectus as so amended or supplemented will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances when delivered to a prospective purchaser, not misleading or so that the Time of Sale Prospectus, as amended or supplemented, will no longer conflict with the information contained in the Registration Statement, or so that the Time of Sale Prospectus, as amended or supplemented, will comply with applicable law, including the Securities Act.

(f) ***Certain Notifications and Required Actions*****.** After the date of this Agreement, the Company shall promptly advise the Representatives in writing of: (i) the receipt of any comments of, or requests for additional or supplemental information from, the Commission relating to the Registration Statement received by the Company; (ii) the time and date of any filing of any post-effective amendment to the Registration Statement or any amendment or supplement to any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus or the Prospectus; (iii) the time and date that any post-effective amendment to the Registration Statement becomes effective; and (iv) the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto or any amendment or supplement to any preliminary prospectus, the Time of Sale Prospectus or the Prospectus or of any order preventing or suspending the use of any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus or the Prospectus, or of any proceedings to remove, suspend or terminate from listing or quotation the Shares from any securities exchange upon which they are listed for trading or included or designated for quotation, or of the threatening or initiation of any proceedings for any of such purposes. If the Commission shall enter any such stop order at any time, the Company will use its best efforts to obtain the lifting of such order as soon as practicable. Additionally, the Company agrees that it shall comply with all applicable provisions of Rule 424(b), Rule 433 and Rule 430A under the Securities Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b) or Rule 433 were received in a timely manner by the Commission.

(g) ***Amendments and Supplements to the Prospectus and Other Securities Act Matters.*** If any event shall occur or condition exist as a result of which it is necessary to amend or supplement the Prospectus so that the Prospectus does not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances when the Prospectus is delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) to a purchaser, not misleading, or if in the opinion of the Representatives or counsel for the Underwriters it is otherwise necessary to amend or supplement the Prospectus to comply with applicable law, the Company agrees (subject to Section 3(b) and Section 3(c) hereof) to promptly prepare, file with the Commission and furnish, at its own expense, to the Underwriters and to any dealer upon request, amendments or supplements to the Prospectus so that the statements in the Prospectus as so amended or supplemented will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances when the Prospectus is delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) to a purchaser, not misleading or so that the Prospectus, as amended or supplemented, will comply with applicable law. Neither the Representatives' consent to, nor delivery of, any such amendment or supplement shall constitute a waiver of any of the Company's obligations under Section 3(b) or Section 3(c).

(h) ***Blue Sky Compliance*****.** The Company shall cooperate with the Representatives and counsel for the Underwriters to qualify or register the Offered Shares for sale under (or obtain exemptions from the application of) the state securities or blue sky laws or Canadian provincial securities laws (or other foreign laws) of those jurisdictions designated by the Representatives, shall comply with such laws and shall continue such qualifications, registrations and exemptions in effect so long as required for the distribution of the Offered Shares. The Company shall not be required to qualify as a foreign corporation or to take any action that would subject it to general service of process in any such jurisdiction where it is not presently qualified or where it would be subject to taxation as a foreign corporation. The Company will advise the Representatives promptly of the suspension of the qualification or registration of (or any such exemption relating to) the Offered Shares for offering, sale or trading in any jurisdiction or any initiation or threat of any proceeding for any such purpose, and in the event of the issuance of any order suspending such qualification, registration or exemption, the Company shall use its best efforts to obtain the withdrawal thereof as soon as practicable.

(i) ***Use of Proceeds*****.** The Company intends to apply the net proceeds from the sale of the Offered Shares sold by it in the manner described under the caption "Use of Proceeds" in the Registration Statement, the Time of Sale Prospectus and the Prospectus.

(j) ***Transfer Agent.*** The Company shall engage and maintain, at its expense, a registrar and transfer agent for the Shares.

(k) ***Earnings Statement.*** The Company will make generally available to its security holders and to the Representatives as soon as practicable an earnings statement (which need not be audited) covering a period of at least twelve months beginning with the first fiscal quarter of the Company commencing after the date of this Agreement that will satisfy the provisions of Section 11(a) of the Securities Act and the rules and regulations of the Commission thereunder.

(l) ***Continued Compliance with Securities Laws*****.** The Company will comply with the Securities Act and the Exchange Act so as to permit the completion of the distribution of the Offered Shares as contemplated by this Agreement**,** the Registration Statement, the Time of Sale Prospectus and the Prospectus. Without limiting the generality of the foregoing, the Company will, during the period when a prospectus relating to the Offered Shares is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule), file on a timely basis with the Commission and the Nasdaq all reports and documents required to be filed under the Exchange Act. Additionally, the Company shall report the use of proceeds from the issuance of the Offered Shares as may be required under Rule 463 under the Securities Act.

(m) ***Listing*****.** The Company will use its best efforts to list, subject to notice of issuance, the Offered Shares on the Nasdaq.

(n) ***Company to Provide Copy of the Prospectus in Form That May be Downloaded from the Internet.*** If requested by the Representatives, the Company shall cause to be prepared and delivered, at its expense, within one business day from the effective date of this Agreement, to the Representatives an "electronic prospectus" to be used by the Underwriters in connection with the offering and sale of the Offered Shares. As used herein, the term "electronic Prospectus" means a form of Time of Sale Prospectus, and any amendment or supplement thereto, that meets each of the following conditions: (i) it shall be encoded in an electronic format, satisfactory to the Representatives, that may be transmitted electronically by the Representatives and the other Underwriters to offerees and purchasers of the Offered Shares; (ii) it shall disclose the same information as the paper Time of Sale Prospectus, except to the extent that graphic and image material cannot be disseminated electronically, in which case such graphic and image material shall be replaced in the electronic Prospectus with a fair and accurate narrative description or tabular representation of such material, as appropriate; and (iii) it shall be in or convertible into a paper format or an electronic format, satisfactory to the Representatives, that will allow investors to store and have continuously ready access to the Time of Sale Prospectus at any future time, without charge to investors (other than any fee charged for subscription to the Internet as a whole and for on-line time). The Company hereby confirms that it has included or will include in the Prospectus filed pursuant to EDGAR or otherwise with the Commission and in the Registration Statement at the time it was declared effective an undertaking that, upon receipt of a request by an investor or his or her representative, the Company shall transmit or cause to be transmitted promptly, without charge, a paper copy of the Time of Sale Prospectus.

(o) ***Agreement Not to Offer or Sell Additional Shares*****.** During the period commencing on and including the date hereof and continuing through and including the 180th day following the date of the Prospectus (such period being referred to herein as the "**Lock-up Period**"), the Company will not, without the prior written consent of the Representatives (which consent may be withheld in their sole discretion), directly or indirectly: (i) sell, offer to sell, contract to sell or lend any Shares or Related Securities (as defined below); (ii) effect any short sale, or establish or increase any "put equivalent position" (as defined in Rule 16a-1(h) under the Exchange Act) or liquidate or decrease any "call equivalent position" (as defined in Rule 16a-1(b) under the Exchange Act) of any Shares or Related Securities; (iii) pledge, hypothecate or grant any security interest in any Shares or Related Securities; (iv) in any other way transfer or dispose of any Shares or Related Securities; (v) enter into any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of any Shares or Related Securities, regardless of whether any such transaction is to be settled in securities, in cash or otherwise; (vi) announce the offering of any Shares or Related Securities; (vii) submit or file any registration statement under the Securities Act in respect of any Shares or Related Securities (other than as contemplated by this Agreement with respect to the Offered Shares); (viii) effect a reverse stock split, recapitalization or share consolidation; or (ix) publicly announce the intention to do any of the foregoing; *provided, however*, that the Company may (A) effect the transactions contemplated hereby, (B) issue Shares or options to purchase Shares, or issue Shares upon exercise of options, pursuant to any stock option, stock bonus or other stock plan or arrangement described in the Registration Statement, the Time of Sale Prospectus and the Prospectus, *provided*, that the recipients thereof provide to the Representatives

a signed Lock-up Agreement, (C) file one or more registration statements on Form S-8, (D) offer, issue and sell Shares or Related Securities in connection with any merger, acquisition or strategic investment (including any joint venture, strategic alliance or partnership), *provided*, that the aggregate number of Shares or Related Securities that the Company may issue or agree to issue pursuant to this clause (D) shall not exceed 5.0% of the total outstanding capital stock of the Company immediately following the issuance of the Offered Shares, and *provided further*, that the recipients thereof provide to the Representatives a signed Lock-up Agreement. For purposes of the foregoing, "**Related Securities**" shall mean any options or warrants or other rights to acquire Shares or any securities exchangeable or exercisable for or convertible into Shares, or to acquire other securities or rights ultimately exchangeable or exercisable for, or convertible into, Shares.

(p) ***Future Reports to the Representatives.*** During the period of five years hereafter, the Company will furnish to the Representatives, c/o Jefferies, at 520 Madison Avenue, New York, New York 10022, Attention: Global Head of Syndicate, c/o SVB Leerink, at One Federal Street, 37th Floor, Boston, Massachusetts 02110, Attention: John I. Fitzgerald, Esq., c/o Piper Sandler & Co., at 345 Park Avenue, Suite 1200, New York, New York 10154, Attention: General Counsel: (i) as soon as practicable after the end of each fiscal year, copies of the Annual Report of the Company containing the balance sheet of the Company as of the close of such fiscal year and statements of income, stockholders' equity and cash flows for the year then ended and the opinion thereon of the Company's independent public or certified public accountants; (ii) as soon as practicable after the filing thereof, copies of each proxy statement, Annual Report on Form 10-K, Quarterly Report on Form 10-Q, Current Report on Form 8-K or other report filed by the Company with the Commission or any securities exchange; and (iii) as soon as available, copies of any report or communication of the Company furnished or made available generally to holders of its capital stock; *provided, however,* that the requirements of this Section 3(q) shall be satisfied to the extent that such reports, statement, communications, financial statements or other documents are available on EDGAR.

(q) ***Investment Limitation.*** The Company shall not invest or otherwise use the proceeds received by the Company from its sale of the Offered Shares in such a manner as would require the Company or any of its subsidiaries to register as an investment company under the Investment Company Act.

(r) ***No Stabilization or Manipulation; Compliance with Regulation M.*** The Company will not take, and will ensure that no affiliate of the Company will take, directly or indirectly, any action designed to or that might reasonably be expected to cause or result in stabilization or manipulation of the price of the Shares or any reference security with respect to the Shares, whether to facilitate the sale or resale of the Offered Shares or otherwise, and the Company will, and shall cause each of its affiliates to, comply with all applicable provisions of Regulation M.

(s) ***Enforce Lock-Up Agreements.*** During the Lock-up Period, the Company will enforce all agreements between the Company and any of its security holders that restrict or prohibit, expressly or in operation, the offer, sale or transfer of Shares or Related Securities or any of the other actions restricted or prohibited under the terms of the form of Lock-up Agreement. In addition, the Company will direct the transfer agent to place stop transfer restrictions upon any such securities of the Company that are bound by such "lock-up" agreements for the duration of the periods contemplated in such agreements, including, without limitation, Lock-up Agreements entered into by the Company's officers and directors and security holders pursuant to Section 6(l) hereof.

(t) ***Company to Provide Interim Financial Statements*****.** Prior to the First Closing Date and each applicable Option Closing Date, the Company will furnish the Underwriters, as soon as reasonably practicable, a copy of any unaudited interim financial statements of the Company for any period subsequent to the period covered by the most recent financial statements appearing in the Registration Statement and the Prospectus; *provided, however*, that the requirements of this Section 3(u) shall be deemed satisfied to the extent such financial statements are available on EDGAR.

(u) ***Amendments and Supplements to Permitted Section 5(d) Communications***. If at any time following the distribution of any Permitted Section 5(d) Communication, during the period when a prospectus relating to the Offered Shares is required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule), there occurred or occurs an event or development as a result of which such Permitted Section 5(d) Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representatives and, upon the reasonable request of the Representatives, will promptly amend or supplement, at its own expense, such Permitted Section 5(d) Communication to eliminate or correct such untrue statement or omission.

(v) ***Emerging Growth Company Status***. The Company will promptly notify the Representatives if the Company ceases to be an Emerging Growth Company at any time prior to the later of (i) the time when a prospectus relating to the Offered Shares is not required by the Securities Act to be delivered (whether physically or through compliance with Rule 172 under the Securities Act or any similar rule) and (ii) the expiration of the Lock-Up Period (as defined herein).

(w) ***Announcement Regarding Lock-ups*****.** The Company agrees to announce the Underwriters' intention to release any director or "officer" (within the meaning of Rule 16a-1(f) under the Exchange Act) of the Company from any of the restrictions imposed by any Lock-Up Agreement, by issuing, through a major news service, a press release in form and substance satisfactory to the Representatives or, if consented to by the Representatives, in a registration statement that is publicly filed in connection with a secondary offering of the Company's shares promptly following the Company's receipt of any notification from the Representatives in which such intention is indicated, but in any case not later than the close of the third business day prior to the date on which such release or waiver is to become effective; *provided, however*, that nothing shall prevent the Representatives, on behalf of the Underwriters, from announcing the same through a major news service, irrespective of whether the Company has made the required announcement; and *provided, further,* that no such announcement shall be made of any release or waiver granted solely to permit a transfer of securities that is not for consideration and where the transferee has agreed in writing to be bound by the terms of a Lock-Up Agreement in the form set forth as Exhibit A hereto.

The Representatives, on behalf of the several Underwriters, may, in their sole discretion, waive in writing the performance by the Company of any one or more of the foregoing covenants or extend the time for their performance.

Section 4. Payment of Expenses. The Company agrees to pay all costs, fees and expenses incurred in connection with the performance of its obligations hereunder and in connection with the transactions contemplated hereby, including without limitation (i) all expenses incident to the issuance and delivery of the Offered Shares (including all printing and engraving costs), (ii) all fees and expenses of the registrar and transfer agent of the Shares, (iii) all necessary issue, transfer and other stamp taxes in connection with the issuance and sale of the Offered Shares to the Underwriters, (iv) all fees and expenses of the Company's counsel, independent public or certified public accountants and other advisors, (v) all costs and expenses incurred in connection with the preparation, printing, filing, shipping and distribution of the Registration Statement (including financial statements, exhibits, schedules, consents and certificates of experts), the Time of Sale Prospectus, the Prospectus, each free writing prospectus prepared by or on

behalf of, used by, or referred to by the Company, and each preliminary prospectus, each Permitted Section 5(d) Communication, and all amendments and supplements thereto, and this Agreement, (vi) all filing fees, reasonable attorneys' fees and expenses incurred by the Company or the Underwriters in connection with qualifying or registering (or obtaining exemptions from the qualification or registration of) all or any part of the Offered Shares for offer and sale under the state securities or blue sky laws or the provincial securities laws of Canada, and, if requested by the Representatives, preparing and printing a "Blue Sky Survey" or memorandum and a "Canadian wrapper", and any supplements thereto, advising the Underwriters of such qualifications, registrations and exemptions (up to a maximum aggregate amount of $5,000), (vii) the costs, fees and expenses incurred by the Underwriters in connection with determining their compliance with the rules and regulations of FINRA related to the Underwriters' participation in the offering and distribution of the Offered Shares, including any related filing fees and the legal fees of, and disbursements by, counsel to the Underwriters, up to a maximum aggregate amount of $35,000, (viii) the costs and expenses of the Company relating to investor presentations on any "road show", any Permitted Section 5(d) Communication or any Section 5(d) Oral Communication undertaken in connection with the offering of the Offered Shares, including, without limitation, expenses associated with the preparation or dissemination of any electronic road show, expenses associated with the production of road show slides and graphics, fees and expenses of any consultants engaged in connection with the road show presentations with the prior approval of the Company, travel and lodging expenses of the representatives, employees and officers of the Company and any such consultants, and the cost of any aircraft chartered in connection with the road show; *provided*, *however*, that the cost of any aircraft chartered in connection with the road show shall be paid 50% by the Company and 50% by the Underwriters, (ix) the fees and expenses associated with listing the Offered Shares on the Nasdaq, and (x) all other fees, costs and expenses of the nature referred to in Item 13 of Part II of the Registration Statement. Except as provided in this Section 4 or in Section 7, Section 9 or Section 10 hereof, the Underwriters shall pay their own expenses, including the fees and disbursements of their counsel and travel and lodging expenses of their representatives and employees.

Section 5. Covenant of the Underwriters. Each Underwriter severally and not jointly covenants with the Company not to take any action that would result in the Company being required to file with the Commission pursuant to Rule 433(d) under the Securities Act a free writing prospectus prepared by or on behalf of such Underwriter that otherwise would not, but for such actions, be required to be filed by the Company under Rule 433(d).

Section 6. Conditions of the Obligations of the Underwriters. The respective obligations of the several Underwriters hereunder to purchase and pay for the Offered Shares as provided herein on the First Closing Date and, with respect to the Optional Shares, each Option Closing Date, shall be subject to the accuracy of the representations and warranties on the part of the Company set forth in Section 1 hereof as of the date hereof and as of the First Closing Date as though then made and, with respect to the Optional Shares, as of each Option Closing Date as though then made, to the timely performance by the Company of its covenants and other obligations hereunder, and to each of the following additional conditions:

(a) ***Comfort Letter*****.** On the date hereof, the Representatives shall have received from Deloitte & Touche LLP, independent registered public accountants for the Company, a letter dated the date hereof addressed to the Underwriters, in form and substance satisfactory to the Representatives, containing statements and information of the type ordinarily included in accountant's "comfort letters" to underwriters, delivered according to Statement of Auditing Standards No. 72 (or any successor bulletin), with respect to the audited and unaudited financial statements and certain financial information contained in the Registration Statement, the Time of Sale Prospectus, and each free writing prospectus, if any.

(b) ***Compliance with Registration Requirements; No Stop Order; No Objection from FINRA.***

(i) The Company shall have filed the Prospectus with the Commission (including the information required by Rule 430A under the Securities Act) in the manner and within the time period required by Rule 424(b) under the Securities Act; or the Company shall have filed a post-effective amendment to the Registration Statement containing the information required by such Rule 430A, and such post-effective amendment shall have become effective;

(ii) no stop order suspending the effectiveness of the Registration Statement or any post-effective amendment to the Registration Statement shall be in effect, and no proceedings for such purpose shall have been instituted or threatened by the Commission; and

(iii) FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(c) ***No Material Adverse Change or Ratings Agency Change*****.** For the period from and after the date of this Agreement and through and including the First Closing Date and, with respect to any Optional Shares purchased after the First Closing Date, each Option Closing Date:

(i) in the judgment of the Representatives there shall not have occurred any Material Adverse Change; and

(ii) there shall not have occurred any downgrading, nor shall any notice have been given of any intended or potential downgrading or of any review for a possible change that does not indicate the direction of the possible change, in the rating accorded any securities of the Company or any of its subsidiaries by any "nationally recognized statistical rating organization" as that term is used in Rule 15c3-1(c)(2)(vi)(F) under the Exchange Act.

(d) ***Opinion and Negative Assurance Letter of Counsel for the Company*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion and negative assurance letter of Cooley LLP, counsel for the Company, dated as of such date, in form and substance reasonably satisfactory to the Representatives.

(e) ***Opinion of Intellectual Property Counsel for the Company.*** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion of Clark + Elbing LLP, counsel for the Company with respect to intellectual property matters, dated as of such date, in form and substance reasonably satisfactory to the Representatives.

(f) ***Opinion and Negative Assurance Letter of Counsel for the Underwriters*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received the opinion and negative assurance letter of Latham & Watkins LLP, counsel for the Underwriters in connection with the offer and sale of the Offered Shares, in form and substance reasonably satisfactory to the Underwriters, dated as of such date.

(g) ***Officers' Certificate*****.** On each of the First Closing Date and each Option Closing Date, the Representatives shall have received a certificate executed by the Chief Executive Officer or President of the Company and the Principal Financial Officer of the Company, dated as of such date, to the effect set forth in Section 6(b)(ii) and further to the effect that:

(i) for the period from and including the date of this Agreement through and including such date, there has not occurred any Material Adverse Change;

(ii) the representations, warranties and covenants of the Company set forth in Section 1 of this Agreement are true and correct with the same force and effect as though expressly made on and as of such date; and

(iii) the Company has complied with all the agreements hereunder and satisfied all the conditions on its part to be performed or satisfied hereunder at or prior to such date.

(h) ***Bring-down Comfort Letter*****.** On each of the First Closing Date and each Option Closing Date the Representatives shall have received from Deloitte & Touche LLP, independent registered public accountants for the Company, a letter dated such date, in form and substance satisfactory to the Representatives, which letter shall: (i) reaffirm the statements made in the letter furnished by them pursuant to Section 6(a), except that the specified date referred to therein for the carrying out of procedures shall be no more than three business days prior to the First Closing Date or the applicable Option Closing Date, as the case may be; and (ii) cover certain financial information contained in the Prospectus.

(i) ***Lock-Up Agreements.*** On or prior to the date hereof, the Company shall have furnished to the Representatives an agreement in the form of Exhibit A attached hereto from each of the Company's officers, directors and security holders, and each such agreement shall be in full force and effect on each of the First Closing Date and each Option Closing Date.

(j) ***Rule 462(b) Registration Statement.*** In the event that a Rule 462(b) Registration Statement is filed in connection with the offering contemplated by this Agreement, such Rule 462(b) Registration Statement shall have been filed with the Commission on the date of this Agreement and shall have become effective automatically upon such filing.

(k) ***Approval of Listing***. At the First Closing Date, the Offered Shares shall have been approved for listing on the Nasdaq, subject only to official notice of issuance.

(l) ***Additional Documents***. On or before each of the First Closing Date and each Option Closing Date, the Representatives and counsel for the Underwriters shall have received such information, documents and opinions as they may reasonably request for the purposes of enabling them to pass upon the issuance and sale of the Offered Shares as contemplated herein, or in order to evidence the accuracy of any of the representations and warranties, or the satisfaction of any of the conditions or agreements, herein contained; and all proceedings taken by the Company in connection with the issuance and sale of the Offered Shares as contemplated herein and in connection with the other transactions contemplated by this Agreement shall be satisfactory in form and substance to the Representatives and counsel for the Underwriters.

If any condition specified in this Section 6 is not satisfied when and as required to be satisfied, and such condition has not been waived by the Representatives, this Agreement may be terminated by the Representatives by notice from the Representatives to the Company at any time on or prior to the First Closing Date and, with respect to the Optional Shares, at any time on or prior to the applicable Option Closing Date, which termination shall be without liability on the part of any party to any other party, except that Section 4, Section 7, Section 9 and Section 10 shall at all times be effective and shall survive such termination.

Section 7. Reimbursement of Underwriters' Expenses. If this Agreement is terminated by the Representatives pursuant to Section 6, Section 11 or Section 12(i), (iv) and (v), or if the sale to the Underwriters of the Offered Shares on the First Closing Date is not consummated because of any refusal, inability or failure on the part of the Company to perform any agreement herein or to comply with any provision hereof, the Company agrees to reimburse the Representatives and the other Underwriters (or such Underwriters as have terminated this Agreement with respect to themselves), severally, upon demand for all documented out-of-pocket expenses that shall have been reasonably incurred by the Representatives and the Underwriters in connection with the proposed purchase and the offering and sale of the Offered Shares, including, but not limited to, fees and disbursements of counsel, printing expenses, travel expenses, postage, facsimile and telephone charges; *provided*, that, in the event any such termination is effected after the First Closing Date but prior to any Option Closing Date with respect to the purchase of any Optional Shares, the Company shall only reimburse the Underwriters for all of their documented out-of-pocket expenses, including the reasonable fees and disbursements of counsel for the Underwriters, incurred after the First Closing Date in connection with the proposed purchase of any such Optional Shares. For the avoidance of doubt, it is understood that the Company will not pay or reimburse any costs, fees or expenses incurred by any Underwriter that defaults on its obligations to purchase the Offered Shares.

Section 8. Effectiveness of this Agreement. This Agreement shall become effective upon the execution and delivery hereof by the parties hereto.

Section 9. Indemnification.

(a) ***Indemnification of the Underwriters*****.** The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, directors, officers, employees and agents, and each person, if any, who controls any Underwriter within the meaning of the Securities Act or the Exchange Act against any loss, claim, damage, liability or expense, as incurred, to which such Underwriter or such affiliate, director, officer, employee, agent or controlling person may become subject, under the Securities Act, the Exchange Act, other federal or state statutory law or regulation, or the laws or regulations of foreign jurisdictions where Offered Shares have been offered or sold or at common law or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of the Company), insofar as such loss, claim, damage, liability or expense (or actions in respect thereof as contemplated below) arises out of or is based upon (A) (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any amendment thereto, or the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading; or (ii) any untrue statement or alleged untrue statement of a material fact included in any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus that the Company has used, referred to or filed, or is required to file, pursuant to Rule 433(d) of the Securities Act, any Marketing Material, any Section 5(d) Written Communication or the Prospectus (or any amendment or supplement to the foregoing), or the omission or alleged omission to state therein a material fact necessary in order to make the statements, in the light of the circumstances under which they were made, not misleading; or (iii) any act or failure to act or any alleged act or failure to act by any Underwriter in connection with, or relating in any manner to, the Shares or the offering contemplated hereby, and which is included as part of or referred to in any loss, claim, damage, liability or action arising out of or based upon any matter covered by clause (i) or (ii) above, or (B) the violation of any laws or regulations of foreign jurisdictions where Offered Shares have been offered or sold; and to reimburse each Underwriter and each such affiliate, director, officer, employee, agent and controlling person for any and all reasonable expenses (including the reasonable fees and disbursements of counsel) as such expenses are incurred by such Underwriter or such affiliate, director, officer, employee, agent or controlling person in connection with investigating, defending, settling, compromising or paying any such loss, claim, damage, liability, expense or action; *provided, however*, that the foregoing indemnity agreement shall not apply to any loss, claim, damage, liability or expense to the extent, but only to the extent, arising out of or based upon any untrue statement or alleged untrue statement or omission or alleged omission made in reliance upon and in conformity with

information relating to any Underwriter furnished to the Company by the Representatives in writing expressly for use in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, any such free writing prospectus, any Marketing Material, any Section 5(d) Written Communication or the Prospectus (or any amendment or supplement thereto), it being understood and agreed that the only such information consists of the information described in Section 9(b) below. The indemnity agreement set forth in this Section 9(a) shall be in addition to any liabilities that the Company may otherwise have.

(b) ***Indemnification of the Company, its Directors and Officers***. Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, each of its directors, each of its officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of the Securities Act or the Exchange Act, against any loss, claim, damage, liability or expense, as incurred, to which the Company, or any such director, officer or controlling person may become subject, under the Securities Act, the Exchange Act, or other federal or state statutory law or regulation, or at common law or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of such Underwriter), insofar as such loss, claim, damage, liability or expense (or actions in respect thereof as contemplated below) arises out of or is based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any amendment thereto, or any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading or (ii) any untrue statement or alleged untrue statement of a material fact included in any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus, that the Company has used, referred to or filed, or is required to file, pursuant to Rule 433 of the Securities Act, any Section 5(d) Written Communication or the Prospectus (or any such amendment or supplement) or the omission or alleged omission to state therein a material fact necessary in order to make the statements, in the light of the circumstances under which they were made, not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, such preliminary prospectus, the Time of Sale Prospectus, such free writing prospectus, such Section 5(d) Written Communication or the Prospectus (or any such amendment or supplement), in reliance upon and in conformity with information relating to such Underwriter furnished to the Company by the Representatives in writing expressly for use therein; and to reimburse the Company, or any such director, officer or controlling person for any and all reasonable expenses (including the fees and disbursements of counsel) as such expenses are incurred by the Company, or any such director, officer or controlling person in connection with investigating, defending, settling, compromising or paying any such loss, claim, damage, liability, expense or action. The Company hereby acknowledges that the only information that the Representatives have furnished to the Company expressly for use in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) of the Securities Act, any Section 5(d) Written Communication or the Prospectus (or any amendment or supplement to the foregoing) are the statements set forth in the third paragraph, the third sentence of the fourth paragraph, the fifth paragraph, the sixteenth through nineteenth paragraphs, and the twenty-first paragraph under the caption “Underwriting” in the Preliminary Prospectus and the Prospectus. The indemnity agreement set forth in this Section 9(b) shall be in addition to any liabilities that each Underwriter may otherwise have.

(c) ***Notifications and Other Indemnification Procedures*****.** Promptly after receipt by an indemnified party under this Section 9 of notice of the commencement of any action, such indemnified party will, if a claim in respect thereof is to be made against an indemnifying party under this Section 9, notify the indemnifying party in writing of the commencement thereof, but the omission to so notify the indemnifying party will not relieve the indemnifying party from any liability which it may have to any indemnified party to the extent the indemnifying party is not materially prejudiced as a proximate result of such failure and shall not in any event relieve the indemnifying party from any liability that it may have otherwise than on account of this indemnity agreement. In case any such action is brought against any

indemnified party and such indemnified party seeks or intends to seek indemnity from an indemnifying party, the indemnifying party will be entitled to participate in, and, to the extent that it shall elect, jointly with all other indemnifying parties similarly notified, by written notice delivered to the indemnified party promptly after receiving the aforesaid notice from such indemnified party, to assume the defense thereof with counsel reasonably satisfactory to such indemnified party; *provided*, *however*, that if the defendants in any such action include both the indemnified party and the indemnifying party and the indemnified party shall have reasonably concluded that a conflict may arise between the positions of the indemnifying party and the indemnified party in conducting the defense of any such action or that there may be legal defenses available to it and/or other indemnified parties which are different from or additional to those available to the indemnifying party, the indemnified party or parties shall have the right to select separate counsel to assume such legal defenses and to otherwise participate in the defense of such action on behalf of such indemnified party or parties. Upon receipt of notice from the indemnifying party to such indemnified party of such indemnifying party's election to so assume the defense of such action and approval by the indemnified party of counsel, the indemnifying party will not be liable to such indemnified party under this Section 9 for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof unless (i) the indemnified party shall have employed separate counsel in accordance with the proviso to the preceding sentence (it being understood, however, that the indemnifying party shall not be liable for the fees and expenses of more than one separate counsel (together with local counsel), representing the indemnified parties who are parties to such action), which counsel (together with any local counsel) for the indemnified parties shall be selected by the Representatives (in the case of counsel for the indemnified parties referred to in Section 9(a) above) or by the Company (in the case of counsel for the indemnified parties referred to in Section 9(b) above)) or (ii) the indemnifying party shall not have employed counsel satisfactory to the indemnified party to represent the indemnified party within a reasonable time after notice of commencement of the action or (iii) the indemnifying party has authorized in writing the employment of counsel for the indemnified party at the expense of the indemnifying party, in each of which cases the fees and expenses of counsel shall be at the expense of the indemnifying party and shall be paid as they are incurred.

(d) ***Settlements*****.** The indemnifying party under this Section 9 shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party against any loss, claim, damage, liability or expense by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel as contemplated by Section 9(c) hereof, the indemnifying party shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into more than 30 days after receipt by such indemnifying party of the aforesaid request and (ii) such indemnifying party shall not have reimbursed the indemnified party in accordance with such request prior to the date of such settlement. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified party is or could have been a party and indemnity was or could have been sought hereunder by such indemnified party, unless such settlement, compromise or consent includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such action, suit or proceeding and does not include an admission of fault or culpability or a failure to act by or on behalf of such indemnified party.

(e) Contribution. If the indemnification provided for in Section 9 is for any reason held to be unavailable to or otherwise insufficient to hold harmless an indemnified party in respect of any losses, claims, damages, liabilities or expenses referred to therein, then each indemnifying party shall contribute to the aggregate amount paid or payable by such indemnified party, as incurred, as a result of any losses, claims, damages, liabilities or expenses referred to therein (i) in such proportion as is appropriate to reflect

the relative benefits received by the Company, on the one hand, and the Underwriters, on the other hand, from the offering of the Offered Shares pursuant to this Agreement or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company, on the one hand, and the Underwriters, on the other hand, in connection with the statements or omissions which resulted in such losses, claims, damages, liabilities or expenses, as well as any other relevant equitable considerations. The relative benefits received by the Company, on the one hand, and the Underwriters, on the other hand, in connection with the offering of the Offered Shares pursuant to this Agreement shall be deemed to be in the same respective proportions as the total proceeds from the offering of the Offered Shares pursuant to this Agreement (before deducting expenses) received by the Company, and the total underwriting discounts and commissions received by the Underwriters, in each case as set forth on the front cover page of the Prospectus, bear to the aggregate initial public offering price of the Offered Shares as set forth on such cover. The relative fault of the Company, on the one hand, and the Underwriters, on the other hand, shall be determined by reference to, among other things, whether any such untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company, on the one hand, or the Underwriters, on the other hand, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

The amount paid or payable by a party as a result of the losses, claims, damages, liabilities and expenses referred to above shall be deemed to include, subject to the limitations set forth in Section 9(c), any legal or other fees or expenses reasonably incurred by such party in connection with investigating or defending any action or claim. The provisions set forth in Section 9(c) with respect to notice of commencement of any action shall apply if a claim for contribution is to be made under this Section 10; *provided, however,* that no additional notice shall be required with respect to any action for which notice has been given under Section 9(c) for purposes of indemnification.

The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 10 were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to in this Section 10.

Notwithstanding the provisions of this Section 10, no Underwriter shall be required to contribute any amount in excess of the underwriting discounts and commissions received by such Underwriter in connection with the Offered Shares underwritten by it and distributed to the public. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations to contribute pursuant to this Section 10 are several, and not joint, in proportion to their respective underwriting commitments as set forth opposite their respective names on Schedule A. For purposes of this Section 10, each affiliate, director, officer, employee and agent of an Underwriter and each person, if any, who controls an Underwriter within the meaning of the Securities Act or the Exchange Act shall have the same rights to contribution as such Underwriter, and each director of the Company, each officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of the Securities Act and the Exchange Act shall have the same rights to contribution as the Company.

Section 10. Default of One or More of the Several Underwriters. If, on the First Closing Date or any Option Closing Date any one or more of the several Underwriters shall fail or refuse to purchase Offered Shares that it or they have agreed to purchase hereunder on such date, and the aggregate number of Offered Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase does not exceed 10% of the aggregate number of the Offered Shares to be purchased

on such date, the Representatives may make arrangements satisfactory to the Company for the purchase of such Offered Shares by other persons, including any of the Underwriters, but if no such arrangements are made by such date, the other Underwriters shall be obligated, severally and not jointly, in the proportions that the number of Firm Shares set forth opposite their respective names on Schedule A bears to the aggregate number of Firm Shares set forth opposite the names of all such non-defaulting Underwriters, or in such other proportions as may be specified by the Representatives with the consent of the non-defaulting Underwriters, to purchase the Offered Shares which such defaulting Underwriter or Underwriters agreed but failed or refused to purchase on such date. If, on the First Closing Date or any Option Closing Date any one or more of the Underwriters shall fail or refuse to purchase Offered Shares and the aggregate number of Offered Shares with respect to which such default occurs exceeds 10% of the aggregate number of Offered Shares to be purchased on such date, and arrangements satisfactory to the Representatives and the Company for the purchase of such Offered Shares are not made within 48 hours after such default, this Agreement shall terminate without liability of any party to any other party except that the provisions of Section 4, Section 7, Section 9 and Section 10 shall at all times be effective and shall survive such termination. In any such case either the Representatives or the Company shall have the right to postpone the First Closing Date or the applicable Option Closing Date, as the case may be, but in no event for longer than seven days in order that the required changes, if any, to the Registration Statement and the Prospectus or any other documents or arrangements may be effected.

As used in this Agreement, the term "**Underwriter**" shall be deemed to include any person substituted for a defaulting Underwriter under this Section 11. Any action taken under this Section 11 shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

Section 11. Termination of this Agreement. Prior to the purchase of the Firm Shares by the Underwriters on the First Closing Date, this Agreement may be terminated by the Representatives by notice given to the Company if at any time: (i) trading or quotation in any of the Company's securities shall have been suspended or limited by the Commission or by the Nasdaq, or trading in securities generally on either the Nasdaq or the New York Stock Exchange shall have been suspended or limited, or minimum or maximum prices shall have been generally established on any of such stock exchanges; (ii) a general banking moratorium shall have been declared by any federal, New York or Massachusetts authorities; (iii) there shall have occurred any outbreak or escalation of national or international hostilities or any crisis or calamity, or any change in the United States or international financial markets, or any substantial change or development involving a prospective substantial change in United States' or international political, financial or economic conditions, as in the judgment of the Representatives is material and adverse and makes it impracticable to market the Offered Shares in the manner and on the terms described in the Time of Sale Prospectus or the Prospectus or to enforce contracts for the sale of securities; (iv) in the judgment of the Representatives there shall have occurred any Material Adverse Change; or (v) the Company shall have sustained a loss by strike, fire, flood, earthquake, accident or other calamity of such character as in the judgment of the Representatives may interfere materially with the conduct of the business and operations of the Company regardless of whether or not such loss shall have been insured. Any termination pursuant to this Section 12 shall be without liability on the part of (a) the Company to any Underwriter, except that the Company shall be obligated to reimburse the expenses of the Representatives and the Underwriters pursuant to Section 4 or Section 7 hereof or (b) any Underwriter to the Company; *provided, however,* that the provisions of Section 9 and Section 10 shall at all times be effective and shall survive such termination.

Section 12. No Advisory or Fiduciary Relationship. The Company acknowledges and agrees that (a) the purchase and sale of the Offered Shares pursuant to this Agreement, including the determination of the public offering price of the Offered Shares and any related discounts and commissions, is an arm's-length commercial transaction between the Company, on the one hand, and the

several Underwriters, on the other hand, (b) in connection with the offering contemplated hereby and the process leading to such transaction, each Underwriter is and has been acting solely as a principal and is not the agent or fiduciary of the Company, or its stockholders, creditors, employees or any other party, (c) no Underwriter has assumed or will assume an advisory or fiduciary responsibility in favor of the Company with respect to the offering contemplated hereby or the process leading thereto (irrespective of whether such Underwriter has advised or is currently advising the Company on other matters) and no Underwriter has any obligation to the Company with respect to the offering contemplated hereby except the obligations expressly set forth in this Agreement, (d) the Underwriters and their respective affiliates may be engaged in a broad range of transactions that involve interests that differ from those of the Company, and (e) the Underwriters have not provided any legal, accounting, regulatory or tax advice with respect to the offering contemplated hereby and the Company has consulted its own legal, accounting, regulatory and tax advisors to the extent it deemed appropriate.

Section 13. Representations and Indemnities to Survive Delivery. The respective indemnities, agreements, representations, warranties and other statements of the Company, of its officers and of the several Underwriters set forth in or made pursuant to this Agreement will remain in full force and effect, regardless of any investigation made by or on behalf of any Underwriter or the Company or any of its or their partners, officers or directors or any controlling person, as the case may be, and, anything herein to the contrary notwithstanding, will survive delivery of and payment for the Offered Shares sold hereunder and any termination of this Agreement.

Section 14. Notices. All communications hereunder shall be in writing and shall be mailed, hand delivered or telecopied and confirmed to the parties hereto as follows:

If to the Representatives:

Jefferies LLC
520 Madison Avenue
New York, New York 10022
Facsimile: (646) 619-4437
Attention: General Counsel

SVB Leerink LLC
One Federal Street, 37th Floor
Boston, Massachusetts 02110
Fascimile: (617) 918-4664
Attention: John I. Fitzgerald, Esq.

Piper Sandler & Co.
345 Park Avenue, Suite 1200
New York, New York 10154
Attention: General Counsel

with a copy to:

Latham & Watkins LLP
885 3rd Avenue
New York, New York 10022
Facsimile: (212) 751-4864
Attention: Nathan Ajiashvili

If to the Company:	Keros Therapeutics, Inc. 99 Hayden Avenue Suite 120 Lexington, Massachusetts 02421 Attention: Jasbir Seehra
with a copy to:	Cooley LLP 500 Boylston Street Boston, Massachusetts 02116 Facsimile: (617) 937-2400 Attention: Marc Recht

Any party hereto may change the address for receipt of communications by giving written notice to the others.

Section 15. Successors. This Agreement will inure to the benefit of and be binding upon the parties hereto, including any substitute Underwriters pursuant to Section 11 hereof, and to the benefit of the affiliates, directors, officers, employees, agents and controlling persons referred to in Section 9 and Section 10, and in each case their respective successors, and no other person will have any right or obligation hereunder. The term "**successors**" shall not include any purchaser of the Offered Shares as such from any of the Underwriters merely by reason of such purchase.

Section 16. Partial Unenforceability. The invalidity or unenforceability of any section, paragraph or provision of this Agreement shall not affect the validity or enforceability of any other section, paragraph or provision hereof. If any section, paragraph or provision of this Agreement is for any reason determined to be invalid or unenforceable, there shall be deemed to be made such minor changes (and only such minor changes) as are necessary to make it valid and enforceable.

Section 17. Recognition of the U.S. Special Resolution Regimes.

(a) In the event that any Underwriter that is a Covered Entity becomes subject to a proceeding under a U.S. Special Resolution Regime, the transfer from such Underwriter of this Agreement, and any interest and obligation in or under this Agreement, will be effective to the same extent as the transfer would be effective under the U.S. Special Resolution Regime if this Agreement, and any such interest and obligation, were governed by the laws of the United States or a state of the United States.

(b) In the event that any Underwriter that is a Covered Entity or a BHC Act Affiliate of such Underwriter becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights under this Agreement that may be exercised against such Underwriter are permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if this Agreement were governed by the laws of the United States or a state of the United States.

For purposes of this Agreement, (A) "**BHC Act Affiliate**" has the meaning assigned to the term "affiliate" in, and shall be interpreted in accordance with, 12 U.S.C. § 1841(k); (B) "**Covered Entity**" means any of the following: (i) a "covered entity" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b); (ii) a "covered bank" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or (iii) a "covered FSI" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b); (C) "**Default Right**" has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable; and (D) "U**.S. Special Resolution Regime**" means each of (i) the Federal Deposit Insurance Act and the regulations promulgated thereunder and (ii) Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations promulgated thereunder.

Section 18. Governing Law Provisions. This Agreement shall be governed by and construed in accordance with the internal laws of the State of New York applicable to agreements made and to be performed in such state. Any legal suit, action or proceeding arising out of or based upon this Agreement or the transactions contemplated hereby ("**Related Proceedings**") may be instituted in the federal courts of the United States of America located in the Borough of Manhattan in the City of New York or the courts of the State of New York in each case located in the Borough of Manhattan in the City of New York (collectively, the "**Specified Courts**"), and each party irrevocably submits to the exclusive jurisdiction (except for proceedings instituted in regard to the enforcement of a judgment of any such court (a "**Related Judgment**"), as to which such jurisdiction is non-exclusive) of such courts in any such suit, action or proceeding. Service of any process, summons, notice or document by mail to such party's address set forth above shall be effective service of process for any suit, action or other proceeding brought in any such court. The parties irrevocably and unconditionally waive any objection to the laying of venue of any suit, action or other proceeding in the Specified Courts and irrevocably and unconditionally waive and agree not to plead or claim in any such court that any such suit, action or other proceeding brought in any such court has been brought in an inconvenient forum.

Section 19. General Provisions. This Agreement constitutes the entire agreement of the parties to this Agreement and supersedes all prior written or oral and all contemporaneous oral agreements, understandings and negotiations with respect to the subject matter hereof. This Agreement may be executed in two or more counterparts, each one of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument. This Agreement may not be amended or modified unless in writing by all of the parties hereto, and no condition herein (express or implied) may be waived unless waived in writing by each party whom the condition is meant to benefit. The section headings herein are for the convenience of the parties only and shall not affect the construction or interpretation of this Agreement.

Each of the parties hereto acknowledges that it is a sophisticated business person who was adequately represented by counsel during negotiations regarding the provisions hereof, including, without limitation, the indemnification provisions of Section 9 and the contribution provisions of Section 10, and is fully informed regarding said provisions. Each of the parties hereto further acknowledges that the provisions of Section 9 and Section 10 hereof fairly allocate the risks in light of the ability of the parties to investigate the Company, its affairs and its business in order to assure that adequate disclosure has been made in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, each free writing prospectus and the Prospectus (and any amendments and supplements to the foregoing), as contemplated by the Securities Act and the Exchange Act.

[Signature Pages Follow]

If the foregoing is in accordance with your understanding of our agreement, kindly sign and return to the Company the enclosed copies hereof, whereupon this instrument, along with all counterparts hereof, shall become a binding agreement in accordance with its terms.

Very truly yours,

KEROS THERAPEUTICS, INC.

By: _____
Name: Jasbir Seehra
Title: Chief Executive Officer

The foregoing Underwriting Agreement is hereby confirmed and accepted by the Representatives in New York, New York as of the date first above written.

JEFFERIES LLC
SVB LEERINK LLC
PIPER SANDLER & CO.
Acting individually and as Representatives of the several Underwriters named in the attached Schedule A.

JEFFERIES LLC

By: _____
Name:
Title:

SVB LEERINK LLC

By: _____
Name:
Title:

PIPER SANDLER & CO.

By: _____
Name:
Title:

Schedule A

Underwriters	Number of Firm Shares to be Purchased
Jefferies LLC	[ ]
SVB Leerink LLC	[ ]
Piper Sandler & Co.	[ ]
H.C. Wainwright & Co., LLC	[ ]
Total	[ ]

Schedule B

Free Writing Prospectuses Included in the Time of Sale Prospectus

[ ]

Schedule C

Permitted Section 5(d) Communications

[ ]

Exhibit A

Form of Lock-up Agreement

[ ], 2020

Jefferies LLC
SVB Leerink LLC
Piper Sandler & Co.
As Representatives of the Several Underwriters

c/o Jefferies LLC
520 Madison Avenue
New York, New York 10022

c/o SVB Leerink LLC
One Federal Street, 37th Floor
Boston, Massachusetts 02110

and

c/o Piper Sandler & Co.
345 Park Avenue, Suite 1200
New York, New York 10154

RE: Keros Therapeutics, Inc. (the "**Company**")

Ladies & Gentlemen:

The undersigned is an owner of shares of common stock, par value $0.0001 per share, of the Company ("**Shares**") or of securities convertible into or exchangeable or exercisable for Shares. The Company proposes to conduct a public offering of Shares (the "**Offering**") for which Jefferies LLC, SVB Leerink LLC and Piper Sandler & Co. will act as the representatives of the underwriters (in such capacity, the "**Representatives**"). The undersigned recognizes that the Offering will benefit each of the Company and the undersigned. The undersigned acknowledges that the underwriters are relying on the representations and agreements of the undersigned contained in this letter agreement in conducting the Offering and, at a subsequent date, in entering into an underwriting agreement (the "**Underwriting Agreement**") and other underwriting arrangements with the Company with respect to the Offering.

Annex A sets forth definitions for capitalized terms used in this letter agreement that are not defined in the body of this letter agreement. Those definitions are a part of this letter agreement.

In consideration of the foregoing, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned hereby agrees that, during the Lock-up Period, the undersigned will not (and will use reasonable best efforts to cause any Family Member not to), subject to the exceptions set forth in this letter agreement, without the prior written consent of the Representatives, which may withhold their consent in their sole discretion:

- Sell or Offer to Sell any Shares or Related Securities currently or hereafter owned either of record or beneficially (as defined in Rule 13d-3 under the Exchange Act) by the undersigned or such Family Member,
- enter into any Swap,
- make any demand for, or exercise any right with respect to, the registration under the Securities Act of the offer and sale of any Shares or Related Securities, or cause to be filed a registration statement, prospectus or prospectus supplement (or an amendment or supplement thereto) with respect to any such registration, or
- publicly announce any intention to do any of the foregoing.

The foregoing will not apply to the registration of the offer and sale of the Shares, and the sale of the Shares to the underwriters, in each case as contemplated by the Underwriting Agreement. In addition, the foregoing restrictions shall not apply to:

(i) transactions relating to Shares or Related Securities acquired in the Offering (other than any Company-directed Shares purchased in the Offering by an officer or director of the Company) or in open market transactions after the completion of the Offering, *provided* that no filing under Section 16(a) of the Exchange Act will be required or will be voluntarily made during the Lock-up Period in connection with subsequent sales of Shares or Related Securities acquired in such open market transactions during the Lock-up Period;

(ii) the transfer of Shares or Related Securities by gift, including, without limitation, to a charitable organization, or by will or intestate succession to a legal representative, heir, beneficiary or any Family Member of the undersigned or to a trust whose beneficiaries consist exclusively of one or more of the undersigned and/or a Family Member;

(iii) the transfer or disposition of the undersigned's Shares or Related Securities to any corporation, partnership, limited liability company or other entity, all of the beneficial ownership interests of which, in each such case, are held by the undersigned or any Family Member;

(iv) if the undersigned is a corporation, partnership, limited liability company, trust or other business entity, the transfer or distribution of Shares or Related Securities to (x) another corporation, partnership, limited liability company, trust or other business entity that is a direct or indirect affiliate (as defined in Rule 405 promulgated under the Securities Act) of the undersigned, (y) any investment fund or other entity controlling, controlled by, managing, managed by or under common control with the undersigned or affiliates of the undersigned, or (z) any limited partners, general partners, members, managers, managing members, directors, officers, employees, shareholders or other equity holders of the undersigned or of the entities described in the preceding clauses (x) and (y);

(v) the transfer of Shares or any Related Securities by operation of law, including pursuant to a domestic order or negotiated divorce settlement;

(vi) the exercise of stock options to purchase Shares granted under any equity incentive plan or share purchase plan of the Company described in the final prospectus relating to the Offering (the "**Prospectus**") by the undersigned, and the receipt by the undersigned from the Company of Shares upon such exercise, insofar as such option is outstanding as of the date of the Prospectus, or the vesting of an award of Shares and any related transfer of

Shares to the Company in connection therewith, including those (x) deemed to occur upon the "cashless" or "net" exercise of such options or (y) for the purpose of paying the exercise price of such options or for paying taxes due as a result of the exercise of such options, the receipt of Shares upon such exercise or as a result of the vesting of such Shares; *provided*, that the underlying Shares shall continue to be subject to the restrictions on transfer set forth in this letter agreement, and *provided, further*, that, if required, any public report or filing under Section 16 of the Exchange Act shall clearly indicate in the footnotes thereto that the filing relates to the exercise of a stock option, that no Shares were sold by the reporting person and that Shares received upon exercise of the stock option are subject to this letter agreement with the underwriters of the Offering;

(vii) the disposition of Shares to the Company, or the withholding of Shares by the Company, in a transaction exempt from Section 16(b) of the Exchange Act solely in connection with the payment of taxes due with respect to the vesting of restricted stock granted under any equity incentive plan of the Company or pursuant to a contractual employment arrangement described in the Prospectus, insofar as such restricted stock is outstanding as of the date of the Prospectus; *provided, further*, that, if required, any public report or filing under Section 16 of the Exchange Act shall clearly indicate in the footnotes thereto that the filing relates to the relevant circumstances described in this clause (vii);

(viii) the transfer of Shares to the Company in connection with the repurchase of Shares in connection with the termination of the undersigned's employment with the Company pursuant to a contractual agreement between the undersigned and the Company as in effect as of the date of the Prospectus;

(ix) the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Shares, *provided* that (a) such plan does not provide for the transfer of Shares during the Lock-up Period and (b) the entry into such plan is not publicly disclosed, including in any filings under the Exchange Act, during the Lock-up Period; or

(x) pursuant to a *bona fide* third-party tender offer for all outstanding Shares of the Company, merger, consolidation or other similar transaction made to all holders of the Company's securities involving a change of control of the Company (including, without limitation, the entering into any lock-up, voting or similar agreement pursuant to which the undersigned may agree to transfer, sell, tender or otherwise dispose of Shares or other such securities in connection with such transaction, or vote any Shares or other such securities in favor of any such transaction), provided that in the event that such tender offer, merger, consolidation or other such transaction is not completed, such securities held by the undersigned shall remain subject to the provisions of this letter agreement;

provided however in the case of any transfer or distribution pursuant to clause (ii), (iii) and (iv), it shall be a condition to such transfer that:

- each transferee, donee or distributee executes and delivers to the Representatives an agreement in form and substance satisfactory to the Representatives stating that such transferee, donee or distributee is receiving and holding such Shares and/or Related Securities subject to the provisions of this letter agreement and agrees not to Sell or Offer to Sell such Shares and/or Related Securities, engage in any Swap or engage in any other activities restricted under this letter agreement except in accordance with this letter agreement (as if such transferee, donee or distributee had been an original signatory hereto), and

- prior to the expiration of the Lock-up Period, no public disclosure or filing under the Exchange Act by any party to the transfer (donor, donee, transferor, transferee, distributor or distributee) shall be required, or made voluntarily, reporting a reduction in beneficial ownership of Shares in connection with such transfer.

If the undersigned is an officer or director of the Company, the undersigned further agrees that the foregoing provisions shall be equally applicable to any Company-directed Shares the undersigned may purchase or otherwise receive in the Offering (including pursuant to a directed share program).

In addition, if the undersigned is an officer or director of the Company, (i) the Representatives agree that, at least three business days before the effective date of any release or waiver of the foregoing restrictions in connection with a transfer of Shares, the Representatives will notify the Company of the impending release or waiver, and (ii) the Company (in accordance with the provisions of the Underwriting Agreement) will announce the impending release or waiver by press release through a major news service at least two business days before the effective date of the release or waiver. Any release or waiver granted by the Representatives hereunder to any such officer or director shall only be effective two business days after the publication date of such press release. The provisions of this paragraph will not apply if both (a) the release or waiver is effected solely to permit a transfer not for consideration and (b) the transferee has agreed in writing to be bound by the same terms described in this letter agreement that are applicable to the transferor to the extent and for the duration that such terms remain in effect at the time of the transfer.

The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of Shares or Related Securities held by the undersigned and the undersigned's Family Members, if any, except in compliance with the foregoing restrictions.

With respect to the Offering only, the undersigned waives any registration rights relating to registration under the Securities Act of the offer and sale of any Shares and/or any Related Securities owned either of record or beneficially by the undersigned, including any rights to receive notice of the Offering.

The undersigned confirms that the undersigned has not, and has no knowledge that any Family Member has, directly or indirectly, taken any action designed to or that might reasonably be expected to cause or result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale of the Shares. The undersigned will not, and will cause any Family Member not to take, directly or indirectly, any such action.

Whether or not the Offering occurs as currently contemplated or at all depends on market conditions and other factors. The Offering will only be made pursuant to the Underwriting Agreement, the terms of which are subject to negotiation between the Company and the underwriters.

If (i) the Company notifies the Representatives in writing that it does not intend to proceed with the Offering, (ii) the Company withdraws the registration statement relating to the Offering, (iii) the Underwriting Agreement is not executed by June 30, 2020 (provided that the Company may by written notice to the undersigned prior to June 30, 2020 extend such date for a period of up to an additional three months in the event that the Underwriting Agreement has not been executed by such date) or (iv) the Underwriting Agreement (other than the provisions thereof that survive termination) terminates or is terminated prior to payment for and delivery of the Firm Shares, then in each case, this letter agreement shall automatically, and without any action on the part of any other party, terminate and be of no further force and effect, and the undersigned shall automatically be released from the obligations under this letter agreement.

The undersigned hereby represents and warrants that the undersigned has full power, capacity and authority to enter into this letter agreement. This letter agreement is irrevocable and will be binding on the undersigned and the successors, heirs, personal representatives and assigns of the undersigned.

This letter agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

IF AN INDIVIDUAL:

_____
(duly authorized signature)

Name: _____
(please print full name)

Address:

_____

_____

IF AN ENTITY:

_____
(please print complete name of entity)

By: _____
(duly authorized signature)

Name: _____
(please print full name)

Title: _____
(please print full title)

Address:

_____

_____

Certain Defined Terms
Used in Letter Agreement

For purposes of the letter agreement to which this Annex A is attached and of which it is made a part:

- "**Call Equivalent Position**" shall have the meaning set forth in Rule 16a-1(b) under the Exchange Act.
- "**Exchange Act**" shall mean the Securities Exchange Act of 1934, as amended.
- "**Family Member**" shall mean the spouse of the undersigned, an immediate family member of the undersigned or an immediate family member of the undersigned's spouse, in each case living in the undersigned's household or whose principal residence is the undersigned's household (regardless of whether such spouse or family member may at the time be living elsewhere due to educational activities, health care treatment, military service, temporary internship or employment or otherwise). "**Immediate family member**" as used above shall have the meaning set forth in Rule 16a-1(e) under the Exchange Act.
- "**Lock-up Period**" shall mean the period beginning on the date hereof and continuing through the close of trading on the date that is 180 days after the date of the Prospectus (as defined in the Underwriting Agreement).
- "**Put Equivalent Position**" shall have the meaning set forth in Rule 16a-1(h) under the Exchange Act.
- "**Related Securities**" shall mean any options or warrants or other rights to acquire Shares or any securities exchangeable or exercisable for or convertible into Shares, or to acquire other securities or rights ultimately exchangeable or exercisable for or convertible into Shares.
- "**Securities Act**" shall mean the Securities Act of 1933, as amended.
- "**Sell or Offer to Sell**" shall mean to:
    - sell, offer to sell, contract to sell or lend,
    - effect any short sale or establish or increase a Put Equivalent Position or liquidate or decrease any Call Equivalent Position
    - pledge, hypothecate or grant any security interest in, or
    - in any other way transfer or dispose of,

  in each case whether effected directly or indirectly.
- "**Swap**" shall mean any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of Shares or Related Securities, regardless of whether any such transaction is to be settled in securities, in cash or otherwise.

Capitalized terms not defined in this Annex A shall have the meanings given to them in the body of this letter agreement.

Exhibit 3.1

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
KEROS THERAPEUTICS, INC.
(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Keros Therapeutics, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "**General Corporation Law**"),

DOES HEREBY CERTIFY:

1. That the name of this corporation is Keros Therapeutics, Inc., and that this corporation was originally incorporated pursuant to the General Corporation Law on December 9, 2015 under the name Keros Therapeutics, Inc.

2. That the Board of Directors of the Corporation (the "**Board of Directors**") duly adopted resolutions proposing to amend and restate the Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Keros Therapeutics, Inc. (the "**Corporation**").

SECOND: The address of the Corporation's registered office in the State of Delaware is 9 E. Loockerman Street, Suite 311, Dover, DE 19901, Kent County. The name of the Corporation's registered agent at such address is Registered Agent Solutions, Inc.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: Effective upon the filing of this Amended and Restated Certificate of Incorporation with the Secretary of State of the State of Delaware, (i) every two and one thousand, seven hundred three ten thousandths (2.1703) issued and outstanding shares of Common Stock (as defined below) automatically and without any action on the part of the respective holders thereof, shall be changed, reclassified and combined into and shall constitute one (1) fully paid and nonassessable share of Common Stock and (ii) every two and one thousand, seven hundred three ten thousandths (2.1703) issued and outstanding shares of Preferred Stock (as defined below) automatically and without any action on the part of the respective holders

thereof, shall be changed, reclassified and combined into and shall constitute one (1) fully paid and nonassessable share of the same series of Preferred Stock (together, the "**Reverse Stock Split**"); provided further, that if the Reverse Stock Split would result in any fractional share, the Corporation shall, in lieu of issuing any such fractional share, pay the holder thereof an amount in cash equal to the fair market value of such fractional share on the effective date of the Reverse Stock Split as determined in good faith (after giving effect to the Reverse Stock Split) by the Board of Directors. The Reverse Stock Split shall occur whether or not the certificates representing such shares of Common Stock or Preferred Stock are surrendered to the Corporation or its transfer agent; provided, however, that the Corporation shall not be obligated to issue certificates evidencing the shares resulting from the Reverse Stock Split unless either the certificates evidencing such shares of Common Stock or Preferred Stock are delivered to the Corporation or its transfer agent, or the holder notifies the Corporation or its transfer agent that such certificates have been lost, stolen or destroyed and executes an agreement satisfactory to the Corporation to indemnify the Corporation from any loss incurred by it in connection with such certificates. Notwithstanding the foregoing, the par value of each share of the Corporation's outstanding Common Stock and Preferred Stock will not be adjusted in connection with the Reverse Stock Split. Except for the number of authorized shares as detailed in the following paragraph and as detailed in the first paragraph under Section B below, all share amounts, dollar amounts and other provisions in this Amended and Restated Certificate of Incorporation have been appropriately adjusted to reflect the Reverse Stock Split, and no further adjustments shall be made to the share amounts, dollar amounts, conversion prices and other provisions, except in the case of any stock splits, reverse splits, recapitalization and the like occurring after the effective time of the Reverse Stock Split.

The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 35,000,000 shares of Common Stock, $0.0001 par value per share ("**Common Stock**") and (ii) 23,276,787 shares of Preferred Stock, $0.0001 par value per share ("**Preferred Stock**").

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to the Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation or pursuant to the General Corporation Law. There shall be no cumulative voting. The number of authorized shares

of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of the Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

10,000,000 shares of the authorized Preferred Stock of the Corporation are hereby designated "**Series A Preferred Stock**"; 800,000 shares of authorized Preferred Stock of the Corporation are hereby designated "**Series A-1 Preferred Stock**"; 3,427,004 shares of authorized Preferred Stock of the Corporation are hereby designated "**Series B-1 Preferred Stock**"; and 9,049,783 shares of authorized Preferred Stock of the Corporation are hereby designated "**Series C Preferred Stock**", each with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "sections" or "subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends.

1.1 Series C Accruing Dividends. From and after the date of the issuance of any shares of Series C Preferred Stock, dividends at the rate per annum of $1.07439 per share shall accrue on such shares of Series C Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series C Preferred Stock occurring after the effective time of the Reverse Stock Split) (the "**Series C Accruing Dividends**"). Series C Accruing Dividends shall accrue from day to day, whether or not declared, and shall be cumulative; provided, however, that except as set forth in the following sentence of this Subsection 1.1 or in Subsection 2.1.1, such Series C Preferred Accruing Dividends shall be payable only when, as, and if declared by the Board of Directors and the Corporation shall be under no obligation to pay such Series C Preferred Accruing Dividends. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in the Certificate of Incorporation) the holders of the Series C Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of such series of Preferred Stock in an amount at least equal to the greater of (i) the amount of the aggregate Series C Preferred Accruing Dividends then accrued on such share of Series C Preferred Stock and not previously paid and (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Series C Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (2) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of Series C Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar

recapitalization with respect to such class or series occurring after the effective time of the Reverse Stock Split) and (2) multiplying such fraction by an amount equal to the Series C Original Issue Price (as defined below); provided that if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Series C Preferred Stock pursuant to this Subsection 1.1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest dividend for such series of Preferred Stock. The "**Series C Original Issue Price**" shall mean $13.430 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series C Preferred Stock occurring after the effective time of the Reverse Stock Split.

1.2 Series B-1 Accruing Dividends. Subject to Subsection 1.1, from and after the date of the issuance of any shares of Series B-1 Preferred Stock, dividends at the rate per annum of $0.58263 per share shall accrue on such shares of Series B-1 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B-1 Preferred Stock occurring after the effective time of the Reverse Stock Split) (the "**Series B-1 Accruing Dividends**"). Series B-1 Preferred Accruing Dividends shall accrue from day to day, whether or not declared, and shall be cumulative; provided, however, that except as set forth in the following sentence of this Subsection 1.2 or in Subsection 2.1.2, such Series B-1 Preferred Accruing Dividends shall be payable only when, as, and if declared by the Board of Directors and the Corporation shall be under no obligation to pay such Series B-1 Preferred Accruing Dividends. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than Series C Preferred Accruing Dividends and dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in the Certificate of Incorporation) the holders of the Series B-1 Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Series B-1 Preferred Stock in an amount at least equal to the greater of (i) the amount of the aggregate Series B-1 Preferred Accruing Dividends then accrued on such share of Series B-1 Preferred Stock and not previously paid and (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Series B-1 Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (2) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of Series B-1 Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series occurring after the effective time of the Reverse Stock Split) and (2) multiplying such fraction by an amount equal to the Series B-1 Original Issue Price (as defined below); provided that if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of a series of Preferred Stock pursuant to this Subsection 1.2 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest dividend for the Series B-1 Preferred Stock. The "**Series B-1 Original Issue Price**" shall mean $7.2829 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B-1 Preferred Stock occurring after the effective time of the Reverse Stock Split.

1.3 Series A and A-1 Accruing Dividends. Subject to Subsections 1.1 and 1.2, from and after the date of the issuance of any shares of Series A Preferred Stock, dividends at the rate per annum of $0.17 per share shall accrue on such shares of Series A Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock occurring after the effective time of the Reverse Stock Split) (the "**Series A Accruing Dividends**"). From and after the date of the issuance of any shares of Series A-1 Preferred Stock, dividends at the rate per annum of $0.22 per share shall accrue on such shares of Series A-1 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A-1 Preferred Stock occurring after the effective time of the Reverse Stock Split) (the "**Series A-1 Accruing Dividends**," together with the Series A Accruing Dividends, the "**Series A/A-1 Preferred Accruing Dividends**"). Series A/A-1 Preferred Accruing Dividends shall accrue from day to day, whether or not declared, and shall be cumulative; provided, however, that except as set forth in the following sentence of this Subsection 1.3 or in Subsection 2.1.3, such Series A/A-1 Preferred Accruing Dividends shall be payable only when, as, and if declared by the Board of Directors and the Corporation shall be under no obligation to pay such Series A/A-1 Preferred Accruing Dividends. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than Series C Preferred Accruing Dividends, Series B-1 Preferred Accruing Dividends and dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in the Certificate of Incorporation) the holders of the Series A Preferred Stock and the Series A-1 Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of such series of Preferred Stock in an amount at least equal to the greater of (i) the amount of the aggregate Series A/A-1 Preferred Accruing Dividends then accrued on such share of Series A Preferred Stock and Series A-1 Preferred Stock and not previously paid and (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Series A Preferred Stock and Series A-1 Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (2) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of Series A Preferred Stock and Series A-1 Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series occurring after the effective time of the Reverse Stock Split) and (2) multiplying such fraction by an amount equal to the applicable Original Issue Price (as defined below); provided that if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of a series of Preferred Stock pursuant to this Subsection 1.3 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest dividend for such series of Preferred Stock. The "**Series A Original Issue Price**" shall mean $2.17 per share, subject to appropriate adjustment in the event of any stock dividend, stock

split, combination or other similar recapitalization with respect to the Series A Preferred Stock occurring after the effective time of the Reverse Stock Split. The "**Series A-1 Original Issue Price**" shall mean $2.71 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A-1 Preferred Stock occurring after the effective time of the Reverse Stock Split. The "**Original Issue Price**" shall mean: the Series C Original Issue Price with respect to the Series C Preferred Stock; the Series B-1 Original Issue Price with respect to the Series B-1 Preferred Stock; the Series A Original Issue Price with respect to the Series A Preferred Stock; and the Series A-1 Original Issue Price with respect to the Series A-1 Preferred Stock.

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferred Stock

2.1.1 Preferential Payments to Holders of Series C Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the holders of shares of Series C Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Common Stock, Series B-1 Preferred Stock, Series A Preferred Stock or Series A-1 Preferred Stock by reason of their ownership thereof, an amount per share equal to the Series C Original Issue Price, plus any Series C Preferred Accruing Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series C Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1.1, the holders of shares of Series C Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.1.2 Preferential Payments to Holders of Series B-1 Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Series C Preferred Stock, the holders of shares of Series B-1 Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Common Stock, Series A Preferred Stock or Series A-1 Preferred Stock by reason of their ownership thereof, an amount per share equal to the Series B-1 Original Issue Price, plus any Series B-1 Preferred Accruing Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series B-1 Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1.2, the holders of shares of Series B-1 Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.1.3 Preferential Payments to Holders of Series A and A-1 Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Series C Preferred Stock and Series B-1 Preferred Stock, the holders of shares of Series A Preferred Stock and Series A-1 Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the Series A Original Issue Price or Series A-1 Original Issue Price, as applicable, plus any Series A/A-1 Preferred Accruing Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series A Preferred Stock and Series A-1 Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1.3, the holders of shares of such series of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Distribution of Remaining Assets. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of the shares of Preferred Stock and Common Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to the terms of the Certificate of Incorporation immediately prior to such liquidation, dissolution or winding up of the Corporation. The aggregate amount which a holder of a share of Preferred Stock is entitled to receive under Subsections 2.1 and 2.2, less the amount of any previously paid Distribution Amount (as defined in Section 2.3.5 below) is hereinafter referred to as the "**Preferred Liquidation Amount**."

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a "**Deemed Liquidation Event**" unless the holders of (i) a majority of the outstanding shares of Preferred Stock (voting together as a single class and not as separate series, and on an as-converted basis), including holders of at least 1,151,914 shares of Series C Preferred Stock who do not also hold any shares of Series A Preferred Stock, Series A-1 Preferred Stock or Series B Preferred Stock (the "**Requisite Holders**") elect otherwise by written notice sent to the Corporation at least two (2) days prior to the effective date of any such event:

(a) a merger or consolidation in which

(i) the Corporation is a constituent party or

(ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation; or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

(b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets or intellectual property of the Corporation and its subsidiaries taken as a whole, or the sale or disposition (whether by merger, consolidation or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets or intellectual property of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation; or

(c) the closing of the sale, transfer or other disposition to any other company, or any other entity or person, of the Corporation's securities if, after such closing, such other company, entity or person would hold 50% or more of the outstanding voting stock of the Corporation (or the surviving or acquiring entity), provided, however, that a bona fide private equity financing of the Corporation the purpose of which is the financing of the Corporation's ongoing activities, shall not in itself constitute a Deemed Liquidation Event.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(i) unless the agreement or plan of merger or consolidation for such transaction (the "**Merger Agreement**") provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within ninety (90) days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Preferred Stock no later than the ninetieth (90th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause; (ii) to require the redemption of such shares of Preferred Stock, and (iii) if the Requisite Holders so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by Delaware law governing distributions to stockholders (the "**Available Proceeds**"), on the one hundred

fiftieth (150th) day after such Deemed Liquidation Event (the "**Redemption Date**"), to redeem all outstanding shares of each series of Preferred Stock at a price per share equal to the Preferred Liquidation Amount for each series of Preferred Stock; provided, however, that the Series B-1 Preferred Stock shall not be redeemed unless and until the holders of Series C Preferred Stock have first been paid all amounts due pursuant to this Subsection 2.3.2(b) and the Series A Preferred Stock and the Series A-1 Preferred Stock shall not be redeemed unless and until the holders of Series C Preferred Stock and Series B-1 Preferred have first been paid all amounts due pursuant to this Subsection 2.3.2(b). Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, (A) if the Available Proceeds are not sufficient to redeem all outstanding shares of Series C Preferred Stock, the Corporation shall redeem a pro rata portion of each holder's shares of Series C Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor, (B) if the Available Proceeds are not sufficient to redeem all outstanding shares of Series B-1 Preferred Stock, the Corporation shall redeem a pro rata portion of each holder's shares of Series B-1 Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor and (C) if the Available Proceeds are not sufficient to redeem all outstanding shares of Series A Preferred Stock and Series A-1 Preferred Stock, the Corporation shall redeem a pro rata portion of each holder's shares of Series A Preferred Stock and Series A-1 Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares as soon as it may lawfully do so under Delaware law governing distributions to stockholders. Prior to the distribution or redemption provided for in this Subsection 2.3.2(b) (a "**Required Redemption**"), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event.

(c) The Corporation shall send written notice of the Required Redemption (the "**Redemption Notice**") to each holder of record of Preferred Stock not less than ten (10) days prior to the date of redemption (the "**Redemption Date**"). Each Redemption Notice shall state:

(i) the number of shares of Preferred Stock held by the holder that the Corporation shall redeem on the Redemption Date;

(ii) the Redemption Date;

(iii) the date upon which the holder's right to convert such shares terminates; and

(iv) for holders of shares in certificated form, that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Preferred Stock to be redeemed.

(d) Surrender of Certificates; Payment. On or before the applicable Redemption Date, each holder of shares of Preferred Stock to be redeemed on such Redemption Date, unless such holder has exercised his, her or its right to convert such shares as provided in Section 4, shall, if a holder of shares in certificated form, surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the applicable redemption price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Preferred Stock represented by a certificate are redeemed, a new certificate, instrument, or book entry representing the unredeemed shares of Preferred Stock shall promptly be issued to such holder.

(e) Rights Subsequent to Redemption. If on the Redemption Date the redemption price payable upon redemption of the shares of Preferred Stock to be redeemed is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that any certificates evidencing any of the shares of Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after the Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the redemption price without interest upon surrender of any such certificate or certificates therefor.

(f) If any shares of Preferred Stock are not redeemed for any reason on any Redemption Date, all such unredeemed shares shall remain outstanding and entitled to all the rights and preferences provided herein.

2.3.3 Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities paid or distributed to such holders by the Corporation or the acquiring person, firm or other entity. The value of such property, rights or securities shall be determined in good faith by the Board of Directors of the Corporation.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event, if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the "**Additional Consideration**"), the relevant agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the "**Initial Consideration**") shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies

shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

2.3.5 Distribution Amount. In the event that the Board of Directors of the Corporation elects to distribute the proceeds (cash or otherwise) to its stockholders resulting from (a) any sale or other transfer of its securities not deemed a Deemed Liquidation Event referred to in Subsections 2.3.1(a)(ii) or 2.3.1(b), or (b) any sale, lease, transfer, exclusive license or other disposition of its assets not deemed a Deemed Liquidation Event referred to in Subsection 2.3(b), then such proceeds resulting therefrom (including in respect of any ongoing payments, such as a royalty or milestone payment) (a "**Distribution Amount**") will be distributed in accordance with Subsections 2.1 and 2.2 above and deemed an advance payment of the liquidation payments due upon a Deemed Liquidation Event, and not deemed as a dividend declared pursuant to Section 1 above.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of the Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class.

3.2 Election of Directors. The holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect four (4) directors of the Corporation (the "**Series A Directors**"), the holders of record of the shares of Series B-1 Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "**Series B Director**"), the holders of record of the shares of Series C Preferred Stock, exclusively and as a separate class, shall be entitled to elect two (2) directors of the Corporation (the "**Series C Directors**" and together with the Series A Directors and the Series B Director, the "**Preferred Directors**") and the holders of record of the shares of Common Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation. Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock, Series B-1 Preferred Stock, Series C Preferred Stock or Common Stock, as the case may be, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock, Series B-1 Preferred Stock, Series C Preferred Stock or Common Stock, as the case may be, elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled

by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the balance of the total number of directors of the Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2.

3.3 Preferred Stock Protective Provision. At any time when shares of Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, without (in addition to any other vote required by law or the Certificate of Incorporation) first obtaining the approval by vote or written consent, as provided by law, of the Requisite Holders and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.3.1 consummate a Deemed Liquidation Event, effect any other merger or consolidation or consent to any of the foregoing;

3.3.2 amend, alter or repeal any provision of the Corporation's Certificate of Incorporation or Bylaws;

3.3.3 increase or decrease (other than by redemption or conversion) the total number of authorized shares of Common Stock or Preferred Stock or designated shares of any series of Preferred Stock;

3.3.4 authorize, create or issue any equity security (including, without limitation, (i) any other security convertible into or exercisable for any such equity security or (ii) any unit of debt and equity securities) having a preference over, or being on a parity with, any series of Preferred Stock with respect to dividends, liquidation or redemption;

3.3.5 (i) reclassify, alter or amend any existing security of the Corporation that is pari passu with the Preferred Stock with respect to dividends, liquidation or redemption, if such reclassification, alteration or amendment would render such other security senior to the Preferred Stock in respect of any such right, preference or privilege or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Preferred Stock with respect to dividends, liquidation or redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Preferred Stock in respect of any such right, preference or privilege;

3.3.6 redeem, purchase or otherwise acquire (or pay into or set aside for a sinking fund for such purpose) any share or shares of Preferred Stock or Common Stock; provided, however, that this restriction shall not apply to the repurchase of shares of Common Stock from employees, officers, directors, consultants or other persons performing services for the Corporation or any subsidiary pursuant to agreements approved by the Board of

Directors under which the Corporation has the option to repurchase such shares at the lower of the original per share purchase price (as adjusted for any stock splits, stock dividends, combinations, subdivisions, recapitalizations or the like occurring after the effective time of the Reverse Stock Split) or then fair market value thereof upon the occurrence of certain events, such as the termination of employment or service, or pursuant to a right of first refusal;

3.3.7 change the authorized number of, or method of electing the, directors of the Corporation;

3.3.8 pay or declare any dividend on any shares of capital stock of the Corporation other than dividends payable on the Common Stock solely in the form of additional shares of Common Stock; or

3.3.9 create, or hold capital stock in, any subsidiary that is not wholly owned (either directly or through one or more other subsidiaries) by the Corporation, or sell, transfer or otherwise dispose of any capital stock of any direct or indirect subsidiary of the Corporation, or permit any direct or indirect subsidiary to sell, lease, transfer, exclusively license or otherwise dispose (in a single transaction or series of related transactions) of all or substantially all of the assets of such subsidiary.

4. Optional Conversion.

The holders of Preferred Stock shall have conversion rights as follows (the "**Conversion Rights**"):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of each series of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the applicable Original Issue Price for such series by the applicable Conversion Price (as defined below) for such series in effect at the time of conversion. The "**Series A Conversion Price**" shall initially be equal to $2.17. The "**Series A-1 Conversion Price**" shall initially be equal to $2.71. The "**Series B-1 Conversion Price**" shall initially be equal to $7.2829. The "**Series C Conversion Price**" shall initially be equal to $13.430. The "**Conversion Price**" shall mean: the Series C Conversion Price with respect to the Series C Preferred Stock; the Series B-1 Conversion Price with respect to the Series B-1 Preferred Stock; the Series A Conversion Price with respect to the Series A Preferred Stock; and the Series A-1 Conversion Price with respect to the Series A-1 Preferred Stock. The initial Conversion Price for each series of Preferred Stock, and the rate at which such shares of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors of the Corporation. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent) that such holder elects to convert all or any number of such holder's shares of Preferred Stock and, if applicable, any event on which such conversion is contingent and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (iii) pay all declared but unpaid dividends on the shares of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, the Corporation shall take such corporate action as may

be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Conversion Price applicable to a series of Preferred Stock below the then par value of the shares of Common Stock issuable upon conversion of such series of Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such applicable adjusted Conversion Price.

4.3.3 Effect of Conversion. All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the applicable Conversion Price shall be made for any declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

(a) "**Option**" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) "**Series C Original Issue Date**" shall mean the date on which the first share of Series C Preferred Stock was issued.

(c) "**Convertible Securities**" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(d) "**Additional Shares of Common Stock**" shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series C Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, "**Exempted Securities**"):

(i) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on Preferred Stock;

(ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock (occurring after the effective time of the Reverse Stock Split) that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;

(iii) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors of the Corporation, including a majority of the Preferred Directors;

(iv) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;

(v) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors of the Corporation, including a majority of the Preferred Directors;

(vi) shares of Common Stock, Options or Convertible Securities issued pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided that such issuances are approved by the Board of Directors of the Corporation, including a majority of the Preferred Directors; or

(vii) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved by the Board of Directors of the Corporation, including a majority of the Preferred Directors (including, but not limited to, that certain Exclusive Patent License Agreement between the Corporation and The General Hospital Corporation).

4.4.2 No Adjustment of Conversion Price. No adjustment in the Conversion Price applicable to a series of Preferred Stock shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of a majority of the then outstanding shares of such series of Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series C Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the applicable Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the applicable Conversion Price for such series of Preferred Stock computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such applicable Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the applicable Conversion Price for a series of Preferred Stock to an amount which exceeds the lower of (i) the applicable Conversion Price for such series of Preferred Stock in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the applicable Conversion Price for such series of Preferred Stock that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the applicable Conversion Price for a series of Preferred Stock pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the applicable Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series C Original Issue Date), are revised after the Series C Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the applicable Conversion Price for a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, the applicable Conversion Price for such series of Preferred Stock shall be readjusted to such Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the applicable Conversion Price for a series of Preferred Stock provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the applicable Conversion Price for a series of Preferred Stock that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the applicable Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series C Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Conversion Price applicable to a series of Preferred Stock in effect immediately prior to such issue, then the applicable Conversion Price for each series of Preferred Stock shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C).$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "CP_2" shall mean the applicable Conversion Price for such series of Preferred Stock in effect immediately after such issue of Additional Shares of Common Stock;

(b) "CP_1" shall mean the applicable Conversion Price for such series of Preferred Stock in effect immediately prior to such issue of Additional Shares of Common Stock;

(c) "A" shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issue or upon conversion or exchange of Convertible Securities (including the Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) "B" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP_1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP_1); and

(e) “C” shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors of the Corporation; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors of the Corporation.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

(i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the applicable Conversion Price for a series of Preferred Stock pursuant to the terms of Subsection 4.4.4 then, upon the final such issuance, the applicable Conversion Price for such series of Preferred Stock shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the effective time of the Reverse Stock Split effect a subdivision of the outstanding Common Stock, the applicable Conversion Price for each series of Preferred Stock in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the effective time of the Reverse Stock Split combine the outstanding shares of Common Stock, the applicable Conversion Price for each series of Preferred Stock in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series C Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the applicable Conversion Price for each series of Preferred Stock in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the applicable Conversion Price for each series of Preferred Stock then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the applicable Conversion Price for each series of Preferred Stock shall be recomputed accordingly as of the close of business on such record date and thereafter the applicable Conversion Price for each series of Preferred Stock shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment shall be made if the holders of a series of Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series C Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of each series of Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of each series of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of such series of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors of the Corporation) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the applicable Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter

deliverable upon the conversion of the Preferred Stock. For the avoidance of doubt, nothing in this Subsection 4.8 shall be construed as preventing the holders of Preferred Stock from seeking any appraisal rights to which they are otherwise entitled under the DGCL in connection with a merger triggering an adjustment hereunder, nor shall this Subsection 4.8 be deemed conclusive evidence of the fair value of the shares of Preferred Stock in any such appraisal proceeding.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the applicable Conversion Price for a series of Preferred Stock pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of such series of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which such series of Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of a series of Preferred Stock (but in any event not later than ten (10) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Price then in effect for such series of Preferred Stock, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of such series of Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any Deemed Liquidation Event; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Preferred Stock and the Common Stock. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon either (a) the closing of the sale of shares of Common Stock to the public in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $50,000,000 of proceeds, net of the underwriting discount and commissions, to the Corporation or (b) the date and time, or the occurrence of an event, specified by vote or written consent of the Requisite Holders (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the "**Mandatory Conversion Time**"), then (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1 and (ii) such shares may not be reissued by the Corporation.

5.2 Procedural Requirements. All holders of record of shares of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and (b)pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6. Redemption. The Preferred Stock is not redeemable at the option of the holder.

7. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

8. Waiver. Unless otherwise set forth in this Certificate of Incorporation, any of the rights, powers, preferences and other terms of the Preferred Stock set forth herein may be waived on behalf of all holders of Preferred Stock by the Requisite Holders.

9. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by the Certificate of Incorporation or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by the Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law.

Any amendment, repeal or modification of the foregoing provisions of this Article Tenth shall not (a) adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of such amendment, repeal or modification or (b) increase the liability of any director of the Corporation with respect to any acts or omissions of such director, officer or agent occurring prior to, such amendment, repeal or modification.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "**Excluded Opportunity**" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, "**Covered Persons**").

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of the Corporation in accordance with Section 228 of the General Corporation Law.

4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this Corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 31st day of March, 2020.

By: /s/ Jasbir S. Seehra
Name: Jasbir S. Seehra
Title: President and Chief Executive Officer

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
KEROS THERAPEUTICS, INC.

Keros Therapeutics, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of the Delaware, hereby certifies that:

ONE: The original name of this corporation was Keros Therapeutics, Inc. and the date of filing the original Certificate of Incorporation of this corporation with the Secretary of State of the State of Delaware (the "***Secretary***") was December 9, 2015.

TWO: The Amended and Restated Certificate of Incorporation, attached hereto as **Exhibit A**, is incorporated herein by reference, and restates, integrates and further amends the provisions of the Amended and Restated Certificate of Incorporation as previously amended or supplemented.

THREE: This Amended and Restated Certificate of Incorporation has been duly approved by the Board of Directors of the Corporation.

FOUR: This Amended and Restated Certificate of Incorporation was approved by the holders of the requisite number of shares of said Corporation in accordance with Section 228 of the Delaware General Corporation Law. This Amended and Restated Certificate of Incorporation has been duly adopted in accordance with the provisions of Sections 242 and 245 of the Delaware General Corporation Law by the stockholders of the Corporation.

IN WITNESS WHEREOF, the Corporation has caused this Amended and Restated Certificate of Incorporation to be signed by its duly authorized officer this day of , 2020.

KEROS THERAPEUTICS, INC.

By: _____
Jasbir Seehra, Ph.D.
Chief Executive Officer

EXHIBIT A

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
KEROS THERAPEUTICS, INC.

I.

The name of the corporation is **KEROS THERAPEUTICS, INC.** (the "***Corporation***").

II.

The address of the registered office of the Corporation in the State of Delaware is 1209 N. Orange Street, City of Wilmington, County of New Castle, Delaware, 19801 and the name of the registered agent of the Corporation in the State of Delaware at such address is the Corporation Trust Company.

III.

The purpose of the Corporation is to engage in any lawful act or activity for which a corporation may be organized under the Delaware General Corporation Law (the "***DGCL***").

IV.

A. The Corporation is authorized to issue two classes of stock to be designated, respectively, "***Common Stock***" and "***Preferred Stock***." The total number of shares which the Corporation is authorized to issue is 200 hundred and ten million (210,000,000) shares. Two hundred million (200,000,000) shares shall be Common Stock, each having a par value of $0.0001, and ten million (10,000,000) shares shall be Preferred Stock, each having a par value of $0.0001.

B. The Preferred Stock may be issued from time to time in one or more series. The board of directors of the Corporation (the "***Board of Directors***") is hereby expressly authorized to provide for the issue of all or any of the shares of the Preferred Stock in one or more series, and to fix the number of shares and to determine or alter for each such series, such voting powers, full or limited, or no voting powers, and such designation, preferences, and relative, participating, optional, or other rights and such qualifications, limitations, or restrictions thereof, as shall be stated and expressed in the resolution or resolutions adopted by the Board of Directors providing for the issuance of such shares and as may be permitted by the DGCL. The Board of Directors is also expressly authorized to increase or decrease the number of shares of any series subsequent to the issuance of shares of that series, but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be decreased in accordance with the foregoing sentence, the shares constituting such decrease shall resume the status that they had prior to the adoption of the resolution originally fixing the number of shares of such series. The number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote

of the holders of a majority of the voting power of the outstanding shares of stock of the Corporation entitled to vote, without a separate vote of the holders of the Preferred Stock, or of any series thereof irrespective of Section 242(b)(2) of the DGCL, unless a vote of any such holders is required pursuant to the terms of any certificate of designation filed with respect to any series of Preferred Stock.

C. Each outstanding share of Common Stock shall entitle the holder thereof to one vote on each matter properly submitted to the stockholders of the Corporation for their vote; *provided*, *however*, that, except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to this Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon by law or pursuant to this Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock).

V.

For the management of the business and for the conduct of the affairs of the Corporation, and in further definition, limitation and regulation of the powers of the Corporation, of its directors and of its stockholders or any class thereof, as the case may be, it is further provided that:

A. MANAGEMENT OF BUSINESS.

The management of the business and the conduct of the affairs of the Corporation shall be vested in its Board of Directors. The number of directors which shall constitute the Board of Directors shall be fixed exclusively by resolutions adopted by a majority of the authorized number of directors constituting the Board of Directors.

B. BOARD OF DIRECTORS

Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, following the closing of the initial public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended (the "***1933 Act***"), covering the offer and sale of Common Stock to the public (the "***Initial Public Offering***"), the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively. The Board of Directors is authorized to assign members of the Board of Directors already in office to such classes at the time the classification becomes effective. At the first annual meeting of stockholders following the closing of the Initial Public Offering, the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following the closing of the Initial Public Offering, the term of office of the Class II directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following the closing of the Initial Public Offering, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

Notwithstanding the foregoing provisions of this section, each director shall serve until his or her successor is duly elected and qualified or until his or her earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

C. REMOVAL OF DIRECTORS.

Subject to the rights of any series of Preferred Stock to elect additional directors under specified circumstances, following the closing of the Initial Public Offering, neither the Board of Directors nor any individual director may be removed without cause.

Subject to any limitation imposed by applicable law, any individual director or directors may be removed with cause by the affirmative vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the voting power of all then outstanding shares of capital stock of the Corporation entitled to vote generally at an election of directors.

D. VACANCIES.

Subject to any limitations imposed by applicable law and subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors, shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by the stockholders and except as otherwise provided by applicable law, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified.

E. AMENDED AND RESTATED BYLAW AMENDMENTS.

The Board of Directors is expressly empowered to adopt, amend or repeal the Amended and Restated Bylaws of the Corporation (the "***Bylaws***"). Any adoption, amendment or repeal of the Bylaws of the Corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders shall also have power to adopt, amend or repeal the Bylaws of the Corporation; *provided, however,* that, in addition to any vote of the holders of any class or series of stock of the Corporation required by law or by this Amended and Restated Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the voting power of all of the then-outstanding shares of the capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class.

F. STOCKHOLDER ACTIONS.

1. The directors of the Corporation need not be elected by written ballot unless the Bylaws so provide.

2. No action shall be taken by the stockholders of the Corporation except at an annual or special meeting of stockholders called in accordance with the Bylaws, and no action shall be taken by the stockholders by written consent or electronic transmission.

3. Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of the Corporation shall be given in the manner provided in the Bylaws of the Corporation.

VI.

A. The liability of the directors for monetary damages shall be eliminated to the fullest extent under applicable law.

B. To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which applicable law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise in excess of the indemnification and advancement otherwise permitted by such applicable law. If applicable law is amended after approval by the stockholders of this Article VI to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director to the Corporation shall be eliminated or limited to the fullest extent permitted by applicable law as so amended.

C. Any repeal or modification of this Article VI shall only be prospective and shall not affect the rights or protections or increase the liability of any director under this Article VI in effect at the time of the alleged occurrence of any act or omission to act giving rise to liability or indemnification.

VII.

A. Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall (or, if and only if the Court of Chancery of the State of Delaware lacks subject matter jurisdiction, any state court located within the State of Delaware or, if and only if all such state courts lack subject matter jurisdiction, the federal district court for the District of Delaware), to the fullest extent permitted by applicable law, be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (A) any derivative action or proceeding brought on behalf of the Corporation; (B) any action or proceeding (including any class action) asserting a claim of breach of a fiduciary duty owed by any current or former director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders; (C) any action or proceeding (including any class action) asserting a claim against the Corporation or any current or former director, officer or other employee of the Corporation arising out of or pursuant to any provision of the DGCL, this Amended and Restated Certificate of Incorporation or the

Bylaws of the Corporation (as each may be amended from time to time); (D) any action or proceeding (including any class action) to interpret, apply, enforce or determine the validity of this Amended and Restated Certificate of Incorporation or the Bylaws of the Corporation (including any right, obligation or remedy thereunder); (E) any action or proceeding as to which the DGCL confers jurisdiction to the Court of Chancery of the State of Delaware; or (F) any action asserting a claim against the Corporation or any director, officer or other employee of the Corporation governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants. This Article VII shall not apply to suits brought to enforce a duty or liability created by the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction.

B. Unless the Corporation consents in writing to the selection of an alternative forum, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the 1933 Act, subject to and contingent upon a final adjudication in the State of Delaware of the enforceability of such exclusive forum provision.

C. Any person or entity purchasing, holding, owning or otherwise acquiring any interest in any security of the Corporation shall be deemed to have notice of and consented to the provisions of this Article VII.

VIII.

A. The Corporation reserves the right to amend, alter, change or repeal any provision contained in this Amended and Restated Certificate of Incorporation, in the manner now or hereafter prescribed by statute, except as provided in paragraph B. of this Article VIII, and all rights conferred upon the stockholders herein are granted subject to this reservation.

B. Notwithstanding any other provisions of this Amended and Restated Certificate of Incorporation or any provision of law which might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any particular class or series of the Corporation required by law or by this Amended and Restated Certificate of Incorporation or any certificate of designation filed with respect to a series of Preferred Stock, the affirmative vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the voting power of all of the then outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to alter, amend or repeal Articles V, VI and VII.

* * * *

AMENDED AND RESTATED BYLAWS

OF

KEROS THERAPEUTICS, INC.
(A DELAWARE CORPORATION)

, 2020

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(continued)

AMENDED AND RESTATED BYLAWS

OF

KEROS THERAPEUTICS, INC.
(A DELAWARE CORPORATION)

, 2020

ARTICLE I

OFFICES

Section 1. Registered Office. The registered office of Keros Therapeutics, Inc. (the "***Corporation***") in the State of Delaware shall be 1209 N. Orange Street, City of Wilmington, County of New Castle, 19801.

Section 2. Other Offices. The Corporation shall also have and maintain an office or principal place of business at such place as may be fixed by the board of directors of the Corporation (the "***Board of Directors***"), and may also have offices at such other places, both within and without the State of Delaware, as the Board of Directors may from time to time determine or the business of the Corporation may require.

ARTICLE II

CORPORATE SEAL

Section 3. Corporate Seal. The Board of Directors may adopt a corporate seal. If adopted, the corporate seal shall consist of a die bearing the name of the Corporation and the inscription, "Corporate Seal-Delaware." Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

ARTICLE III

STOCKHOLDERS' MEETINGS

Section 4. Place of Meetings. Meetings of the stockholders of the Corporation may be held at such place, either within or without the State of Delaware, as may be determined from time to time by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as provided under the Delaware General Corporation Law ("***DGCL***").

Section 5. Annual Meetings.

(a) The annual meeting of the stockholders of the Corporation, for the purpose of election of directors and for such other business as may properly come before it, shall be held on such date and at such time as may be designated from time to time by the Board of Directors. Nominations of persons for election to the Board of Directors of the Corporation and the proposal of business to be considered by the stockholders may be made at an annual meeting of stockholders: (i) pursuant to the Corporation's notice of meeting of stockholders (with respect to business other than nominations); (ii) brought specifically by or at the direction of the Board of Directors; or (iii) by any stockholder of the Corporation who was a stockholder of record at the time of giving the stockholder's notice provided for in Section 5(b) below, who is entitled to vote at the meeting and who complied with the notice procedures set forth in Section 5. For the avoidance of doubt, clause (iii) above shall be the exclusive means for a stockholder to make nominations and submit other business (other than matters properly included in the Corporation's notice of meeting of stockholders and proxy statement under Rule 14a-8 under the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (the "***1934 Act***")) before an annual meeting of stockholders.

(b) At an annual meeting of the stockholders, only such business shall be conducted as is a proper matter for stockholder action under Delaware law and as shall have been properly brought before the meeting.

(i) For nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Amended and Restated Bylaws (these "***Bylaws***"), the stockholder must deliver written notice to the Secretary of the Corporation at the principal executive offices of the Corporation on a timely basis as set forth in Section 5(b)(iii) and must update and supplement such written notice on a timely basis as set forth in Section 5(c). Such stockholder's notice shall set forth: (A) as to each nominee such stockholder proposes to nominate at the meeting: (1) the name, age, business address and residence address of such nominee; (2) the principal occupation or employment of such nominee; (3) the class and number of shares of each class of capital stock of the Corporation which are owned of record and beneficially by such nominee; (4) the date or dates on which such shares were acquired and the investment intent of such acquisition; (5) a statement whether such nominee, if elected, intends to tender, promptly following such person's failure to receive the required vote for election or re-election at the next meeting at which such person would face election or re-election, an irrevocable resignation effective upon acceptance of such resignation by the Board of Directors; and (6) such other information concerning such nominee as would be required to be disclosed in a proxy statement soliciting proxies for the election of such nominee as a director in an election contest (even if an election contest is not involved), or that is otherwise required to be disclosed pursuant to Section 14 of the 1934 Act and the rules and regulations promulgated thereunder (including such person's written consent to being named as a nominee and to serving as a director if elected); and (B) the information required by Section 5(b)(iv). The Corporation may require any proposed nominee to furnish such other information as it may reasonably require to determine the eligibility of such proposed nominee to serve as an independent director of the Corporation or that could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such proposed nominee.

(ii) Other than proposals sought to be included in the Corporation's proxy materials pursuant to Rule 14a-8 under the 1934 Act, for business other than nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, the stockholder must deliver written notice to the Secretary of the Corporation at the principal executive offices of the Corporation on a timely basis as set forth in Section 5(b)(iii), and must update and supplement such written notice on a timely basis as set forth in Section 5(c). Such stockholder's notice shall set forth: (A) as to each matter such stockholder proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting, and any material interest (including any anticipated benefit of such business to any Proponent (as defined below) other than solely as a result of its ownership of the Corporation's capital stock, that is material to any Proponent individually, or to the Proponents in the aggregate) in such business of any Proponent; and (B) the information required by Section 5(b)(iv).

(iii) To be timely, the written notice required by Section 5(b)(i) or 5(b)(ii) must be received by the Secretary of the Corporation at the principal executive offices of the Corporation not later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the first anniversary of the preceding year's annual meeting; *provided, however,* that, subject to the last sentence of this Section 5(b)(iii), in the event that no annual meeting was held during the preceding year or the date of the annual meeting is advanced more than thirty (30) days prior to or delayed by more than thirty (30) days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be timely must be so received not earlier than the close of business on the one hundred twentieth (120th) day prior to such annual meeting and not later than the close of business on the later of the ninetieth (90th) day prior to such annual meeting or the closing of business on the tenth (10th) day following the day on which public announcement of the date of such meeting is first made. In no event shall an adjournment or a postponement of an annual meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above.

(iv) The written notice required by Section 5(b)(i) or 5(b)(ii) shall also set forth, as of the date of the notice and as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made (each, a "***Proponent***" and collectively, the "***Proponents***"): (A) the name and address of each Proponent, as they appear on the Corporation's books; (B) the class, series and number of shares of the Corporation that are owned beneficially and of record by each Proponent; (C) a description of any agreement, arrangement or understanding (whether oral or in writing) with respect to such nomination or proposal between or among any Proponent and any of its affiliates or associates, and any others (including their names) acting in concert, or otherwise under the agreement, arrangement or understanding, with any of the foregoing; (D) a representation that the Proponents are holders of record or beneficial owners, as the case may be, of shares of the Corporation entitled to vote at the meeting and intend to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice (with respect to a notice under Section 5(b)(i)) or to propose the business that is specified in the notice (with respect to a notice under Section 5(b)(ii)); (E) a representation as to whether the Proponents intend to deliver a proxy statement and form of

proxy to holders of a sufficient number of holders of the Corporation's voting shares to elect such nominee or nominees (with respect to a notice under Section 5(b)(i)) or to carry such proposal (with respect to a notice under Section 5(b)(ii)); (F) to the extent known by any Proponent, the name and address of any other stockholder supporting the proposal on the date of such stockholder's notice; and (G) a description of all Derivative Transactions (as defined below) by each Proponent during the previous twelve (12) month period, including the date of the transactions and the class, series and number of securities involved in, and the material economic terms of, such Derivative Transactions.

(c) A stockholder providing written notice required by Section 5(b)(i) or (ii) shall update and supplement such notice in writing, if necessary, so that the information provided or required to be provided in such notice is true and correct in all material respects as of (i) the record date for the meeting and (ii) the date that is five (5) business days prior to the meeting and, in the event of any adjournment or postponement thereof, five (5) business days prior to such adjourned or postponed meeting. In the case of an update and supplement pursuant to clause (i) of this Section 5(c), such update and supplement shall be received by the Secretary of the Corporation at the principal executive offices of the Corporation not later than five (5) business days after the record date for the meeting. In the case of an update and supplement pursuant to clause (ii) of this Section 5(c), such update and supplement shall be received by the Secretary of the Corporation at the principal executive offices of the Corporation not later than two (2) business days prior to the date for the meeting, and, in the event of any adjournment or postponement thereof, two (2) business days prior to such adjourned or postponed meeting.

(d) Notwithstanding anything in Section 5(b)(iii) to the contrary, in the event that the number of directors in an Expiring Class (as defined below) is increased and there is no public announcement of the appointment of a director to such class, or, if no appointment was made, of the vacancy in such class, made by the Corporation at least ten (10) days before the last day a stockholder may deliver a notice of nomination in accordance with Section 5(b)(iii), a stockholder's notice required by this Section 5 and which complies with the requirements in Section 5(b)(i), other than the timing requirements in Section 5(b)(iii), shall also be considered timely, but only with respect to nominees for any new positions in such Expiring Class created by such increase, if it shall be received by the Secretary of the Corporation at the principal executive offices of the Corporation not later than the close of business on the tenth (10th) day following the day on which such public announcement is first made by the Corporation. For purposes of this section, an "***Expiring Class***" shall mean a class of directors whose term shall expire at the next annual meeting of stockholders.

(e) A person shall not be eligible for election or re-election as a director unless the person is nominated either in accordance with clause (ii) of Section 5(a), or in accordance with clause (iii) of Section 5(a). Except as otherwise required by law, the chairperson of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made, or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, or the Proponent does not act in accordance with the representations in Sections 5(b)(iv)(D) and 5(b)(iv)(E), to declare that such proposal or nomination shall not be presented for stockholder action at the meeting and shall be disregarded, notwithstanding that proxies in respect of such nominations or such business may have been solicited or received.

(f) Notwithstanding the foregoing provisions of this Section 5, in order to include information with respect to a stockholder proposal in the proxy statement and form of proxy for a stockholders' meeting, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to proposals and/or nominations to be considered pursuant to Section 5(a)(iii) of these Bylaws.

(g) For purposes of Sections 5 and 6,

(i) "***affiliates***" and "***associates***" shall have the meanings set forth in Rule 405 under the Securities Act of 1933, as amended (the "***1933 Act***").

(ii) "***Derivative Transaction***" means any agreement, arrangement, interest or understanding entered into by, or on behalf or for the benefit of, any Proponent or any of its affiliates or associates, whether record or beneficial:

(w) the value of which is derived in whole or in part from the value of any class or series of shares or other securities of the Corporation,

(x) which otherwise provides any direct or indirect opportunity to gain or share in any gain derived from a change in the value of securities of the Corporation,

(y) the effect or intent of which is to mitigate loss, manage risk or benefit of security value or price changes, or

(z) which provides the right to vote or increase or decrease the voting power of, such Proponent, or any of its affiliates or associates, with respect to any securities of the Corporation,

which agreement, arrangement, interest or understanding may include, without limitation, any option, warrant, debt position, note, bond, convertible security, swap, stock appreciation right, short position, profit interest, hedge, right to dividends, voting agreement, performance-related fee or arrangement to borrow or lend shares (whether or not subject to payment, settlement, exercise or conversion in any such class or series), and any proportionate interest of such Proponent in the securities of the Corporation held by any general or limited partnership, or any limited liability company, of which such Proponent is, directly or indirectly, a general partner or managing member.

(iii) "***public announcement***" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press, Business Wire, GlobeNewswire or comparable national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the 1934 Act; and

Section 6. Special Meetings.

(a) Special meetings of the stockholders of the Corporation may be called, for any purpose as is a proper matter for stockholder action under Delaware law, by (i) the Chairperson of the Board of Directors, (ii) the Chief Executive Officer or the President if the Chairperson of the Board of Directors is unavailable, or (iii) the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption).

(b) The Board of Directors shall determine the time and place, if any, of such special meeting. Upon determination of the time and place, if any, of the meeting, the Secretary of the Corporation shall cause a notice of meeting to be given to the stockholders entitled to vote, in accordance with the provisions of Section 7 of these Bylaws. No business may be transacted at such special meeting other than specified in the notice of meeting.

(c) Nominations of persons for election to the Board of Directors may be made at a special meeting of stockholders at which directors are to be elected (i) by or at the direction of the Board of Directors or (ii) by any stockholder of the Corporation who is a stockholder of record at the time of giving notice provided for in this paragraph, who shall be entitled to vote at the meeting and who delivers written notice to the Secretary of the Corporation setting forth the information required by Section 5(b)(i). In the event the Corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder of record may nominate a person or persons (as the case may be), for election to such position(s) as specified in the Corporation's notice of meeting, if written notice setting forth the information required by Section 5(b)(i) of these Bylaws shall be received by the Secretary of the Corporation at the principal executive offices of the Corporation not later than the close of business on the later of the ninetieth (90th) day prior to such meeting or the tenth (10th) day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting. The stockholder shall also update and supplement such information as required under Section 5(c). In no event shall an adjournment or a postponement of a special meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period for the giving of a stockholder's notice as described above.

(d) Notwithstanding the foregoing provisions of this Section 6, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder with respect to matters set forth in this Section 6. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to nominations for the election to the Board of Directors to be considered pursuant to Section 6(c) of these Bylaws.

Section 7. Notice of Meetings. Except as otherwise provided by law, notice, given in writing or by electronic transmission, of each meeting of stockholders shall be given not less than ten (10) nor more than sixty (60) days before the date of the meeting to each stockholder

entitled to vote at such meeting, such notice to specify the place, if any, date and hour, in the case of special meetings, the purpose or purposes of the meeting, and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at any such meeting. If mailed, notice is given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the Corporation. Notice of the time, place, if any, and purpose of any meeting of stockholders may be waived in writing, signed by the person entitled to notice thereof, or by electronic transmission by such person, either before or after such meeting, and will be waived by any stockholder by his or her attendance thereat in person, by remote communication, if applicable, or by proxy, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of such meeting shall be bound by the proceedings of any such meeting in all respects as if due notice thereof had been given.

Section 8. Quorum. At all meetings of stockholders, except where otherwise provided by statute or by the Amended and Restated Certificate of Incorporation, or by these Bylaws, the presence, in person, by remote communication, if applicable, or by proxy duly authorized, of the holders of a majority of the voting power of the outstanding shares of stock entitled to vote shall constitute a quorum for the transaction of business. In the absence of a quorum, any meeting of stockholders may be adjourned, from time to time, either by the chairperson of the meeting or by vote of the holders of a majority of the voting power of the shares represented thereat, but no other business shall be transacted at such meeting. The stockholders present at a duly called or convened meeting, at which a quorum is present, may continue to transact business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum. Except as otherwise provided by statute or by applicable stock exchange rules, or by the Amended and Restated Certificate of Incorporation or these Bylaws, in all matters other than the election of directors, the affirmative vote of the majority of voting power of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the subject matter shall be the act of the stockholders. Except as otherwise provided by statute or by applicable stock exchange rules, the Amended and Restated Certificate of Incorporation or these Bylaws, directors shall be elected by a plurality of the votes of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the election of directors. Where a separate vote by a class or classes or series is required, except where otherwise provided by the statute, or by applicable stock exchange rules, or by the Amended and Restated Certificate of Incorporation or these Bylaws, a majority of the voting power of the outstanding shares of such class or classes or series, present in person, by remote communication, if applicable, or represented by proxy duly authorized, shall constitute a quorum entitled to take action with respect to that vote on that matter. Except where otherwise provided by statute or by applicable stock exchange rules or by the Amended and Restated Certificate of Incorporation or these Bylaws, the affirmative vote of the majority (plurality, in the case of the election of directors) of shares of such class or classes or series present in person, by remote communication, if applicable, or represented by proxy at the meeting shall be the act of such class or classes or series.

Section 9. Adjournment and Notice of Adjourned Meetings. Any meeting of stockholders, whether annual or special, may be adjourned from time to time either by the chairperson of the meeting or by the vote of a majority of the voting power of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting. When a meeting is adjourned to another time or place, if any, notice need not be given of the adjourned meeting if the time and place, if any, thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the Corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

Section 10. Voting Rights. For the purpose of determining those stockholders entitled to vote at any meeting of the stockholders, except as otherwise provided by law, only persons in whose names shares stand on the stock records of the Corporation on the record date, as provided in Section 12 of these Bylaws, shall be entitled to vote at any meeting of stockholders. Every person entitled to vote shall have the right to do so either in person, by remote communication, if applicable, or by an agent or agents authorized by a proxy granted in accordance with Delaware law. An agent so appointed need not be a stockholder. No proxy shall be voted after three (3) years from its date of creation unless the proxy provides for a longer period.

Section 11. Joint Owners of Stock. If shares or other securities having voting power stand of record in the names of two (2) or more persons, whether fiduciaries, members of a partnership, joint tenants, tenants in common, tenants by the entirety, or otherwise, or if two (2) or more persons have the same fiduciary relationship respecting the same shares, unless the Secretary of the Corporation is given written notice to the contrary and is furnished with a copy of the instrument or order appointing them or creating the relationship wherein it is so provided, their acts with respect to voting shall have the following effect: (a) if only one (1) votes, his or her act binds all; (b) if more than one (1) votes, the act of the majority so voting binds all; (c) if more than one (1) votes, but the vote is evenly split on any particular matter, each faction may vote the securities in question proportionally, or may apply to the Delaware Court of Chancery for relief as provided in the DGCL, Section 217(b). If the instrument filed with the Secretary of the Corporation shows that any such tenancy is held in unequal interests, a majority or even-split for the purpose of subsection (c) of Section 11 shall be a majority or even-split in interest.

Section 12. List of Stockholders. The Secretary of the Corporation shall prepare and make, at least ten (10) days before every meeting of stockholders, a complete list of the stockholders entitled to vote at said meeting, arranged in alphabetical order, showing the address of each stockholder and the number and class of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (b) during ordinary business hours, at the principal place of business of the Corporation. In the event that the Corporation determines to make the list available on an electronic network, the Corporation may take reasonable steps to ensure that such information is available only to stockholders of the Corporation. The list shall be open to examination of any stockholder during the time of the meeting as provided by law.

Section 13. Action Without Meeting. No action shall be taken by the stockholders except at an annual or special meeting of stockholders called in accordance with these Bylaws, and no action shall be taken by the stockholders by written consent or by electronic transmission.

Section 14. Organization.

(a) At every meeting of stockholders, the Chairperson of the Board of Directors, or, if a Chairperson has not been appointed or is absent, the Chief Executive Officer, or if no Chief Executive Officer is then serving or is absent, the President, or, if the President is absent, a chairperson of the meeting chosen by a majority in interest of the stockholders entitled to vote, present in person or by proxy, shall act as chairperson. The Chairperson of the Board may appoint the Chief Executive Officer as chairperson of the meeting. The Secretary of the Corporation, or, in his or her absence, an Assistant Secretary of the Corporation or other officer or other person directed to do so by the chairperson of the meeting, shall act as secretary of the meeting.

(b) The Board of Directors of the Corporation shall be entitled to make such rules or regulations for the conduct of meetings of stockholders as it shall deem necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairperson of the meeting shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairperson, are necessary, appropriate or convenient for the proper conduct of the meeting, including, without limitation, establishing an agenda or order of business for the meeting, rules and procedures for maintaining order at the meeting and the safety of those present, limitations on participation in such meeting to stockholders of record of the Corporation and their duly authorized and constituted proxies and such other persons as the chairperson shall permit, restrictions on entry to the meeting after the time fixed for the commencement thereof, limitations on the time allotted to questions or comments by participants and regulation of the opening and closing of the polls for balloting on matters which are to be voted on by ballot. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting. Unless and to the extent determined by the Board of Directors or the chairperson of the meeting, meetings of stockholders shall not be required to be held in accordance with rules of parliamentary procedure.

ARTICLE IV

DIRECTORS

Section 15. Number and Term of Office. The authorized number of directors of the Corporation shall be fixed in accordance with the Amended and Restated Certificate of Incorporation. Directors need not be stockholders unless so required by the Amended and Restated Certificate of Incorporation. If for any cause, the directors shall not have been elected at an annual meeting, they may be elected as soon thereafter as convenient at a special meeting of the stockholders called for that purpose in the manner provided in these Bylaws.

Section 16. Powers. The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors, except as may be otherwise provided by statute or by the Amended and Restated Certificate of Incorporation.

Section 17. Classes of Directors. Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, following the closing of the initial public offering pursuant to an effective registration statement under the 1933 Act, covering the offer and sale of Common Stock of the Corporation to the public (the "***Initial Public Offering***"), the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively. The Board of Directors is authorized to assign members of the Board of Directors already in office to such classes at the time the classification becomes effective. At the first annual meeting of stockholders following the closing of the Initial Public Offering, the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following the closing of the Initial Public Offering, the term of office of the Class II directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following the closing of the Initial Public Offering, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

Notwithstanding the foregoing provisions of this Section 17, each director shall serve until his or her successor is duly elected and qualified or until his or her earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

Section 18. Vacancies. Unless otherwise provided in the Amended and Restated Certificate of Incorporation, and subject to the rights of the holders of any series of Preferred Stock or as otherwise provided by applicable law, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, or by a sole remaining director, and not by the stockholders, *provided, however*, that whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the Amended and Restated Certificate of Incorporation, vacancies and newly created directorships of such class or classes or series shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified. A vacancy in the Board of Directors shall be deemed to exist under this Bylaw in the case of the death, removal or resignation of any director.

Section 19. Resignation. Any director may resign at any time by delivering his or her notice in writing or by electronic transmission to the Secretary of the Corporation, such resignation to specify whether it will be effective at a particular time. If no such specification is made, the resignation shall be deemed effective at the time of delivery of the resignation to the Secretary of the Corporation. When one or more directors shall resign from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office for the unexpired portion of the term of the director whose place shall be vacated and until his or her successor shall have been duly elected and qualified.

Section 20. Removal. Subject to any limitation imposed by law, any individual director or directors may be removed with cause by the affirmative vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the voting power of all then outstanding shares of capital stock of the Corporation entitled to vote generally at an election of directors, voting together as a single class.

Section 21. Meetings.

(a) Regular Meetings. Unless otherwise restricted by the Amended and Restated Certificate of Incorporation, regular meetings of the Board of Directors may be held at any time or date and at any place within or without the State of Delaware which has been designated by the Board of Directors and publicized among all directors, either orally or in writing, by telephone, including a voice-messaging system or other system designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means. No further notice shall be required for regular meetings of the Board of Directors.

(b) Special Meetings. Unless otherwise restricted by the Amended and Restated Certificate of Incorporation, special meetings of the Board of Directors may be held at any time and place within or without the State of Delaware whenever called by the Chairperson of the Board, the Chief Executive Officer or a majority of the total number of authorized directors.

(c) Meetings by Electronic Communications Equipment. Any member of the Board of Directors, or of any committee thereof, may participate in a meeting by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting by such means shall constitute presence in person at such meeting.

(d) Notice of Special Meetings. Notice of the time and place of all special meetings of the Board of Directors shall be orally or in writing, by telephone, including a voice messaging system or other system or technology designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means, during normal business hours, at least twenty-four (24) hours before the date and time of the meeting. If notice is sent by U.S. mail, it shall be sent by first class mail, charges prepaid, at least three (3) days before the date of the meeting. Notice of any meeting may be waived in writing, or by electronic

transmission, at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends the meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

(e) Waiver of Notice. The transaction of all business at any meeting of the Board of Directors, or any committee thereof, however called or noticed, or wherever held, shall be as valid as though it had been transacted at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present who did not receive notice shall sign a written waiver of notice or shall waive notice by electronic transmission. All such waivers shall be filed with the corporate records or made a part of the minutes of the meeting.

Section 22. Quorum and Voting.

(a) Unless the Amended and Restated Certificate of Incorporation requires a greater number, and except with respect to questions related to indemnification arising under Section 44 for which a quorum shall be one-third of the exact number of directors fixed from time to time, a quorum of the Board of Directors shall consist of a majority of the exact number of directors fixed from time to time by the Board of Directors in accordance with the Amended and Restated Certificate of Incorporation; *provided, however,* at any meeting whether a quorum be present or otherwise, a majority of the directors present may adjourn from time to time until the time fixed for the next regular meeting of the Board of Directors, without notice other than by announcement at the meeting.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business shall be determined by the affirmative vote of a majority of the directors present, unless a different vote be required by law, the Amended and Restated Certificate of Incorporation or these Bylaws.

Section 23. Action Without Meeting. Unless otherwise restricted by the Amended and Restated Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent thereto in writing or by electronic transmission, and such writing or writings or transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 24. Fees and Compensation. Directors shall be entitled to such compensation for their services as may be approved by the Board of Directors, including, if so approved, by resolution of the Board of Directors, a fixed sum and expenses of attendance, if any, for attendance at each regular or special meeting of the Board of Directors and at any meeting of a committee of the Board of Directors. Nothing herein contained shall be construed to preclude any director from serving the Corporation in any other capacity as an officer, agent, employee, or otherwise and receiving compensation therefor.

Section 25. Committees.

(a) Executive Committee. The Board of Directors may designate an Executive Committee to consist of one (1) or more members of the Board of Directors. The Executive Committee, to the extent permitted by law and provided in the resolution of the Board of Directors shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation, and may authorize the seal of the Corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any Bylaw of the Corporation.

(b) Other Committees. The Board of Directors may, from time to time, designate such other committees as may be permitted by law. Such other committees designated by the Board of Directors shall consist of one (1) or more members of the Board of Directors and shall have such powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event shall any such committee have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any Bylaw of the Corporation.

(c) Term. The Board of Directors, subject to any requirements of any outstanding series of Preferred Stock and the provisions of subsections (a) or (b) of this Section 25, may at any time increase or decrease the number of members of a committee or terminate the existence of a committee. The membership of a committee member shall terminate on the date of his or her death or voluntary resignation from the committee or from the Board of Directors. The Board of Directors may at any time for any reason remove any individual committee member and the Board of Directors may fill any committee vacancy created by death, resignation, removal or increase in the number of members of the committee. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee, and, in addition, in the absence or disqualification of any member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not he or they constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

(d) Meetings. Unless the Board of Directors shall otherwise provide, regular meetings of the Executive Committee or any other committee designated pursuant to this Section 25 shall be held at such times and places as are determined by the Board of Directors, or by any such committee, and when notice thereof has been given to each member of such committee, no further notice of such regular meetings need be given thereafter. Special meetings of any such committee may be held at any place which has been determined from time to time by such committee, and may be called by any director who is a member of such committee, upon notice to the members of such committee of the time and place of such special meeting given in the manner provided for the giving of notice to members of the Board of Directors of the time

and place of special meetings of the Board of Directors. Notice of any special meeting of any committee may be waived in writing or by electronic transmission at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends such special meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Unless otherwise provided by the Board of Directors in the resolutions authorizing the creation of the committee, a majority of the authorized number of members of any such committee shall constitute a quorum for the transaction of business, and the act of a majority of those present at any meeting at which a quorum is present shall be the act of such committee. Unless the Board of Directors shall otherwise provide, each committee shall conduct its business in the same manner as the Board of Directors conducts its business pursuant to Article IV of these Bylaws.

Section 26. Duties of Chairperson of the Board of Directors and Lead Independent Director.

(a) The Chairperson of the Board of Directors, if appointed and when present, shall preside at all meetings of the stockholders and the Board of Directors. The Chairperson of the Board of Directors shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(b) The Chairperson of the Board of Directors, or if the Chairperson is not an independent director, one of the independent directors, may be designated by the Board of Directors as lead independent director to serve until replaced by the Board of Directors ("***Lead Independent Directo***r"). The Lead Independent Director will perform such other duties as may be established or delegated by the Board of Directors.

Section 27. Organization. At every meeting of the directors, the Chairperson of the Board of Directors, or, if a Chairperson has not been appointed or is absent, the Lead Independent Director, or if the Lead Independent Director has not been appointed or is absent, the Chief Executive Officer (if a director), or, if a Chief Executive Officer is absent, the President (if a director), or if the President is absent, the most senior Vice President (if a director), or, in the absence of any such person, a chairperson of the meeting chosen by a majority of the directors present, shall preside over the meeting. The Secretary of the Corporation, or in his or her absence, any Assistant Secretary of the Corporation or other officer, director or other person directed to do so by the person presiding over the meeting, shall act as secretary of the meeting.

ARTICLE V

OFFICERS

Section 28. Officers Designated. The officers of the Corporation shall include, if and when designated by the Board of Directors, the Chief Executive Officer, the President, one or more Vice Presidents, the Secretary, the Chief Financial Officer and the Treasurer. The Board of Directors may also appoint one or more Assistant Secretaries and Assistant Treasurers and such

other officers and agents with such powers and duties as it shall deem necessary. The Board of Directors may assign such additional titles to one or more of the officers as it shall deem appropriate. Any one person may hold any number of offices of the Corporation at any one time unless specifically prohibited therefrom by law. The salaries and other compensation of the officers of the Corporation shall be fixed by or in the manner designated by the Board of Directors.

Section 29. Tenure and Duties of Officers.

(a) General. All officers shall hold office at the pleasure of the Board of Directors and until their successors shall have been duly elected and qualified, unless sooner removed. Any officer elected or appointed by the Board of Directors may be removed at any time by the Board of Directors. If the office of any officer becomes vacant for any reason, the vacancy may be filled by the Board of Directors.

(b) Duties of Chief Executive Officer. The Chief Executive Officer shall preside at all meetings of the stockholders and at all meetings of the Board of Directors (if a director), unless the Chairperson of the Board of Directors or the Lead Independent Director has been appointed and is present. Unless an officer has been appointed Chief Executive Officer of the Corporation, the President shall be the chief executive officer of the Corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the Corporation. To the extent that a Chief Executive Officer has been appointed and no President has been appointed, all references in these Bylaws to the President shall be deemed references to the Chief Executive Officer. The Chief Executive Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(c) Duties of President. The President shall preside at all meetings of the stockholders and at all meetings of the Board of Directors (if a director), unless the Chairperson of the Board of Directors, the Lead Independent Director or the Chief Executive Officer has been appointed and is present. Unless another officer has been appointed Chief Executive Officer of the Corporation, the President shall be the chief executive officer of the Corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the Corporation. The President shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(d) Duties of Vice Presidents. A Vice President may assume and perform the duties of the President in the absence or disability of the President or whenever the office of President is vacant. A Vice President shall perform other duties commonly incident to their office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or, if the Chief Executive Officer has not been appointed or is absent, the President shall designate from time to time.

(e) Duties of Secretary. The Secretary of the Corporation shall attend all meetings of the stockholders and of the Board of Directors and shall record all acts and

proceedings thereof in the minute book of the Corporation. The Secretary of the Corporation shall give notice in conformity with these Bylaws of all meetings of the stockholders and of all meetings of the Board of Directors and any committee thereof requiring notice. The Secretary of the Corporation shall perform all other duties provided for in these Bylaws and other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time. The Chief Executive Officer, or if no Chief Executive Officer is then serving, the President may direct any Assistant Secretary of the Corporation or other officer to assume and perform the duties of the Secretary in the absence or disability of the Secretary, and each Assistant Secretary of the Corporation shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time.

(f) Duties of Chief Financial Officer. The Chief Financial Officer shall keep or cause to be kept the books of account of the Corporation in a thorough and proper manner and shall render statements of the financial affairs of the Corporation in such form and as often as required by the Board of Directors or the Chief Executive Officer, or if no Chief Executive officer is then serving, the President. The Chief Financial Officer, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the Corporation. The Chief Financial Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time. To the extent that a Chief Financial Officer has been appointed and no Treasurer has been appointed, all references in these Bylaws to the Treasurer shall be deemed references to the Chief Financial Officer. The President may direct the Treasurer, if any, or any Assistant Treasurer, or the controller or any assistant controller to assume and perform the duties of the Chief Financial Officer in the absence or disability of the Chief Financial Officer, and each Treasurer and Assistant Treasurer and each controller and assistant controller shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time.

(g) Duties of Treasurer. Unless another officer has been appointed Chief Financial Officer of the Corporation, the Treasurer shall be the chief financial officer of the Corporation and shall keep or cause to be kept the books of account of the Corporation in a thorough and proper manner and shall render statements of the financial affairs of the Corporation in such form and as often as required by the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President, and, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the Corporation. The Treasurer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President and the Chief Financial Officer (if not Treasurer) shall designate from time to time.

Section 30. Delegation of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

Section 31. Resignations. Any officer may resign at any time by giving notice in writing or by electronic transmission to the Board of Directors or to the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President or to the Secretary of the Corporation. Any such resignation shall be effective when received by the person or persons to whom such notice is given, unless a later time is specified therein, in which event the resignation shall become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation shall not be necessary to make it effective. Any resignation shall be without prejudice to the rights, if any, of the Corporation under any contract with the resigning officer.

Section 32. Removal. Any officer may be removed from office at any time, either with or without cause, by the affirmative vote of a majority of the directors in office at the time, or by the unanimous written consent of the directors in office at the time, or by any committee or by the Chief Executive Officer or by other superior officers upon whom such power of removal may have been conferred by the Board of Directors.

ARTICLE VI

EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

Section 33. Execution of Corporate Instruments. The Board of Directors may, in its discretion, determine the method and designate the signatory officer or officers, or other person or persons, to execute on behalf of the Corporation any corporate instrument or document, or to sign on behalf of the Corporation the corporate name without limitation, or to enter into contracts on behalf of the Corporation, except where otherwise provided by law or these Bylaws, and such execution or signature shall be binding upon the Corporation.

All checks and drafts drawn on banks or other depositaries on funds to the credit of the Corporation or in special accounts of the Corporation shall be signed by such person or persons as the Board of Directors shall authorize so to do.

Unless authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the Corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

Section 34. Voting of Securities Owned By the Corporation. All stock and other securities of other Corporations owned or held by the Corporation for itself, or for other parties in any capacity, shall be voted, and all proxies with respect thereto shall be executed, by the person authorized so to do by resolution of the Board of Directors, or, in the absence of such authorization, by the Chairperson of the Board of Directors, the Chief Executive Officer, the President, or any Vice President.

ARTICLE VII

SHARES OF STOCK

Section 35. Form and Execution of Certificates. The shares of the Corporation shall be represented by certificates, or shall be uncertificated if so provided by resolution or resolutions of the Board of Directors. Certificates for the shares of stock, if any, shall be in such form as is consistent with the Amended and Restated Certificate of Incorporation and applicable law. Every holder of stock in the Corporation represented by certificate shall be entitled to have a certificate signed by or in the name of the Corporation by any two authorized officers of the Corporation, including but not limited to, the Chief Executive Officer, the President, the Chief Financial Officer, any Vice President, the Treasurer or Assistant Treasurer or the Secretary or Assistant Secretary, certifying the number of shares owned by him in the Corporation. Any or all of the signatures on the certificate may be facsimiles. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent, or registrar before such certificate is issued, it may be issued with the same effect as if he were such officer, transfer agent, or registrar at the date of issue.

Section 36. Lost Certificates. A new certificate or certificates shall be issued in place of any certificate or certificates theretofore issued by the Corporation alleged to have been lost, stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. The Corporation may require, as a condition precedent to the issuance of a new certificate or certificates, the owner of such lost, stolen, or destroyed certificate or certificates, or the owner's legal representative, to agree to indemnify the Corporation in such manner as it shall require or to give the Corporation a surety bond in such form and amount as it may direct as indemnity against any claim that may be made against the Corporation with respect to the certificate alleged to have been lost, stolen, or destroyed.

Section 37. Transfers.

(a) Transfers of record of shares of stock of the Corporation shall be made only upon its books by the holders thereof, in person or by attorney duly authorized, and, in the case of stock represented by certificate, upon the surrender of a properly endorsed certificate or certificates for a like number of shares.

(b) The Corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes of stock of the Corporation to restrict the transfer of shares of stock of the Corporation of any one or more classes owned by such stockholders in any manner not prohibited by the DGCL.

Section 38. Fixing Record Dates.

(a) In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date

shall, subject to applicable law, not be more than sixty (60) nor less than ten (10) days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board of Directors may fix a new record date for the adjourned meeting.

(b) In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than sixty (60) days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 39. Registered Stockholders. The Corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends, and to vote as such owner, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

ARTICLE VIII

OTHER SECURITIES OF THE CORPORATION

Section 40. Execution of Other Securities. All bonds, debentures and other corporate securities of the Corporation, other than stock certificates (covered in Section 35), may be signed by the Chief Executive Officer, the President or any Vice President, or such other person as may be authorized by the Board of Directors, and if such securities require it, the corporate seal may be impressed thereon or a facsimile of such seal may be imprinted thereon and attested by the signature of the Secretary of the Corporation or an Assistant Secretary of the Corporation, or the Chief Financial Officer or Treasurer or an Assistant Treasurer; *provided, however,* that where any such bond, debenture or other corporate security shall be authenticated by the manual signature, or where permissible facsimile signature, of a trustee under an indenture pursuant to which such bond, debenture or other corporate security shall be issued, the signatures of the persons signing and attesting the corporate seal on such bond, debenture or other corporate security may be the imprinted facsimile of the signatures of such persons. Interest coupons appertaining to any such bond, debenture or other corporate security, authenticated by a trustee as aforesaid, shall be signed by the Treasurer or an Assistant Treasurer of the Corporation or such other person as may be authorized by the Board of Directors, or bear imprinted thereon the facsimile signature of such person. In case any officer who shall have signed or attested any bond, debenture or other corporate security, or whose facsimile signature shall appear thereon or on any such interest coupon, shall have ceased to be such officer before the bond, debenture or

other corporate security so signed or attested shall have been delivered, such bond, debenture or other corporate security nevertheless may be adopted by the Corporation and issued and delivered as though the person who signed the same or whose facsimile signature shall have been used thereon had not ceased to be such officer of the Corporation.

ARTICLE IX

DIVIDENDS

Section 41. Declaration of Dividends. Dividends upon the capital stock of the Corporation, subject to the provisions of the Amended and Restated Certificate of Incorporation and applicable law, if any, may be declared by the Board of Directors pursuant to law at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Amended and Restated Certificate of Incorporation and applicable law.

Section 42. Dividend Reserve. Before payment of any dividend, there may be set aside out of any funds of the Corporation available for dividends such sum or sums as the Board of Directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the Corporation, or for such other purpose as the Board of Directors shall think conducive to the interests of the Corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE X

FISCAL YEAR

Section 43. Fiscal Year. The fiscal year of the Corporation shall be fixed by resolution of the Board of Directors.

ARTICLE XI

INDEMNIFICATION

Section 44. Indemnification of Directors, Executive Officers, Other Officers, Employees and Other Agents.

(a) Directors and Executive Officers. The Corporation shall indemnify its directors and executive officers (for the purposes of this Article XI, "***executive officers***" shall have the meaning defined in Rule 3b-7 promulgated under the 1934 Act) to the extent not prohibited by the DGCL or any other applicable law; *provided, however,* that the Corporation may modify the extent of such indemnification by individual contracts with its directors and executive officers; and, *provided, further,* that the Corporation shall not be required to indemnify any director or executive officer in connection with any proceeding (or part thereof) initiated by such person unless (i) such indemnification is expressly required to be made by law, (ii) the proceeding was authorized by the Board of Directors of the Corporation, (iii) such indemnification is provided by the Corporation, in its sole discretion, pursuant to the powers vested in the Corporation under the DGCL or any other applicable law or (iv) such indemnification is required to be made under subsection (d).

(b) Other Officers, Employees and Other Agents. The Corporation shall have power to indemnify its other officers, employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors shall have the power to delegate the determination of whether indemnification shall be given to any such person except executive officers to such officers or other persons as the Board of Directors shall determine.

(c) Expenses. The Corporation shall advance to any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or executive officer, of the Corporation, or is or was serving at the request of the Corporation as a director or executive officer of another Corporation, partnership, joint venture, trust or other enterprise, prior to the final disposition of the proceeding, promptly following request therefor, all expenses incurred by any director or executive officer in connection with such proceeding provided, however, that if the DGCL requires, an advancement of expenses incurred by a director or executive officer in his or her capacity as a director or executive officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the Corporation of an undertaking (hereinafter an "***undertaking***"), by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal (hereinafter a "***final adjudication***") that such indemnitee is not entitled to be indemnified for such expenses under this section or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to paragraph (e) of this section, no advance shall be made by the Corporation to an executive officer of the Corporation (except by reason of the fact that such executive officer is or was a director of the Corporation in which event this paragraph shall not apply) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, if a determination is reasonably and promptly made (i) by a majority vote of directors who were not parties to the proceeding, even if not a quorum, or (ii) by a committee of such directors designated by a majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or such directors so direct, by independent legal counsel in a written opinion, that the facts known to the decision-making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the Corporation.

(d) Enforcement. Without the necessity of entering into an express contract, all rights to indemnification and advances to directors and executive officers under this Bylaw shall be deemed to be contractual rights and be effective to the same extent and as if provided for in a contract between the Corporation and the director or executive officer. Any right to indemnification or advances granted by this section to a director or executive officer shall be enforceable by or on behalf of the person holding such right in any court of competent jurisdiction if (i) the claim for indemnification or advances is denied, in whole or in part, or (ii) no disposition of such claim is made within ninety (90) days of request therefor. To the

extent permitted by law, the claimant in such enforcement action, if successful in whole or in part, shall be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the Corporation shall be entitled to raise as a defense to any such action that the claimant has not met the standards of conduct that make it permissible under the DGCL or any other applicable law for the Corporation to indemnify the claimant for the amount claimed. In connection with any claim by an executive officer of the Corporation (except in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such executive officer is or was a director of the Corporation) for advances, the Corporation shall be entitled to raise a defense as to any such action clear and convincing evidence that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the Corporation, or with respect to any criminal action or proceeding that such person acted without reasonable cause to believe that his or her conduct was lawful. Neither the failure of the Corporation (including its Board of Directors, independent legal counsel or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because he has met the applicable standard of conduct set forth in the DGCL or any other applicable law, nor an actual determination by the Corporation (including its Board of Directors, independent legal counsel or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that claimant has not met the applicable standard of conduct. In any suit brought by a director or executive officer to enforce a right to indemnification or to an advancement of expenses hereunder, the burden of proving that the director or executive officer is not entitled to be indemnified, or to such advancement of expenses, under this section or otherwise shall be on the Corporation.

(e) Non-Exclusivity of Rights. The rights conferred on any person by this Bylaw shall not be exclusive of any other right which such person may have or hereafter acquire under any applicable statute, provision of the Amended and Restated Certificate of Incorporation, Bylaws, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding office. The Corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL, or by any other applicable law.

(f) Survival of Rights. The rights conferred on any person by this Bylaw shall continue as to a person who has ceased to be a director, officer, employee or other agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

(g) Insurance. To the fullest extent permitted by the DGCL or any other applicable law, the Corporation, upon approval by the Board of Directors, may purchase insurance on behalf of any person required or permitted to be indemnified pursuant to this section.

(h) Amendments. Any repeal or modification of this section shall only be prospective and shall not affect the rights under this Bylaw in effect at the time of the alleged occurrence of any action or omission to act that is the cause of any proceeding against any agent of the Corporation.

(i) Saving Clause. If this Bylaw or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the Corporation shall nevertheless indemnify each director and executive officer to the full extent not prohibited by any applicable portion of this section that shall not have been invalidated, or by any other applicable law. If this section shall be invalid due to the application of the indemnification provisions of another jurisdiction, then the Corporation shall indemnify each director and executive officer to the full extent under any other applicable law.

(j) Certain Definitions. For the purposes of this Bylaw, the following definitions shall apply:

(i) The term "***proceeding***" shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative.

(ii) The term "***expenses***" shall be broadly construed and shall include, without limitation, court costs, attorneys' fees, witness fees, fines, amounts paid in settlement or judgment and any other costs and expenses of any nature or kind incurred in connection with any proceeding.

(iii) The term the "***Corporation***" shall include, in addition to the resulting Corporation, any constituent Corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent Corporation, or is or was serving at the request of such constituent Corporation as a director, officer, employee or agent of another Corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this section with respect to the resulting or surviving Corporation as he would have with respect to such constituent Corporation if its separate existence had continued.

(iv) References to a "***director***," "***executive officer***," "***officer***," "***employee***," or "***agent***" of the Corporation shall include, without limitation, situations where such person is serving at the request of the Corporation as, respectively, a director, executive officer, officer, employee, trustee or agent of another Corporation, partnership, joint venture, trust or other enterprise.

(v) References to "***other enterprises***" shall include employee benefit plans; references to "***fines***" shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to "***serving at the request of the Corporation***" shall include any service as a director, officer, employee or agent of the Corporation which imposes duties on, or involves services by, such director, officer, employee, or agent with respect to an employee benefit plan, its participants, or beneficiaries; and a person who acted in good faith and in a manner he reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner "***not opposed to the best interests of the Corporation***" as referred to in this section.

ARTICLE XII

NOTICES

Section 45. Notices.

(a) Notice to Stockholders. Written notice to stockholders of stockholder meetings shall be given as provided in Section 7 herein. Without limiting the manner by which notice may otherwise be given effectively to stockholders under any agreement or contract with such stockholder, and except as otherwise required by law, written notice to stockholders for purposes other than stockholder meetings may be sent by U.S. mail or nationally recognized overnight courier, or by facsimile, telegraph or telex or by electronic mail or other electronic means.

(b) Notice to Directors. Any notice required to be given to any director may be given by the method stated in subsection (a), or as otherwise provided in these Bylaws, with notice other than one which is delivered personally to be sent to such address as such director shall have filed in writing with the Secretary of the Corporation, or, in the absence of such filing, to the last known address of such director.

(c) Affidavit of Mailing. An affidavit of mailing, executed by a duly authorized and competent employee of the Corporation or its transfer agent appointed with respect to the class of stock affected, or other agent, specifying the name and address or the names and addresses of the stockholder or stockholders, or director or directors, to whom any such notice or notices was or were given, and the time and method of giving the same, shall in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) Methods of Notice. It shall not be necessary that the same method of giving notice be employed in respect of all recipients of notice, but one permissible method may be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

(e) Notice to Person With Whom Communication is Unlawful. Whenever notice is required to be given, under any provision of law or of the Amended and Restated Certificate of Incorporation or Bylaws of the Corporation, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the Corporation is such as to require the filing of a certificate under any provision of the DGCL, the certificate shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

(f) Notice to Stockholders Sharing an Address. Except as otherwise prohibited under DGCL, any notice given under the provisions of DGCL, the Amended and Restated Certificate of Incorporation or these Bylaws shall be effective if given by a single

written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Such consent shall have been deemed to have been given if such stockholder fails to object in writing to the Corporation within sixty (60) days of having been given notice by the Corporation of its intention to send the single notice. Any consent shall be revocable by the stockholder by written notice to the Corporation.

ARTICLE XIII

AMENDMENTS

Section 46. Amendments. Subject to the limitations set forth in Section 44(h) of these Bylaws or the provisions of the Amended and Restated Certificate of Incorporation, the Board of Directors is expressly empowered to adopt, amend or repeal these Bylaws of the Corporation. Any adoption, amendment or repeal of these Bylaws of the Corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders also shall have power to adopt, amend or repeal these Bylaws of the Corporation; *provided, however,* that, in addition to any vote of the holders of any class or series of stock of the Corporation required by law or by the Amended and Restated Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least sixty-six and two-thirds percent (66-2/3%) of the voting power of all of the then-outstanding shares of the capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class.

ARTICLE XIV

LOANS TO OFFICERS

Section 47. Loans to Officers. Except as otherwise prohibited by applicable law, the Corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the Corporation or of its subsidiaries, including any officer or employee who is a director of the Corporation or its subsidiaries, whenever, in the judgment of the Board of Directors, such loan, guarantee or assistance may reasonably be expected to benefit the Corporation. The loan, guarantee or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the Corporation. Nothing in these Bylaws shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the Corporation at common law or under any statute.

ZQ|CERT#|COY|CLS|RGSTRY|ACCT#|TRANSTYPE|RUN#|TRANS#

COMMON STOCK

PAR VALUE $0.0001

COMMON STOCK

KEROS THERAPEUTICS

Certificate Number

ZQ00000000

Shares

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KEROS THERAPEUTICS, INC.

INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE

THIS CERTIFIES THAT

MR. SAMPLE & MRS. SAMPLE & MR. SAMPLE & MRS. SAMPLE

SEE REVERSE FOR CERTAIN DEFINITIONS

CUSIP XXXXXX XX X

is the owner of

ZERO HUNDRED THOUSAND ZERO HUNDRED AND ZERO

THIS CERTIFICATE IS TRANSFERABLE IN CITIES DESIGNATED BY THE TRANSFER AGENT, AVAILABLE ONLINE AT www.computershare.com

FULLY-PAID AND NON-ASSESSABLE SHARES OF COMMON STOCK OF

Keros Therapeutics, Inc. **(hereinafter called the "Company")**, transferable on the books of the Company in person or by duly authorized attorney, upon surrender of this Certificate properly endorsed. This Certificate and the shares represented hereby, are issued and shall be held subject to all of the provisions of the Certificate of Incorporation, as amended, and the By-Laws, as amended, of the Company (copies of which are on file with the Company and with the Transfer Agent), to all of which each holder, by acceptance hereof, assents. This Certificate is not valid unless countersigned and registered by the Transfer Agent and Registrar.

Witness the facsimile seal of the Company and the facsimile signatures of its duly authorized officers.

DATED DD-MMM-YYYY

FACSIMILE SIGNATURE TO COME

President

KEROS THERAPEUTICS INC. INCORPORATED SEAL December 9, 2015 DELAWARE

COUNTERSIGNED AND REGISTERED:
COMPUTERSHARE TRUST COMPANY, N.A.
TRANSFER AGENT AND REGISTRAR,

FACSIMILE SIGNATURE TO COME

Secretary

By _____
AUTHORIZED SIGNATURE

SECURITY INSTRUCTIONS ON REVERSE

123456

KEROS THERAPEUTICS

PO BOX 555555, Louisville, KY 40233-5005

MR A SAMPLE
DESIGNATION (IF ANY)
ADD 1
ADD 2
ADD 3
ADD 4

CUSIP/IDENTIFIER	XXXXXX XX X
Holder ID	XXXXXXXXXX
Insurance Value	1,000,000.00
Number of Shares	123456
DTC	12345678 12345678901234 5

Certificate Numbers	Num/No.	Denom.	Total
12345678901234567890	1	1	1
12345678901234567890	2	2	2
12345678901234567890	3	3	3
12345678901234567890	4	4	4
12345678901234567890	5	5	5
12345678901234567890	6	6	6
Total Transaction			7

KEROS THERAPEUTICS, INC.

THE COMPANY WILL FURNISH WITHOUT CHARGE TO EACH SHAREHOLDER WHO SO REQUESTS, A SUMMARY OF THE POWERS, DESIGNATIONS, PREFERENCES AND RELATIVE, PARTICIPATING, OPTIONAL OR OTHER SPECIAL RIGHTS OF EACH CLASS OF STOCK OF THE COMPANY AND THE QUALIFICATIONS, LIMITATIONS OR RESTRICTIONS OF SUCH PREFERENCES AND RIGHTS, AND THE VARIATIONS IN RIGHTS, PREFERENCES AND LIMITATIONS DETERMINED FOR EACH SERIES, WHICH ARE FIXED BY THE CERTIFICATE OF INCORPORATION OF THE COMPANY, AS AMENDED, AND THE RESOLUTIONS OF THE BOARD OF DIRECTORS OF THE COMPANY, AND THE AUTHORITY OF THE BOARD OF DIRECTORS TO DETERMINE VARIATIONS FOR FUTURE SERIES. SUCH REQUEST MAY BE MADE TO THE OFFICE OF THE SECRETARY OF THE COMPANY OR TO THE TRANSFER AGENT. THE BOARD OF DIRECTORS MAY REQUIRE THE OWNER OF A LOST OR DESTROYED STOCK CERTIFICATE, OR HIS LEGAL REPRESENTATIVES, TO GIVE THE COMPANY A BOND TO INDEMNIFY IT AND ITS TRANSFER AGENTS AND REGISTRARS AGAINST ANY CLAIM THAT MAY BE MADE AGAINST THEM ON ACCOUNT OF THE ALLEGED LOSS OR DESTRUCTION OF ANY SUCH CERTIFICATE.

The following abbreviations, when used in the inscription on the face of this certificate, shall be construed as though they were written out in full according to applicable laws or regulations:

TEN COM	- as tenants in common	UNIF GIFT MIN ACT	-.....(Cust).....Custodian.....(Minor).....
TEN ENT	- as tenants by the entireties		under Uniform Gifts to Minors Act.....(State).....
JT TEN	- as joint tenants with right of survivorship and not as tenants in common	UNIF TRF MIN ACT	-.....(Cust).....Custodian (until age.....)
			.....(Minor).....under Uniform Transfers to Minors Act.....(State).....

Additional abbreviations may also be used though not in the above list.

For value received,_____ hereby sell, assign and transfer unto

PLEASE INSERT SOCIAL SECURITY OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

_____

(PLEASE PRINT OR TYPEWRITE NAME AND ADDRESS, INCLUDING POSTAL ZIP CODE, OF ASSIGNEE)

_____

_____

_____ Shares

of the common stock represented by the within Certificate, and do hereby irrevocably constitute and appoint

_____ Attorney

to transfer the said stock on the books of the within-named Company with full power of substitution in the premises.

Dated: _____ 20_____

Signature:_____

Signature:_____

Notice: The signature to this assignment must correspond with the name as written upon the face of the certificate, in every particular, without alteration or enlargement, or any change whatever.

Signature(s) Guaranteed: Medallion Guarantee Stamp

THE SIGNATURE(S) SHOULD BE GUARANTEED BY AN ELIGIBLE GUARANTOR INSTITUTION (Banks, Stockbrokers, Savings and Loan Associations and Credit Unions) WITH MEMBERSHIP IN AN APPROVED SIGNATURE GUARANTEE MEDALLION PROGRAM, PURSUANT TO S.E.C. RULE 17Ad-15.

SECURITY INSTRUCTIONS

THIS IS WATERMARKED PAPER. DO NOT ACCEPT WITHOUT NOTING WATERMARK. HOLD TO LIGHT TO VERIFY WATERMARK.

The IRS requires that the named transfer agent ("we") report the cost basis of certain shares or units acquired after January 1, 2011. If your shares or units are covered by the legislation, and you requested to sell or transfer the shares or units using a specific cost basis calculation method, then we have processed as you requested. If you did not specify a cost basis calculation method, then we have defaulted to the first in, first out (FIFO) method. Please consult your tax advisor if you need additional information about cost basis.

If you do not keep in contact with the issuer or do not have any activity in your account for the time period specified by state law, your property may become subject to state unclaimed property laws and transferred to the appropriate state.

153421

Exhibit 5.1

Cooley

Marc A. Recht
T: +1 617 937 2316
mrecht@cooley.com

April 1, 2020

Keros Therapeutics, Inc.
99 Hayden Avenue
Bldg. E, Suite 120
Lexington, MA 02421

Ladies and Gentlemen:

We have acted as counsel to Keros Therapeutics, Inc., a Delaware corporation (the "***Company***"), in connection with the filing by the Company of a Registration Statement (No. 333-237212) on Form S-1 (the "***Registration Statement***") with the Securities and Exchange Commission, including a related prospectus filed with the Registration Statement (the "***Prospectus***"), covering an underwritten public offering of up to 5,000,000 shares of the Company's common stock, par value $0.0001 ("***Shares***") (including up to 750,000 Shares that may be sold by the Company upon exercise of an option to purchase additional shares to be granted to the underwriters).

In connection with this opinion, we have (i) examined and relied upon (a) the Registration Statement and the Prospectus, (b) the Company's Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, each as currently in effect, (c) the forms of the Company's Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws filed as Exhibits 3.3 and 3.4, to the Registration Statement, respectively, each of which is to be in effect upon the closing of the offering contemplated by the Registration Statement and (d) originals or copies certified to our satisfaction of such records, documents, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below and (ii) assumed that the Shares will be sold at a price established by the Board of Directors of the Company or a duly authorized committee thereof.

We have assumed the genuineness and authenticity of all documents submitted to us as originals, the conformity to originals of all documents submitted to us as copies thereof, the accuracy, completeness and authenticity of certificates of public officials and the due authorization, execution and delivery of all documents by all persons other than the Company where authorization, execution and delivery are prerequisites to the effectiveness thereof. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not independently verified such matters.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that the Shares, when sold and issued against payment therefor as described in the Registration Statement and the Prospectus, will be validly issued, fully paid and non-assessable.

We consent to the reference to our firm under the caption "Legal Matters" in the Prospectus included in the Registration Statement and to the filing of this opinion as an exhibit to the Registration Statement.

Sincerely,

Cooley LLP

By: /s/ Marc Recht
Marc Recht

Cooley LLP 500 Boylston Street Boston, MA 02116-3736
Phone: (617) 937-2300 Fax: (617) 937-2400

FORM OF
INDEMNIFICATION AGREEMENT

THIS INDEMNIFICATION AGREEMENT (the "**Agreement**") is made and entered into as of , 2020 between Keros Therapeutics, Inc., a Delaware corporation (the "**Company**"), and ("**Indemnitee**").

WITNESSETH THAT:

WHEREAS, highly competent persons have become more reluctant to serve corporations as directors or in other capacities unless they are provided with adequate protection through insurance or adequate indemnification against inordinate risks of claims and actions against them arising out of their service to and activities on behalf of the corporation;

WHEREAS, the Board of Directors of the Company (the "**Board**") has determined that, in order to attract and retain qualified individuals, the Company will attempt to maintain on an ongoing basis, at its sole expense, liability insurance to protect persons serving the Company and its subsidiaries from certain liabilities. Although the furnishing of such insurance has been a customary and widespread practice among U.S.-based corporations and other business enterprises, the Company believes that, given current market conditions and trends, such insurance may be available to it in the future only at higher premiums and with more exclusions. At the same time, directors, officers, and other persons in service to corporations or business enterprises are being increasingly subjected to expensive and time-consuming litigation relating to, among other things, matters that traditionally would have been brought only against the Company or business enterprise itself. The Company's Bylaws (the "**Bylaws**") and the Company's Certificate of Incorporation (the "**Certificate of Incorporation**") require indemnification of the officers and directors of the Company. Indemnitee may also be entitled to indemnification pursuant to the General Corporation Law of the State of Delaware (the "**DGCL**"). The Bylaws and Certificate of Incorporation and the DGCL expressly provide that the indemnification provisions set forth therein are not exclusive, and thereby contemplate that contracts may be entered into between the Company and members of the Board, officers and other persons with respect to indemnification;

WHEREAS, the uncertainties relating to such insurance and to indemnification have increased the difficulty of attracting and retaining such persons;

WHEREAS, the Board has determined that the increased difficulty in attracting and retaining such persons is detrimental to the best interests of the Company and its stockholders, and that the Company should act to assure such persons that there will be increased certainty of protection in the future;

WHEREAS, it is reasonable, prudent and necessary for the Company to contractually obligate itself to indemnify, and to advance expenses on behalf of, such persons to the fullest extent permitted by applicable law so that they will serve or continue to serve the Company free from undue concern that they will not be so indemnified;

WHEREAS, this Agreement is a supplement to and in furtherance of the Bylaws and the Certificate of Incorporation and any resolutions adopted pursuant thereto, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder;

WHEREAS, Indemnitee does not regard the protection available under the Bylaws and the Certificate of Incorporation and insurance as adequate in the present circumstances, and may not be willing to serve as an officer or director without adequate protection, and the Company desires Indemnitee to serve in such capacity. Indemnitee is willing to serve, continue to serve and to take on additional service for or on behalf of the Company on the condition that he or she be so indemnified; and

WHEREAS, Indemnitee has certain rights to indemnification and/or insurance provided by other entities or organizations which Indemnitee and such other entities or organizations intend to be secondary to the primary obligation of the Company to indemnify Indemnitee as provided herein, with the Company's acknowledgement and agreement to the foregoing being a material condition to Indemnitee's willingness to serve on the Board.

NOW, THEREFORE, in consideration of Indemnitee's agreement to serve as a director from and after the date first written above, the parties hereto agree as follows:

1. Indemnity of Indemnitee. The Company hereby agrees to hold harmless and indemnify Indemnitee to the fullest extent permitted by law, as such may be amended from time to time. In furtherance of the foregoing indemnification, and without limiting the generality thereof:

(a) Proceedings Other Than Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 1(a) if, by reason of his or her Corporate Status (as hereinafter defined), Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding (as hereinafter defined) other than a Proceeding by or in the right of the Company. Pursuant to this Section 1(a), Indemnitee shall be indemnified against all Expenses (as hereinafter defined), judgments, penalties, fines and amounts paid in settlement actually and reasonably incurred by him or her, or on his or her behalf, in connection with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company, and with respect to any criminal Proceeding, had no reasonable cause to believe Indemnitee's conduct was unlawful.

(b) Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 1(b) if, by reason of his or her Corporate Status, Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding brought by or in the right of the Company. Pursuant to this Section 1(b), Indemnitee shall be indemnified against all Expenses actually and reasonably incurred by Indemnitee, or on Indemnitee's behalf, in connection with such Proceeding if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in, or not opposed to, the best interests of the Company; provided, however, if applicable law so provides, no indemnification against such Expenses shall be made in respect of any claim, issue or matter in such Proceeding as to which Indemnitee shall have been adjudged to be liable to the Company unless and to the extent that the Court of Chancery of the State of Delaware shall determine that such indemnification may be made.

(c) Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of his or her Corporate Status, a party to and is successful, on the merits

or otherwise, in any Proceeding, he or she shall be indemnified to the maximum extent permitted by law, as such may be amended from time to time, against all Expenses actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful, on the merits or otherwise, as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by him or her or on his or her behalf in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter.

(d) Indemnification of Appointing Stockholder. If (i) Indemnitee is or was affiliated with one or more venture capital funds that has invested in the Company (an "**Appointing Stockholder**"), (ii) the Appointing Stockholder is, or is threatened to be made, a party to or a participant in any Proceeding, and (iii) the Appointing Stockholder's involvement in the Proceeding results from any claim based on Indemnitee's service to the Company as a director or other fiduciary of the Company, the Appointing Stockholder will be entitled to indemnification hereunder for Expenses to the same extent as Indemnitee, and the terms of this Agreement as they relate to procedures for indemnification of Indemnitee and advancement of Expenses shall apply to any such indemnification of Appointing Stockholder.

2. Additional Indemnity. In addition to, and without regard to any limitations on, the indemnification provided for in Section 1 of this Agreement, the Company shall and hereby does indemnify and hold harmless Indemnitee against all Expenses, judgments, penalties, fines and amounts paid in settlement actually and reasonably incurred by him or her or on his or her behalf if, by reason of his or her Corporate Status, he or she is, or is threatened to be made, a party to or participant in any Proceeding (including a Proceeding by or in the right of the Company), including, without limitation, any and all liability arising out of the negligence or active or passive wrongdoing of Indemnitee. The only limitation that shall exist upon the Company's obligations pursuant to this Agreement shall be that the Company shall not be obligated to make any payment to Indemnitee that is finally determined (under the procedures, and subject to the presumptions, set forth in Sections 6 and 7 hereof) to be unlawful.

3. Contribution.

(a) Whether or not the indemnification provided in Sections 1 and 2 hereof is available, in respect of any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall pay, in the first instance, the entire amount of any judgment or settlement of such action, suit or proceeding without requiring Indemnitee to contribute to such payment and the Company hereby waives and relinquishes any right of contribution it may have against Indemnitee. The Company shall not enter into any settlement of any action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding) unless such settlement provides for a full and final release of all claims asserted against Indemnitee.

(b) Without diminishing or impairing the obligations of the Company set forth in the preceding subparagraph, if, for any reason, Indemnitee shall elect or be required to pay all or any portion of any judgment or settlement in any threatened, pending or completed action, suit

or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall contribute to the amount of Expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred and paid or payable by Indemnitee in proportion to the relative benefits received by the Company and all officers, directors or employees of the Company, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, from the transaction or events from which such action, suit or proceeding arose; provided, however, that the proportion determined on the basis of relative benefit may, to the extent necessary to conform to law, be further adjusted by reference to the relative fault of the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, in connection with the transaction or events that resulted in such expenses, judgments, fines or settlement amounts, as well as any other equitable considerations which applicable law may require to be considered. The relative fault of the Company and all officers, directors or employees of the Company, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, shall be determined by reference to, among other things, the degree to which their actions were motivated by intent to gain personal profit or advantage, the degree to which their liability is primary or secondary and the degree to which their conduct is active or passive.

(c) The Company hereby agrees to fully indemnify and hold Indemnitee harmless from any claims of contribution which may be brought by the officers, directors or employees of the Company, other than Indemnitee, who may be jointly liable with Indemnitee.

(d) To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnitee for any reason whatsoever, the Company, in lieu of indemnifying Indemnitee, shall contribute to the amount incurred by Indemnitee, whether for judgments, fines, penalties, excise taxes, amounts paid or to be paid in settlement and/or for Expenses, in connection with any claim relating to an indemnifiable event under this Agreement, in such proportion as is deemed fair and reasonable in light of all of the circumstances of such Proceeding in order to reflect (i) the relative benefits received by the Company and Indemnitee as a result of the event(s) and/or transaction(s) giving cause to such Proceeding and/or (ii) the relative fault of the Company (and its directors, officers, employees and agents) and Indemnitee in connection with such event(s) and/or transaction(s).

4. Indemnification for Expenses of a Witness. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of his or her Corporate Status, a witness, or is made (or asked) to respond to discovery requests, in any Proceeding to which Indemnitee is not a party, he or she shall be indemnified against all Expenses actually and reasonably incurred by him or her or on his or her behalf in connection therewith.

5. Advancement of Expenses. Notwithstanding any other provision of this Agreement, the Company shall advance all Expenses incurred by or on behalf of Indemnitee in connection with any Proceeding by reason of Indemnitee's Corporate Status within thirty (30) days after the receipt by the Company of a statement or statements from Indemnitee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by Indemnitee and shall include or be preceded or accompanied by a written undertaking by or on

behalf of Indemnitee to repay any Expenses advanced if it shall ultimately be determined that Indemnitee is not entitled to be indemnified against such Expenses. Any advances and undertakings to repay pursuant to this Section 5 shall be unsecured and interest free.

6. Procedures and Presumptions for Determination of Entitlement to Indemnification. It is the intent of this Agreement to secure for Indemnitee rights of indemnity that are as favorable as may be permitted under the DGCL and public policy of the State of Delaware. Accordingly, the parties agree that the following procedures and presumptions shall apply in the event of any question as to whether Indemnitee is entitled to indemnification under this Agreement:

(a) To obtain indemnification under this Agreement, Indemnitee shall submit to the Company a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification. The Secretary of the Company shall, promptly upon receipt of such a request for indemnification, advise the Board in writing that Indemnitee has requested indemnification. Notwithstanding the foregoing, any failure of Indemnitee to provide such a request to the Company, or to provide such a request in a timely fashion, shall not relieve the Company of any liability that it may have to Indemnitee unless, and to the extent that, such failure actually and materially prejudices the interests of the Company.

(b) Upon written request by Indemnitee for indemnification pursuant to the first sentence of Section 6(a) hereof, a determination with respect to Indemnitee's entitlement thereto shall be made in the specific case by one of the following four methods, which shall be at the election of the Board (1) by a majority vote of the disinterested directors, even though less than a quorum, (2) by a committee of disinterested directors designated by a majority vote of the disinterested directors, even though less than a quorum, (3) if there are no disinterested directors or if the disinterested directors so direct, by independent legal counsel in a written opinion to the Board, a copy of which shall be delivered to Indemnitee, or (4) if so directed by the Board, by the stockholders of the Company. For purposes hereof, disinterested directors are those members of the Board who are not parties to the action, suit or proceeding in respect of which indemnification is sought by Indemnitee.

(c) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 6(b) hereof, the Independent Counsel shall be selected as provided in this Section 6(c). The Independent Counsel shall be selected by the Board. Indemnitee may, within ten (10) days after such written notice of selection shall have been given, deliver to the Company a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "**Independent Counsel**" as defined in Section 13 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If a written objection is made and substantiated, the Independent Counsel selected may not serve as Independent Counsel unless and until such objection is withdrawn or a court has determined that such objection is without merit. If, within twenty (20) days after submission by Indemnitee of a written request for indemnification pursuant to Section 6(a) hereof, no Independent Counsel shall have been selected and not objected to, either the Company or Indemnitee may petition the Court of Chancery of the State of Delaware or other court of competent jurisdiction for resolution of

any objection which shall have been made by Indemnitee to the Company's selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate, and the person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 6(b) hereof. The Company shall pay any and all reasonable fees and expenses of Independent Counsel incurred by such Independent Counsel in connection with acting pursuant to Section 6(b) hereof, and the Company shall pay all reasonable fees and expenses incident to the procedures of this Section 6(c), regardless of the manner in which such Independent Counsel was selected or appointed.

(d) In making a determination with respect to entitlement to indemnification hereunder, the person or persons or entity making such determination shall presume that Indemnitee is entitled to indemnification under this Agreement. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence. Neither the failure of the Company (including by its directors or independent legal counsel) to have made a determination prior to the commencement of any action pursuant to this Agreement that indemnification is proper in the circumstances because Indemnitee has met the applicable standard of conduct, nor an actual determination by the Company (including by its directors or independent legal counsel) that Indemnitee has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that Indemnitee has not met the applicable standard of conduct.

(e) Indemnitee shall be deemed to have acted in good faith if Indemnitee's action is based on the records or books of account of the Enterprise (as hereinafter defined), including financial statements, or on information supplied to Indemnitee by the officers of the Enterprise in the course of their duties, or on the advice of legal counsel for the Enterprise or on information or records given or reports made to the Enterprise by an independent certified public accountant or by an appraiser or other expert selected with reasonable care by the Enterprise. In addition, the knowledge and/or actions, or failure to act, of any director, officer, agent or employee of the Enterprise shall not be imputed to Indemnitee for purposes of determining the right to indemnification under this Agreement. Whether or not the foregoing provisions of this Section 6(e) are satisfied, it shall in any event be presumed that Indemnitee has at all times acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence.

(f) If the person, persons or entity empowered or selected under Section 6 to determine whether Indemnitee is entitled to indemnification shall not have made a determination within sixty (60) days after receipt by the Company of the request therefor, the requisite determination of entitlement to indemnification shall be deemed to have been made and Indemnitee shall be entitled to such indemnification absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law; provided, however, that such sixty (60) day period may be extended for a reasonable time, not to exceed an additional thirty (30) days, if the person, persons or entity making such determination with respect to entitlement to indemnification in good faith requires such additional time to obtain or evaluate documentation and/or information relating thereto; and provided further, that the foregoing provisions of this Section 6(f) shall not apply if the determination of entitlement to indemnification is to be made by the stockholders

pursuant to Section 6(b) of this Agreement and if (A) within fifteen (15) days after receipt by the Company of the request for such determination, the Board or the Disinterested Directors, if appropriate, resolve to submit such determination to the stockholders for their consideration at an annual meeting thereof to be held within seventy five (75) days after such receipt and such determination is made thereat, or (B) a special meeting of stockholders is called within fifteen (15) days after such receipt for the purpose of making such determination, such meeting is held for such purpose within sixty (60) days after having been so called and such determination is made thereat.

(g) Indemnitee shall cooperate with the person, persons or entity making such determination with respect to Indemnitee's entitlement to indemnification, including providing to such person, persons or entity upon reasonable advance request any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to such determination. Any Independent Counsel, member of the Board or stockholder of the Company shall act reasonably and in good faith in making a determination regarding Indemnitee's entitlement to indemnification under this Agreement. Any costs or expenses (including attorneys' fees and disbursements) incurred by Indemnitee in so cooperating with the person, persons or entity making such determination shall be borne by the Company (irrespective of the determination as to Indemnitee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnitee harmless therefrom.

(h) The Company acknowledges that a settlement or other disposition short of final judgment may be successful if it permits a party to avoid expense, delay, distraction, disruption and uncertainty. In the event that any action, claim or proceeding to which Indemnitee is a party is resolved in any manner other than by adverse judgment against Indemnitee (including, without limitation, settlement of such action, claim or proceeding with or without payment of money or other consideration) it shall be presumed that Indemnitee has been successful on the merits or otherwise in such action, suit or proceeding. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence.

(i) The termination of any Proceeding or of any claim, issue or matter therein, by judgment, order, settlement or conviction, or upon a plea of nolo contendere or its equivalent, shall not (except as otherwise expressly provided in this Agreement) of itself adversely affect the right of Indemnitee to indemnification or create a presumption that Indemnitee did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Company or, with respect to any criminal Proceeding, that Indemnitee had reasonable cause to believe that his or her conduct was unlawful.

7. Remedies of Indemnitee.

(a) In the event that (i) a determination is made pursuant to Section 6 of this Agreement that Indemnitee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 5 of this Agreement, (iii) no determination of entitlement to indemnification is made pursuant to Section 6(b) of this Agreement within ninety (90) days after receipt by the Company of the request for indemnification, (iv) payment of indemnification is not made pursuant to this Agreement within ten (10) days after receipt by the Company of a written request therefor, or (v) payment of

indemnification is not made within ten (10) days after a determination has been made that Indemnitee is entitled to indemnification or such determination is deemed to have been made pursuant to Section 6 of this Agreement, Indemnitee shall be entitled to an adjudication in an appropriate court of the State of Delaware, or in any other court of competent jurisdiction, of Indemnitee's entitlement to such indemnification. Indemnitee shall commence such proceeding seeking an adjudication within one hundred eighty (180) days following the date on which Indemnitee first has the right to commence such proceeding pursuant to this Section 7(a). The Company shall not oppose Indemnitee's right to seek any such adjudication.

(b) In the event that a determination shall have been made pursuant to Section 6(b) of this Agreement that Indemnitee is not entitled to indemnification, any judicial proceeding commenced pursuant to this Section 7 shall be conducted in all respects as a de novo trial on the merits, and Indemnitee shall not be prejudiced by reason of the adverse determination under Section 6(b).

(c) If a determination shall have been made pursuant to Section 6(b) of this Agreement that Indemnitee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding commenced pursuant to this Section 7, absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's misstatement not materially misleading in connection with the application for indemnification, or (ii) a prohibition of such indemnification under applicable law.

(d) In the event that Indemnitee, pursuant to this Section 7, seeks a judicial adjudication of his or her rights under, or to recover damages for breach of, this Agreement, or to recover under any directors' and officers' liability insurance policies maintained by the Company, the Company shall pay on his or her behalf, in advance, any and all expenses (of the types described in the definition of Expenses in Section 13 of this Agreement) actually and reasonably incurred by him or her in such judicial adjudication, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of expenses or insurance recovery.

(e) The Company shall be precluded from asserting in any judicial proceeding commenced pursuant to this Section 7 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court that the Company is bound by all the provisions of this Agreement. The Company shall indemnify Indemnitee against any and all Expenses and, if requested by Indemnitee, shall (within ten (10) days after receipt by the Company of a written request therefore) advance, to the extent not prohibited by law, such expenses to Indemnitee, which are incurred by Indemnitee in connection with any action brought by Indemnitee for indemnification or advance of Expenses from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of Expenses or insurance recovery, as the case may be.

(f) Notwithstanding anything in this Agreement to the contrary, no determination as to entitlement to indemnification under this Agreement shall be required to be made prior to the final disposition of the Proceeding.

8. Non-Exclusivity; Survival of Rights; Insurance; Primacy of Indemnification; Subrogation.

(a) The rights of indemnification as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Certificate of Incorporation, the By-laws, any agreement, a vote of stockholders, a resolution of directors of the Company, or otherwise. No amendment, alteration or repeal of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his or her Corporate Status prior to such amendment, alteration or repeal. To the extent that a change in the DGCL, whether by statute or judicial decision, permits greater indemnification than would be afforded currently under the Certificate of Incorporation, By-laws and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) To the extent that the Company maintains an insurance policy or policies providing liability insurance for directors, officers, employees, agents or fiduciaries of the Company or of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that such person serves at the request of the Company, Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any director, officer, employee, agent or fiduciary under such policy or policies. If, at the time of the receipt of a notice of a claim pursuant to the terms hereof, the Company has directors' and officers' liability insurance in effect, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policies.

(c) The Company hereby acknowledges that Indemnitee has certain rights to indemnification, advancement of expenses and/or insurance provided by other entities or organizations (collectively, the "Fund Indemnitors"). The Company hereby agrees that (i) it is the indemnitor of first resort (*i.e.*, its obligations to Indemnitee are primary and any obligation of the Fund Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by Indemnitee are secondary), (ii) it shall be required to advance the full amount of expenses incurred by Indemnitee and shall be liable for the full amount of all Expenses, judgments, penalties, fines and amounts paid in settlement to the extent legally permitted and as required by the terms of this Agreement and the Certificate of Incorporation or Bylaws of the Company (or any other agreement between the Company and Indemnitee), without regard to any rights Indemnitee may have against the Fund Indemnitors, and (iii) it irrevocably waives, relinquishes and releases the Fund Indemnitors from any and all claims against the Fund Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Fund Indemnitors on behalf of Indemnitee with respect to any claim for which Indemnitee has sought indemnification from the Company shall affect the foregoing and the Fund Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment

to all of the rights of recovery of Indemnitee against the Company. The Company and Indemnitee agree that the Fund Indemnitors are express third party beneficiaries of the terms of this Section 8(c).

(d) Except as provided in paragraph (c) above, in the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee (other than against the Fund Indemnitors), who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(e) Except as provided in paragraph (c) above, the Company shall not be liable under this Agreement to make any payment of amounts otherwise indemnifiable hereunder if and to the extent that Indemnitee has otherwise actually received such payment under any insurance policy, contract, agreement or otherwise.

(f) Except as provided in paragraph (c) above, the Company's obligation to indemnify or advance Expenses hereunder to Indemnitee who is or was serving at the request of the Company as a director, officer, employee or agent of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall be reduced by any amount Indemnitee has actually received as indemnification or advancement of expenses from such other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise.

9. Exception to Right of Indemnification. Notwithstanding any provision in this Agreement, the Company shall not be obligated under this Agreement to make any indemnity in connection with any claim made against Indemnitee:

(a) for which payment has actually been made to or on behalf of Indemnitee under any insurance policy or other indemnity provision, except with respect to any excess beyond the amount paid under any insurance policy or other indemnity provision, provided, that the foregoing shall not affect the rights of Indemnitee or the Fund Indemnitors set forth in Section 8(c) above;

(b) for an accounting of profits made from the purchase and sale (or sale and purchase) by Indemnitee of securities of the Company within the meaning of Section 16(b) of the Exchange Act, or similar provisions of state statutory law or common law; or

(c) in connection with any Proceeding (or any part of any Proceeding) initiated by Indemnitee, including any Proceeding (or any part of any Proceeding) initiated by Indemnitee against the Company or its directors, officers, employees or other indemnitees, unless (i) the Board authorized the Proceeding (or any part of any Proceeding) prior to its initiation, or (ii) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law;

(d) with respect to remuneration paid to Indemnitee if it is determined by final judgment or other final adjudication that such remuneration was in violation of law (and in this respect, both the Company and Indemnitee have been advised that the SEC believes that indemnification for liabilities arising under the federal securities laws is against public policy and is therefore unenforceable and that claims for indemnification should be submitted to appropriate courts for adjudication, as indicated in the last paragraph of this Section 9);

(e) a final judgment or other final adjudication is made that Indemnitee's conduct was in bad faith, knowingly fraudulent or deliberately dishonest or constituted willful misconduct (but only to the extent of such specific determination);

(f) in connection with any claim for reimbursement or any recovery policy of the Company by Indemnitee of any bonus or other incentive-based or equity-based compensation or of any profits realized by Indemnitee from the sale of securities of the Company, as required in each case under the Exchange Act (including any such reimbursements that arise from an accounting restatement of the Company pursuant to Section 304 of the Sarbanes-Oxley Act or Section 954 of the Dodd-Frank Act, or the payment to the Company of profits arising from the purchase and sale by Indemnitee of securities in violation of Section 306 of the Sarbanes Oxley Act), if Indemnitee is held liable therefor (including pursuant to any settlement); or

(g) on account of conduct that is established by a final judgement as constituted a breach of Indemnitee's duty of loyalty to the Company or resulting in any personal profit or advantage to which Indemnitee is not legally entitled.

For purposes of this Section 9, a final judgment or other adjudication may be reached in either the underlying proceeding or action in connection with which indemnification is sought or a separate proceeding or action to establish rights and liabilities under this Agreement.

10. Duration of Agreement. All agreements and obligations of the Company contained herein shall continue during the period Indemnitee is an officer or director of the Company (or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise) and shall continue thereafter so long as Indemnitee shall be subject to any Proceeding (or any proceeding commenced under Section 7 hereof) by reason of his or her Corporate Status, whether or not he or she is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement. This Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties hereto and their respective successors (including any direct or indirect successor by purchase, merger, consolidation or otherwise to all or substantially all of the business or assets of the Company), assigns, spouses, heirs, executors and personal and legal representatives.

11. Security. To the extent requested by Indemnitee and approved by the Board, the Company may at any time and from time to time provide security to Indemnitee for the Company's obligations hereunder through an irrevocable bank line of credit, funded trust or other collateral. Any such security, once provided to Indemnitee, may not be revoked or released without the prior written consent of Indemnitee.

12. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumes the obligations imposed on it hereby in order to induce Indemnitee to serve as an officer or director of the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as an officer or director of the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof.

(c) The Company shall not seek from a court, or agree to, a "bar order" which would have the effect of prohibiting or limiting Indemnitee's rights to receive advancement of expenses under this Agreement.

13. Definitions. For purposes of this Agreement:

(a) "**Corporate Status**" describes the status of a person who is or was a director, officer, employee, agent or fiduciary of the Company or of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that such person is or was serving at the express written request of the Company.

(b) "**Disinterested Director**" means a director of the Company who is not and was not a party to the Proceeding in respect of which indemnification is sought by Indemnitee.

(c) "**Dodd-Frank Act**" means the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.

(d) "**Enterprise**" shall mean the Company and any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that Indemnitee is or was serving at the express written request of the Company as a director, officer, employee, agent or fiduciary.

(e) "**Exchange Act**" means the Securities Exchange Act of 1934, as amended.

(f) "**Expenses**" shall include all reasonable attorneys' fees, retainers, court costs, transcript costs, fees of experts, witness fees, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees and all other disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, participating, or being or preparing to be a witness in a Proceeding, or responding to, or objecting to, a request to provide discovery in any Proceeding. Expenses also shall include Expenses incurred in connection with any appeal resulting from any Proceeding, and any federal, state, local or foreign taxes imposed on Indemnitee as a result of the actual or deemed receipt of any payments under this Agreement, including without limitation the premium, security for, and other costs relating to any cost bond, supersede as bond, or other appeal bond or its equivalent. Expenses, however, shall not include amounts paid in settlement by Indemnitee or the amount of judgments or fines against Indemnitee.

(g) "**Independent Counsel**" means a law firm, or a member of a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past five years has been, retained to represent (i) the Company or Indemnitee in any matter material to either such party (other than with respect to matters concerning Indemnitee under this Agreement, or of other indemnitees under similar indemnification agreements), or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term "Independent Counsel" shall not include any person who, under the

applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee's rights under this Agreement. The Company agrees to pay the reasonable fees of the Independent Counsel referred to above and to fully indemnify such counsel against any and all Expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

(h) "**Proceeding**" includes any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or any other actual, threatened or completed proceeding, whether brought by or in the right of the Company or otherwise and whether civil, criminal, administrative or investigative, in which Indemnitee was, is or will be involved as a party or otherwise, by reason of his or her Corporate Status, by reason of any action taken by him or of any inaction on his or her part while acting in his or her Corporate Status; in each case whether or not he or she is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement; including one pending on or before the date of this Agreement, but excluding one initiated by an Indemnitee pursuant to Section 7 of this Agreement to enforce his or her rights under this Agreement.

(i) "**Sarbanes-Oxley Act**" means the Sarbanes-Oxley Act of 2002, as amended.

(j) "**SEC**" means the Securities and Exchange Commission.

14. Severability. The invalidity or unenforceability of any provision hereof shall in no way affect the validity or enforceability of any other provision. Further, the invalidity or unenforceability of any provision hereof as to either Indemnitee or Appointing Stockholder shall in no way affect the validity or enforceability of any provision hereof as to the other. Without limiting the generality of the foregoing, this Agreement is intended to confer upon Indemnitee and Appointing Stockholder indemnification rights to the fullest extent permitted by applicable laws. In the event any provision hereof conflicts with any applicable law, such provision shall be deemed modified, consistent with the aforementioned intent, to the extent necessary to resolve such conflict.

15. Modification and Waiver. No supplement, modification, termination or amendment of this Agreement shall be binding unless executed in writing by both of the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions hereof (whether or not similar) nor shall such waiver constitute a continuing waiver.

16. Notice By Indemnitee. Indemnitee agrees promptly to notify the Company in writing upon being served with or otherwise receiving any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification covered hereunder. The failure to so notify the Company shall not relieve the Company of any obligation which it may have to Indemnitee under this Agreement or otherwise unless and only to the extent that such failure or delay materially prejudices the Company.

17. Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, and if not so confirmed, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent:

(a) To Indemnitee at the address set forth below Indemnitee signature hereto.

(b) To the Company at:

Keros Therapeutics, Inc.
99 Hayden Avenue
Suite 120, Building E
Lexington, MA 02421

or to such other address as may have been furnished to Indemnitee by the Company or to the Company by Indemnitee, as the case may be.

18. Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.*, www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

19. Headings. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

20. Governing Law and Consent to Jurisdiction. This Agreement and the legal relations among the parties shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware, without regard to its conflict of laws rules. The Company and Indemnitee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in the Chancery Court of the State of Delaware (the "**Delaware Court**"), and not in any other state or federal court in the United States of America or any court in any other country, (ii) consent to submit to the exclusive jurisdiction of the Delaware Court for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) waive any objection to the laying of venue of any such action or proceeding in the Delaware Court, and (iv) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court has been brought in an improper or inconvenient forum.

SIGNATURE PAGE TO FOLLOW

IN WITNESS WHEREOF, the parties hereto have executed this Indemnification Agreement on and as of the day and year first above written.

KEROS THERAPEUTICS, INC.

By: _____
Name:
Title:

INDEMNITEE

_____
Name:

Address: _____
_____
_____
_____

KEROS THERAPEUTICS, INC.
2020 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: MARCH 31, 2020
APPROVED BY THE STOCKHOLDERS: MARCH 31, 2020

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1. GENERAL.

(a) Successor to and Continuation of Prior Plan. The Plan is the successor to and continuation of the Prior Plan. As of the Effective Date, (i) no additional awards may be granted under the Prior Plan; (ii) the Prior Plan's Available Reserve plus any Returning Shares will become available for issuance pursuant to Awards granted under this Plan; and (iii) all outstanding awards granted under the Prior Plan will remain subject to the terms of the Prior Plan (except to the extent such outstanding awards result in Returning Shares that become available for issuance pursuant to Awards granted under this Plan). All Awards granted under this Plan will be subject to the terms of this Plan.

(b) Plan Purpose. The Company, by means of the Plan, seeks to secure and retain the services of Employees, Directors and Consultants, to provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate and to provide a means by which such persons may be given an opportunity to benefit from increases in value of the Common Stock through the granting of Awards.

(c) Available Awards. The Plan provides for the grant of the following Awards: (i) Incentive Stock Options; (ii) Nonstatutory Stock Options; (iii) SARs; (iv) Restricted Stock Awards; (v) RSU Awards; (vi) Performance Awards; and (vii) Other Awards.

(d) Adoption Date; Effective Date. The Plan will come into existence on the Adoption Date, but no Award may be granted prior to the Effective Date.

2. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve. Subject to adjustment in accordance with Section 2(c) and any adjustments as necessary to implement any Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Awards will not exceed 3,107,811 shares, which number is the sum of: (i) 1,002,874 new shares, plus (ii) the Prior Plan's Available Reserve; plus, (iii) the number of Returning Shares, if any, as such shares become available from time to time.

In addition, subject to any adjustments as necessary to implement any Capitalization Adjustments, such aggregate number of shares of Common Stock will automatically increase on January 1 of each year for a period of ten years commencing on January 1, 2021 and ending on (and including) January 1, 2030, in an amount equal to 4.0% of the total number of shares of Common Stock outstanding on December 31 of the preceding year; provided, however that the Board may act prior to January 1st of a given year to provide that the increase for such year will be a lesser number of shares of Common Stock.

(b) Aggregate Incentive Stock Option Limit. Notwithstanding anything to the contrary in Section 2(a) and subject to any adjustments as necessary to implement any Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options is 9,323,434 shares.

(c) Share Reserve Operation.

(i) Limit Applies to Common Stock Issued Pursuant to Awards. For clarity, the Share Reserve is a limit on the number of shares of Common Stock that may be issued pursuant to Awards and does not limit the granting of Awards, except that the Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy its obligations to issue shares pursuant to such Awards. Shares may be issued in connection with a merger or acquisition as permitted by, as applicable, Nasdaq Listing Rule 5635(c), NYSE Listed Company Manual Section 303A.08, NYSE American Company Guide Section 711 or other applicable rule, and such issuance will not reduce the number of shares available for issuance under the Plan.

(ii) Actions that Do Not Constitute Issuance of Common Stock and Do Not Reduce Share Reserve. The following actions do not result in an issuance of shares under the Plan and accordingly do not reduce the number of shares subject to the Share Reserve and available for issuance under the Plan: (1) the expiration or termination of any portion of an Award without the shares covered by such portion of the Award having been issued; (2) the settlement of any portion of an Award in cash (*i.e.*, the Participant receives cash rather than Common Stock); (3) the withholding of shares that would otherwise be issued by the Company to satisfy the exercise, strike or purchase price of an Award; or (4) the withholding of shares that would otherwise be issued by the Company to satisfy a tax withholding obligation in connection with an Award.

(iii) Reversion of Previously Issued Shares of Common Stock to Share Reserve. The following shares of Common Stock previously issued pursuant to an Award and accordingly initially deducted from the Share Reserve will be added back to the Share Reserve and again become available for issuance under the Plan: (1) any shares that are forfeited back to or repurchased by the Company because of a failure to meet a contingency or condition required for the vesting of such shares; (2) any shares that are reacquired by the Company to satisfy the exercise, strike or purchase price of an Award; and (3) any shares that are reacquired by the Company to satisfy a tax withholding obligation in connection with an Award.

3. ELIGIBILITY AND LIMITATIONS.

(a) Eligible Award Recipients. Subject to the terms of the Plan, Employees, Directors and Consultants are eligible to receive Awards.

(b) Specific Award Limitations.

(i) Limitations on Incentive Stock Option Recipients. Incentive Stock Options may be granted only to Employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and (f) of the Code).

(ii) Incentive Stock Option $100,000 Limitation. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000 (or such

other limit established in the Code) or otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(iii) Limitations on Incentive Stock Options Granted to Ten Percent Stockholders. A Ten Percent Stockholder may not be granted an Incentive Stock Option unless (i) the exercise price of such Option is at least 110% of the Fair Market Value on the date of grant of such Option and (ii) the Option is not exercisable after the expiration of five years from the date of grant of such Option.

(iv) Limitations on Nonstatutory Stock Options and SARs. Nonstatutory Stock Options and SARs may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any "parent" of the Company (as such term is defined in Rule 405) unless the stock underlying such Awards is treated as "service recipient stock" under Section 409A because the Awards are granted pursuant to a corporate transaction (such as a spin off transaction) or unless such Awards otherwise comply with the distribution requirements of Section 409A.

(c) Aggregate Incentive Stock Option Limit. The aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options is the number of shares specified in Section 2(b).

(d) Non-Employee Director Compensation Limit. The aggregate value of all compensation granted or paid, as applicable, to any individual for service as a Non-Employee Director with respect to any period commencing on the date of the Company's Annual Meeting of Stockholders for a particular year and ending on the day immediately prior to the date of the Company's Annual Meeting of Stockholders for the next subsequent year, including Awards granted and cash fees paid by the Company to such Non-Employee Director, will not exceed (i) $500,000 in total value or (ii) in the event such Non-Employee Director is first appointed or elected to the Board during such period, $700,000 in total value, in each case calculating the value of any equity awards based on the grant date fair value of such equity awards for financial reporting purposes.

4. OPTIONS AND STOCK APPRECIATION RIGHTS.

Each Option and SAR will have such terms and conditions as determined by the Board. Each Option will be designated in writing as an Incentive Stock Option or Nonstatutory Stock Option at the time of grant; provided, however, that if an Option is not so designated, then such Option will be a Nonstatutory Stock Option, and the shares purchased upon exercise of each type of Option will be separately accounted for. Each SAR will be denominated in shares of Common Stock equivalents. The terms and conditions of separate Options and SARs need not be identical; provided, however, that each Option Agreement and SAR Agreement will conform

(through incorporation of provisions hereof by reference in the Award Agreement or otherwise) to the substance of each of the following provisions:

(a) Term. Subject to Section 3(b) regarding Ten Percent Stockholders, no Option or SAR will be exercisable after the expiration of ten years from the date of grant of such Award or such shorter period specified in the Award Agreement.

(b) Exercise or Strike Price. Subject to Section 3(b) regarding Ten Percent Stockholders, the exercise or strike price of each Option or SAR will not be less than 100% of the Fair Market Value on the date of grant of such Award. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price lower than 100% of the Fair Market Value on the date of grant of such Award if such Award is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Sections 409A and, if applicable, 424(a) of the Code.

(c) Exercise Procedure and Payment of Exercise Price for Options. In order to exercise an Option, the Participant must provide notice of exercise to the Plan Administrator in accordance with the procedures specified in the Option Agreement or otherwise provided by the Company. The Board has the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to utilize a particular method of payment. The exercise price of an Option may be paid, to the extent permitted by Applicable Law and as determined by the Board, by one or more of the following methods of payment to the extent set forth in the Option Agreement:

(i) by cash or check, bank draft or money order payable to the Company;

(ii) pursuant to a "cashless exercise" program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the Common Stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock that are already owned by the Participant free and clear of any liens, claims, encumbrances or security interests, with a Fair Market Value on the date of exercise that does not exceed the exercise price, provided that (1) at the time of exercise the Common Stock is publicly traded, (2) any remaining balance of the exercise price not satisfied by such delivery is paid by the Participant in cash or other permitted form of payment, (3) such delivery would not violate any Applicable Law or agreement restricting the redemption of the Common Stock, (4) any certificated shares are endorsed or accompanied by an executed assignment separate from certificate, and (5) such shares have been held by the Participant for any minimum period necessary to avoid adverse accounting treatment as a result of such delivery;

(iv) if the Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value on the date of exercise that does not exceed the exercise price, provided that (1) such shares used to pay the exercise price will not be exercisable thereafter and (2) any remaining balance of the exercise price not satisfied by such net exercise is paid by the Participant in cash or other permitted form of payment; or

(v) in any other form of consideration that may be acceptable to the Board and permissible under Applicable Law.

(d) Exercise Procedure and Payment of Appreciation Distribution for SARs. In order to exercise any SAR, the Participant must provide notice of exercise to the Plan Administrator in accordance with the SAR Agreement. The appreciation distribution payable to a Participant upon the exercise of a SAR will not be greater than an amount equal to the excess of (i) the aggregate Fair Market Value on the date of exercise of a number of shares of Common Stock equal to the number of Common Stock equivalents that are vested and being exercised under such SAR, over (ii) the strike price of such SAR. Such appreciation distribution may be paid to the Participant in the form of Common Stock or cash (or any combination of Common Stock and cash) or in any other form of payment, as determined by the Board and specified in the SAR Agreement.

(e) Transferability. Options and SARs may not be transferred to third party financial institutions for value. The Board may impose such additional limitations on the transferability of an Option or SAR as it determines. In the absence of any such determination by the Board, the following restrictions on the transferability of Options and SARs will apply, provided that except as explicitly provided herein, neither an Option nor a SAR may be transferred for consideration and *provided*, *further*, that if an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer:

(i) Restrictions on Transfer. An Option or SAR will not be transferable, except by will or by the laws of descent and distribution, and will be exercisable during the lifetime of the Participant only by the Participant; provided, however, that the Board may permit transfer of an Option or SAR in a manner that is not prohibited by applicable tax and securities laws upon the Participant's request, including to a trust if the Participant is considered to be the sole beneficial owner of such trust (as determined under Section 671 of the Code and applicable state law) while such Option or SAR is held in such trust, provided that the Participant and the trustee enter into a transfer and other agreements required by the Company.

(ii) Domestic Relations Orders. Notwithstanding the foregoing, subject to the execution of transfer documentation in a format acceptable to the Company and subject to the approval of the Board or a duly authorized Officer, an Option or SAR may be transferred pursuant to a domestic relations order.

(f) Vesting. The Board may impose such restrictions on or conditions to the vesting and/or exercisability of an Option or SAR as determined by the Board. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, vesting of Options and SARs will cease upon termination of the Participant's Continuous Service.

(g) Termination of Continuous Service for Cause. Except as explicitly otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service is terminated for Cause, the Participant's Options and SARs will terminate and be forfeited immediately upon such termination of Continuous Service, and the Participant will be prohibited from exercising any portion (including any vested portion) of such Awards on and after the date of such termination of Continuous Service and the Participant will have no further right, title or interest in such forfeited Award, the shares of Common Stock subject to the forfeited Award, or any consideration in respect of the forfeited Award.

(h) Post-Termination Exercise Period Following Termination of Continuous Service for Reasons Other than Cause. Subject to Section 4(i), if a Participant's Continuous Service terminates for any reason other than for Cause, the Participant may exercise his or her Option or SAR to the extent vested, but only within the following period of time or, if applicable, such other period of time provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate; provided, however, that in no event may such Award be exercised after the expiration of its maximum term (as set forth in Section 4(a)):

(i) three months following the date of such termination if such termination is a termination without Cause (other than any termination due to the Participant's Disability or death);

(ii) 12 months following the date of such termination if such termination is due to the Participant's Disability;

(iii) 24 months following the date of such termination if such termination is due to the Participant's death; or

(iv) 24 months following the date of the Participant's death if such death occurs following the date of such termination but during the period such Award is otherwise exercisable (as provided in (i) or (ii) above).

Following the date of such termination, to the extent the Participant does not exercise such Award within the applicable Post-Termination Exercise Period (or, if earlier, prior to the expiration of the maximum term of such Award), such unexercised portion of the Award will terminate, and the Participant will have no further right, title or interest in terminated Award, the shares of Common Stock subject to the terminated Award, or any consideration in respect of the terminated Award.

(i) Restrictions on Exercise; Extension of Exercisability. A Participant may not exercise an Option or SAR at any time that the issuance of shares of Common Stock upon such exercise would violate Applicable Law. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates for any reason other than for Cause and, at any time during the last thirty days of the applicable Post-Termination Exercise Period: (i) the exercise of the Participant's Option or SAR would be prohibited solely because the issuance of shares of Common Stock upon such exercise would violate Applicable Law, or (ii) the immediate sale of

any shares of Common Stock issued upon such exercise would violate the Company's Trading Policy, then the applicable Post-Termination Exercise Period will be extended to the last day of the calendar month that commences following the date the Award would otherwise expire, with an additional extension of the exercise period to the last day of the next calendar month to apply if any of the foregoing restrictions apply at any time during such extended exercise period, generally without limitation as to the maximum permitted number of extensions); provided, however, that in no event may such Award be exercised after the expiration of its maximum term (as set forth in Section 4(a)).

(j) Non-Exempt Employees. No Option or SAR, whether or not vested, granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, will be first exercisable for any shares of Common Stock until at least six months following the date of grant of such Award. Notwithstanding the foregoing, in accordance with the provisions of the Worker Economic Opportunity Act, any vested portion of such Award may be exercised earlier than six months following the date of grant of such Award in the event of (i) such Participant's death or Disability, (ii) a Corporate Transaction in which such Award is not assumed, continued or substituted, (iii) a Change in Control, or (iv) such Participant's retirement (as such term may be defined in the Award Agreement or another applicable agreement or, in the absence of any such definition, in accordance with the Company's then current employment policies and guidelines). This Section 4(j) is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay.

(k) Whole Shares. Options and SARs may be exercised only with respect to whole shares of Common Stock or their equivalents.

5. AWARDS OTHER THAN OPTIONS AND STOCK APPRECIATION RIGHTS.

(a) Restricted Stock Awards and RSU Awards. Each Restricted Stock Award and RSU Award will have such terms and conditions as determined by the Board; provided, however, that each Restricted Stock Award Agreement and RSU Award Agreement will conform (through incorporation of the provisions hereof by reference in the Award Agreement or otherwise) to the substance of each of the following provisions:

(i) Form of Award.

(1) RSAs: To the extent consistent with the Company's Bylaws, at the Board's election, shares of Common Stock subject to a Restricted Stock Award may be (i) held in book entry form subject to the Company's instructions until such shares become vested or any other restrictions lapse, or (ii) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. Unless otherwise determined by the Board, a Participant will have voting and other rights as a stockholder of the Company with respect to any shares subject to a Restricted Stock Award.

(2) RSUs: A RSU Award represents a Participant's right to be issued on a future date the number of shares of Common Stock that is equal to the number of restricted stock units subject to the RSU Award. As a holder of a RSU Award, a Participant is an

unsecured creditor of the Company with respect to the Company's unfunded obligation, if any, to issue shares of Common Stock in settlement of such Award and nothing contained in the Plan or any RSU Agreement, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between a Participant and the Company or an Affiliate or any other person. A Participant will not have voting or any other rights as a stockholder of the Company with respect to any RSU Award (unless and until shares are actually issued in settlement of a vested RSU Award).

(ii) Consideration.

(1) RSA: A Restricted Stock Award may be granted in consideration for (A) cash or check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate, or (C) any other form of consideration (including future services) as the Board may determine and permissible under Applicable Law.

(2) RSU: Unless otherwise determined by the Board at the time of grant, a RSU Award will be granted in consideration for the Participant's services to the Company or an Affiliate, such that the Participant will not be required to make any payment to the Company (other than such services) with respect to the grant or vesting of the RSU Award, or the issuance of any shares of Common Stock pursuant to the RSU Award. If, at the time of grant, the Board determines that any consideration must be paid by the Participant (in a form other than the Participant's services to the Company or an Affiliate) upon the issuance of any shares of Common Stock in settlement of the RSU Award, such consideration may be paid in any form of consideration as the Board may determine and permissible under Applicable Law.

(iii) Vesting. The Board may impose such restrictions on or conditions to the vesting of a Restricted Stock Award or RSU Award as determined by the Board. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, vesting of Restricted Stock Awards and RSU Awards will cease upon termination of the Participant's Continuous Service.

(iv) Termination of Continuous Service. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates for any reason, (i) the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant under his or her Restricted Stock Award that have not vested as of the date of such termination as set forth in the Restricted Stock Award Agreement and (ii) any portion of his or her RSU Award that has not vested will be forfeited upon such termination and the Participant will have no further right, title or interest in the RSU Award, the shares of Common Stock issuable pursuant to the RSU Award, or any consideration in respect of the RSU Award.

(v) Dividends and Dividend Equivalents. Dividends or dividend equivalents may be paid or credited, as applicable, with respect to any shares of Common Stock subject to a Restricted Stock Award or RSU Award, as determined by the Board and specified in the Award Agreement).

(vi) Settlement of RSU Awards. A RSU Award may be settled by the issuance of shares of Common Stock or cash (or any combination thereof) or in any other form of payment, as determined by the Board and specified in the RSU Award Agreement. At the time of grant, the Board may determine to impose such restrictions or conditions that delay such delivery to a date following the vesting of the RSU Award.

(b) Performance Awards. With respect to any Performance Award, the length of any Performance Period, the Performance Goals to be achieved during the Performance Period, the other terms and conditions of such Award, and the measure of whether and to what degree such Performance Goals have been attained will be determined by the Board.

(c) Other Awards. Other forms of Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (e.g., options or stock rights with an exercise price or strike price less than 100% of the Fair Market Value at the time of grant) may be granted either alone or in addition to Awards provided for under Section 4 and the preceding provisions of this Section 5. Subject to the provisions of the Plan, the Board will have sole and complete discretion to determine the persons to whom and the time or times at which such Other Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Awards and all other terms and conditions of such Other Awards.

6. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board shall appropriately and proportionately adjust: (i) the class(es) and maximum number of shares of Common Stock subject to the Plan and the maximum number of shares by which the Share Reserve may annually increase pursuant to Section 2(a); (ii) the class(es) and maximum number of shares that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 2(a); and (iii) the class(es) and number of securities and exercise price, strike price or purchase price of Common Stock subject to outstanding Awards. The Board shall make such adjustments, and its determination shall be final, binding and conclusive. Notwithstanding the foregoing, no fractional shares or rights for fractional shares of Common Stock shall be created in order to implement any Capitalization Adjustment. The Board shall determine an appropriate equivalent benefit, if any, for any fractional shares or rights to fractional shares that might be created by the adjustments referred to in the preceding provisions of this Section.

(b) Dissolution or Liquidation. Except as otherwise provided in the Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Awards (other than Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Award is providing Continuous Service, provided, however, that the Board may determine to cause some or all Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions will apply to Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Award or any other written agreement between the Company or any Affiliate and the Participant or unless otherwise expressly provided by the Board at the time of grant of an Award.

(i) Awards May Be Assumed. In the event of a Corporate Transaction, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue any or all Awards outstanding under the Plan or may substitute similar awards for Awards outstanding under the Plan (including but not limited to, awards to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction), and any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to Awards may be assigned by the Company to the successor of the Company (or the successor's parent company, if any), in connection with such Corporate Transaction. A surviving corporation or acquiring corporation (or its parent) may choose to assume or continue only a portion of an Award or substitute a similar award for only a portion of an Award, or may choose to assume or continue the Awards held by some, but not all Participants. The terms of any assumption, continuation or substitution will be set by the Board.

(ii) Awards Held by Current Participants. In the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Awards or substitute similar awards for such outstanding Awards, then with respect to Awards that have not been assumed, continued or substituted and that are held by Participants whose Continuous Service has not terminated prior to the effective time of the Corporate Transaction (referred to as the "***Current Participants***"), the vesting of such Awards (and, with respect to Options and Stock Appreciation Rights, the time when such Awards may be exercised) will be accelerated in full to a date prior to the effective time of such Corporate Transaction (contingent upon the effectiveness of the Corporate Transaction) as the Board determines (or, if the Board does not determine such a date, to the date that is five (5) days prior to the effective time of the Corporate Transaction), and such Awards will terminate if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction, and any reacquisition or repurchase rights held by the Company with respect to such Awards will lapse (contingent upon the effectiveness of the Corporate Transaction). With respect to the vesting of Performance Awards that will accelerate upon the occurrence of a Corporate Transaction pursuant to this subsection (ii) and that have multiple vesting levels depending on the level of performance, unless otherwise provided in the Award Agreement or unless otherwise provided by the Board, the vesting of such Performance Awards will accelerate at 100% of the target level upon the occurrence of the Corporate Transaction. With respect to the vesting of Awards that will accelerate upon the occurrence of a Corporate Transaction pursuant to this subsection (ii) and are settled in the form of a cash payment, such cash payment will be made no later than 30 days following the occurrence of the Corporate Transaction.

(iii) Awards Held by Persons other than Current Participants. In the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Awards or substitute similar awards for such outstanding Awards, then with respect to Awards that have not been assumed, continued or substituted and that are held by persons other than Current Participants,

such Awards will terminate if not exercised (if applicable) prior to the occurrence of the Corporate Transaction; provided, however, that any reacquisition or repurchase rights held by the Company with respect to such Awards will not terminate and may continue to be exercised notwithstanding the Corporate Transaction.

(iv) Payment for Awards in Lieu of Exercise. Notwithstanding the foregoing, in the event an Award will terminate if not exercised prior to the effective time of a Corporate Transaction, the Board may provide, in its sole discretion, that the holder of such Award may not exercise such Award but will receive a payment, in such form as may be determined by the Board, equal in value, at the effective time, to the excess, if any, of (1) the value of the property the Participant would have received upon the exercise of the Award (including, at the discretion of the Board, any unvested portion of such Award), over (2) any exercise price payable by such holder in connection with such exercise.

(d) Appointment of Stockholder Representative. As a condition to the receipt of an Award under this Plan, a Participant will be deemed to have agreed that the Award will be subject to the terms of any agreement governing a Corporate Transaction involving the Company, including, without limitation, a provision for the appointment of a stockholder representative that is authorized to act on the Participant's behalf with respect to any escrow, indemnities and any contingent consideration.

(e) No Restriction on Right to Undertake Transactions. The grant of any Award under the Plan and the issuance of shares pursuant to any Award does not affect or restrict in any way the right or power of the Company or the stockholders of the Company to make or authorize any adjustment, recapitalization, reorganization or other change in the Company's capital structure or its business, any merger or consolidation of the Company, any issue of stock or of options, rights or options to purchase stock or of bonds, debentures, preferred or prior preference stocks whose rights are superior to or affect the Common Stock or the rights thereof or which are convertible into or exchangeable for Common Stock, or the dissolution or liquidation of the Company, or any sale or transfer of all or any part of its assets or business, or any other corporate act or proceeding, whether of a similar character or otherwise.

7. ADMINISTRATION.

(a) Administration by Board. The Board will administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in subsection (c) below.

(b) Powers of Board. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine from time to time (1) which of the persons eligible under the Plan will be granted Awards; (2) when and how each Award will be granted; (3) what type or combination of types of Award will be granted; (4) the provisions of each Award granted (which need not be identical), including the time or times when a person will be permitted to receive an issuance of Common Stock or other payment pursuant to an Award; (5) the number of shares of Common Stock or cash equivalent with respect to which an Award will be granted

to each such person; (6) the Fair Market Value applicable to an Award; and (7) the terms of any Performance Award that is not valued in whole or in part by reference to, or otherwise based on, the Common Stock, including the amount of cash payment or other property that may be earned and the timing of payment.

(ii) To construe and interpret the Plan and Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Award Agreement, in a manner and to the extent it deems necessary or expedient to make the Plan or Award fully effective.

(iii) To settle all controversies regarding the Plan and Awards granted under it.

(iv) To accelerate the time at which an Award may first be exercised or the time during which an Award or any part thereof will vest, notwithstanding the provisions in the Award Agreement stating the time at which it may first be exercised or the time during which it will vest.

(v) To prohibit the exercise of any Option, SAR or other exercisable Award during a period of up to 30 days prior to the consummation of any pending stock dividend, stock split, combination or exchange of shares, merger, consolidation or other distribution (other than normal cash dividends) of Company assets to stockholders, or any other change affecting the shares of Common Stock or the share price of the Common Stock including any Corporate Transaction, for reasons of administrative convenience.

(vi) To suspend or terminate the Plan at any time. Suspension or termination of the Plan will not Materially Impair rights and obligations under any Award granted while the Plan is in effect except with the written consent of the affected Participant.

(vii) To amend the Plan in any respect the Board deems necessary or advisable; provided, however, that stockholder approval will be required for any amendment to the extent required by Applicable Law. Except as provided above, rights under any Award granted before amendment of the Plan will not be Materially Impaired by any amendment of the Plan unless (1) the Company requests the consent of the affected Participant, and (2) such Participant consents in writing.

(viii) To submit any amendment to the Plan for stockholder approval.

(ix) To approve forms of Award Agreements for use under the Plan and to amend the terms of any one or more Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided however*, that, a Participant's rights under any Award will not be Materially Impaired by any such amendment unless (1) the Company requests the consent of the affected Participant, and (2) such Participant consents in writing.

(x) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Awards.

(xi) To adopt such procedures and sub-plans as are necessary or appropriate to permit and facilitate participation in the Plan by, or take advantage of specific tax treatment for Awards granted to, Employees, Directors or Consultants who are foreign nationals or employed outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Award Agreement to ensure or facilitate compliance with the laws of the relevant foreign jurisdiction).

(xii) To effect, at any time and from time to time, subject to the consent of any Participant whose Award is Materially Impaired by such action, (1) the reduction of the exercise price (or strike price) of any outstanding Option or SAR; (2) the cancellation of any outstanding Option or SAR and the grant in substitution therefor of (A) a new Option, SAR, Restricted Stock Award, RSU Award or Other Award, under the Plan or another equity plan of the Company, covering the same or a different number of shares of Common Stock, (B) cash and/or (C) other valuable consideration (as determined by the Board); or (3) any other action that is treated as a repricing under generally accepted accounting principles.

(c) Delegation to Committee.

(i) General. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to another Committee or a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. Each Committee may retain the authority to concurrently administer the Plan with Committee or subcommittee to which it has delegated its authority hereunder and may, at any time, revest in such Committee some or all of the powers previously delegated. The Board may retain the authority to concurrently administer the Plan with any Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(ii) Rule 16b-3 Compliance. To the extent an Award is intended to qualify for the exemption from Section 16(b) of the Exchange Act that is available under Rule 16b-3 of the Exchange Act, the Award will be granted by the Board or a Committee that consists solely of two or more Non-Employee Directors, as determined under Rule 16b-3(b)(3) of the Exchange Act and thereafter any action establishing or modifying the terms of the Award will be approved by the Board or a Committee meeting such requirements to the extent necessary for such exemption to remain available.

(d) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board or any Committee in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

(e) Delegation to an Officer. The Board or any Committee may delegate to one or more Officers the authority to do one or both of the following (i) designate Employees who are not Officers to be recipients of Options and SARs (and, to the extent permitted by Applicable Law, other types of Awards) and, to the extent permitted by Applicable Law, the terms thereof, and (ii) determine the number of shares of Common Stock to be subject to such Awards granted to such Employees; provided, however, that the resolutions or charter adopted by the Board or any Committee evidencing such delegation will specify the total number of shares of Common Stock that may be subject to the Awards granted by such Officer and that such Officer may not grant an Award to himself or herself. Any such Awards will be granted on the applicable form of Award Agreement most recently approved for use by the Board or the Committee, unless otherwise provided in the resolutions approving the delegation authority. Notwithstanding anything to the contrary herein, neither the Board nor any Committee may delegate to an Officer who is acting solely in the capacity of an Officer (and not also as a Director) the authority to determine the Fair Market Value.

8. TAX WITHHOLDING

(a) Withholding Authorization. As a condition to acceptance of any Award under the Plan, a Participant authorizes withholding from payroll and any other amounts payable to such Participant, and otherwise agree to make adequate provision for (including), any sums required to satisfy any U.S. federal, state, local and/or foreign tax or social insurance contribution withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise, vesting or settlement of such Award, as applicable. Accordingly, a Participant may not be able to exercise an Award even though the Award is vested, and the Company shall have no obligation to issue shares of Common Stock subject to an Award, unless and until such obligations are satisfied.

(b) Satisfaction of Withholding Obligation. To the extent permitted by the terms of an Award Agreement, the Company may, in its sole discretion, satisfy any U.S. federal, state, local and/or foreign tax or social insurance withholding obligation relating to an Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Award; (iii) withholding cash from an Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; (v) by allowing a Participant to effectuate a “cashless exercise” pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board; or (vi) by such other method as may be set forth in the Award Agreement.

(c) No Obligation to Notify or Minimize Taxes; No Liability to Claims. Except as required by Applicable Law the Company has no duty or obligation to any Participant to advise such holder as to the time or manner of exercising such Award. Furthermore, the Company has no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of an Award or a possible period in which the Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of an Award to the holder of such Award and will not be liable to any holder of an Award for any adverse tax consequences to such holder in connection with an Award. As a condition to accepting an Award under the Plan, each Participant (i) agrees to not make any claim against the Company, or any of its

Officers, Directors, Employees or Affiliates related to tax liabilities arising from such Award or other Company compensation and (ii) acknowledges that such Participant was advised to consult with his or her own personal tax, financial and other legal advisors regarding the tax consequences of the Award and has either done so or knowingly and voluntarily declined to do so. Additionally, each Participant acknowledges any Option or SAR granted under the Plan is exempt from Section 409A only if the exercise or strike price is at least equal to the "fair market value" of the Common Stock on the date of grant as determined by the Internal Revenue Service and there is no other impermissible deferral of compensation associated with the Award. Additionally, as a condition to accepting an Option or SAR granted under the Plan, each Participant agrees not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates in the event that the Internal Revenue Service asserts that such exercise price or strike price is less than the "fair market value" of the Common Stock on the date of grant as subsequently determined by the Internal Revenue Service.

(d) Withholding Indemnification. As a condition to accepting an Award under the Plan, in the event that the amount of the Company's and/or its Affiliate's withholding obligation in connection with such Award was greater than the amount actually withheld by the Company and/or its Affiliates, each Participant agrees to indemnify and hold the Company and/or its Affiliates harmless from any failure by the Company and/or its Affiliates to withhold the proper amount.

9. MISCELLANEOUS.

(a) Source of Shares. The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

(b) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Awards will constitute general funds of the Company.

(c) Corporate Action Constituting Grant of Awards. Corporate action constituting a grant by the Company of an Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (e.g., Board consents, resolutions or minutes) documenting the corporate action approving the grant contain terms (e.g., exercise price, vesting schedule or number of shares) that are inconsistent with those in the Award Agreement or related grant documents as a result of a clerical error in the Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Award Agreement or related grant documents.

(d) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to such Award unless and until (i) such Participant has satisfied all requirements for exercise of the Award pursuant to its terms, if applicable, and (ii) the issuance of the Common Stock subject to such Award is reflected in the records of the Company.

(e) No Employment or Other Service Rights. Nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Award was granted or affect the right of the Company or an Affiliate to terminate at will and without regard to any future vesting opportunity that a Participant may have with respect to any Award (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the Bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state or foreign jurisdiction in which the Company or the Affiliate is incorporated, as the case may be. Further, nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award will constitute any promise or commitment by the Company or an Affiliate regarding the fact or nature of future positions, future work assignments, future compensation or any other term or condition of employment or service or confer any right or benefit under the Award or the Plan unless such right or benefit has specifically accrued under the terms of the Award Agreement and/or Plan.

(f) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company and any Affiliates is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Award to the Participant, the Board may determine, to the extent permitted by Applicable Law, to (i) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Award that is scheduled to vest or become payable after the date of such change in time commitment, and (ii) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Award that is so reduced or extended.

(g) Execution of Additional Documents. As a condition to accepting an Award under the Plan, the Participant agrees to execute any additional documents or instruments necessary or desirable, as determined in the Plan Administrator's sole discretion, to carry out the purposes or intent of the Award, or facilitate compliance with securities and/or other regulatory requirements, in each case at the Plan Administrator's request.

(h) Electronic Delivery and Participation. Any reference herein or in an Award Agreement to a "written" agreement or document will include any agreement or document delivered electronically, filed publicly at www.sec.gov (or any successor website thereto) or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access). By accepting any Award the Participant consents to receive documents by electronic delivery and to participate in the Plan through any on-line electronic system established and maintained by the Plan Administrator or another third party selected by the Plan Administrator. The form of delivery of any Common Stock (e.g., a stock certificate or electronic entry evidencing such shares) shall be determined by the Company.

(i) Clawback/Recovery. All Awards granted under the Plan will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other Applicable Law and any clawback policy that the Company otherwise adopts, to the extent applicable and permissible under Applicable Law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in an Award Agreement as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of Common Stock or other cash or property upon the occurrence of Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a Participant's right to voluntary terminate employment upon a "resignation for good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

(j) Securities Law Compliance. A Participant will not be issued any shares in respect of an Award unless either (i) the shares are registered under the Securities Act; or (ii) the Company has determined that such issuance would be exempt from the registration requirements of the Securities Act. Each Award also must comply with other Applicable Law governing the Award, and a Participant will not receive such shares if the Company determines that such receipt would not be in material compliance with Applicable Law.

(k) Transfer or Assignment of Awards; Issued Shares. Except as expressly provided in the Plan or the form of Award Agreement, Awards granted under the Plan may not be transferred or assigned by the Participant. After the vested shares subject to an Award have been issued, or in the case of Restricted Stock and similar awards, after the issued shares have vested, the holder of such shares is free to assign, hypothecate, donate, encumber or otherwise dispose of any interest in such shares provided that any such actions are in compliance with the provisions herein, the terms of the Trading Policy and Applicable Law.

(l) Effect on Other Employee Benefit Plans. The value of any Award granted under the Plan, as determined upon grant, vesting or settlement, shall not be included as compensation, earnings, salaries, or other similar terms used when calculating any Participant's benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

(m) Deferrals. To the extent permitted by Applicable Law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Award may be deferred and may also establish programs and procedures for deferral elections to be made by Participants. Deferrals by will be made in accordance with the requirements of Section 409A.

(n) Section 409A. Unless otherwise expressly provided for in an Award Agreement, the Plan and Award Agreements will be interpreted to the greatest extent possible in a manner that makes the Plan and the Awards granted hereunder exempt from Section 409A, and, to the extent not so exempt, in compliance with the requirements of Section 409A. If the Board determines that any Award granted hereunder is not exempt from and is therefore subject to

Section 409A, the Award Agreement evidencing such Award will incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code, and to the extent an Award Agreement is silent on terms necessary for compliance, such terms are hereby incorporated by reference into the Award Agreement. Notwithstanding anything to the contrary in this Plan (and unless the Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded, and if a Participant holding an Award that constitutes "deferred compensation" under Section 409A is a "specified employee" for purposes of Section 409A, no distribution or payment of any amount that is due because of a "separation from service" (as defined in Section 409A without regard to alternative definitions thereunder) will be issued or paid before the date that is six months and one day following the date of such Participant's "separation from service" or, if earlier, the date of the Participant's death, unless such distribution or payment can be made in a manner that complies with Section 409A, and any amounts so deferred will be paid in a lump sum on the day after such six month period elapses, with the balance paid thereafter on the original schedule.

(o) CHOICE OF LAW. This Plan and any controversy arising out of or relating to this Plan shall be governed by, and construed in accordance with, the internal laws of the State of Delaware, without regard to conflict of law principles that would result in any application of any law other than the law of the State of Delaware.

10. COVENANTS OF THE COMPANY.

(a) Compliance with Law. The Company will seek to obtain from each regulatory commission or agency, as may be deemed to be necessary, having jurisdiction over the Plan such authority as may be required to grant Awards and to issue and sell shares of Common Stock upon exercise or vesting of the Awards; provided, however, that this undertaking will not require the Company to register under the Securities Act the Plan, any Award or any Common Stock issued or issuable pursuant to any such Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary or advisable for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise or vesting of such Awards unless and until such authority is obtained. A Participant is not eligible for the grant of an Award or the subsequent issuance of Common Stock pursuant to the Award if such grant or issuance would be in violation of any Applicable Law.

11. ADDITIONAL RULES FOR AWARDS SUBJECT TO SECTION 409A.

(a) Application. Unless the provisions of this Section of the Plan are expressly superseded by the provisions in the form of Award Agreement, the provisions of this Section shall apply and shall supersede anything to the contrary set forth in the Award Agreement for a Non-Exempt Award.

(b) Non-Exempt Awards Subject to Non-Exempt Severance Arrangements. To the extent a Non-Exempt Award is subject to Section 409A due to application of a Non-Exempt Severance Arrangement, the following provisions of this subsection (b) apply.

(i) If the Non-Exempt Award vests in the ordinary course during the Participant's Continuous Service in accordance with the vesting schedule set forth in the Award Agreement, and does not accelerate vesting under the terms of a Non-Exempt Severance Arrangement, in no event will the shares be issued in respect of such Non-Exempt Award any later than the later of: (i) December 31st of the calendar year that includes the applicable vesting date, or (ii) the 60th day that follows the applicable vesting date.

(ii) If vesting of the Non-Exempt Award accelerates under the terms of a Non-Exempt Severance Arrangement in connection with the Participant's Separation from Service, and such vesting acceleration provisions were in effect as of the date of grant of the Non-Exempt Award and, therefore, are part of the terms of such Non-Exempt Award as of the date of grant, then the shares will be earlier issued in settlement of such Non-Exempt Award upon the Participant's Separation from Service in accordance with the terms of the Non-Exempt Severance Arrangement, but in no event later than the 60th day that follows the date of the Participant's Separation from Service. However, if at the time the shares would otherwise be issued the Participant is subject to the distribution limitations contained in Section 409A applicable to "specified employees," as defined in Section 409A(a)(2)(B)(i) of the Code, such shares shall not be issued before the date that is six months following the date of such Participant's Separation from Service, or, if earlier, the date of the Participant's death that occurs within such six month period.

(iii) If vesting of a Non-Exempt Award accelerates under the terms of a Non-Exempt Severance Arrangement in connection with a Participant's Separation from Service, and such vesting acceleration provisions were not in effect as of the date of grant of the Non-Exempt Award and, therefore, are not a part of the terms of such Non-Exempt Award on the date of grant, then such acceleration of vesting of the Non-Exempt Award shall not accelerate the issuance date of the shares, but the shares shall instead be issued on the same schedule as set forth in the Grant Notice as if they had vested in the ordinary course during the Participant's Continuous Service, notwithstanding the vesting acceleration of the Non-Exempt Award. Such issuance schedule is intended to satisfy the requirements of payment on a specified date or pursuant to a fixed schedule, as provided under Treasury Regulations Section 1.409A-3(a)(4).

(c) Treatment of Non-Exempt Awards Upon a Corporate Transaction for Employees and Consultants. The provisions of this subsection (c) shall apply and shall supersede anything to the contrary set forth in the Plan with respect to the permitted treatment of any Non-Exempt Award in connection with a Corporate Transaction if the Participant was either an Employee or Consultant upon the applicable date of grant of the Non-Exempt Award.

(i) Vested Non-Exempt Awards. The following provisions shall apply to any Vested Non-Exempt Award in connection with a Corporate Transaction:

(1) If the Corporate Transaction is also a Section 409A Change in Control then the Acquiring Entity may not assume, continue or substitute the Vested Non-Exempt Award. Upon the Section 409A Change in Control the settlement of the Vested Non-Exempt Award will automatically be accelerated and the shares will be immediately issued in respect of the Vested Non-Exempt Award. Alternatively, the Company may instead provide that the Participant will receive a cash settlement equal to the Fair Market Value of the shares that would otherwise be issued to the Participant upon the Section 409A Change in Control.

(2) If the Corporate Transaction is not also a Section 409A Change in Control, then the Acquiring Entity must either assume, continue or substitute each Vested Non-Exempt Award. The shares to be issued in respect of the Vested Non-Exempt Award shall be issued to the Participant by the Acquiring Entity on the same schedule that the shares would have been issued to the Participant if the Corporate Transaction had not occurred. In the Acquiring Entity's discretion, in lieu of an issuance of shares, the Acquiring Entity may instead substitute a cash payment on each applicable issuance date, equal to the Fair Market Value of the shares that would otherwise be issued to the Participant on such issuance dates, with the determination of the Fair Market Value of the shares made on the date of the Corporate Transaction.

(ii) Unvested Non-Exempt Awards. The following provisions shall apply to any Unvested Non-Exempt Award unless otherwise determined by the Board pursuant to subsection (e) of this Section.

(1) In the event of a Corporate Transaction, the Acquiring Entity shall assume, continue or substitute any Unvested Non-Exempt Award. Unless otherwise determined by the Board, any Unvested Non-Exempt Award will remain subject to the same vesting and forfeiture restrictions that were applicable to the Award prior to the Corporate Transaction. The shares to be issued in respect of any Unvested Non-Exempt Award shall be issued to the Participant by the Acquiring Entity on the same schedule that the shares would have been issued to the Participant if the Corporate Transaction had not occurred. In the Acquiring Entity's discretion, in lieu of an issuance of shares, the Acquiring Entity may instead substitute a cash payment on each applicable issuance date, equal to the Fair Market Value of the shares that would otherwise be issued to the Participant on such issuance dates, with the determination of Fair Market Value of the shares made on the date of the Corporate Transaction.

(2) If the Acquiring Entity will not assume, substitute or continue any Unvested Non-Exempt Award in connection with a Corporate Transaction, then such Award shall automatically terminate and be forfeited upon the Corporate Transaction with no consideration payable to any Participant in respect of such forfeited Unvested Non-Exempt Award. Notwithstanding the foregoing, to the extent permitted and in compliance with the requirements of Section 409A, the Board may in its discretion determine to elect to accelerate the vesting and settlement of the Unvested Non-Exempt Award upon the Corporate Transaction, or instead substitute a cash payment equal to the Fair Market Value of such shares that would otherwise be issued to the Participant, as further provided in subsection (e)(ii) below. In the absence of such discretionary election by the Board, any Unvested Non-Exempt Award shall be forfeited without payment of any consideration to the affected Participants if the Acquiring Entity will not assume, substitute or continue the Unvested Non-Exempt Awards in connection with the Corporate Transaction.

(3) The foregoing treatment shall apply with respect to all Unvested Non-Exempt Awards upon any Corporate Transaction, and regardless of whether or not such Corporate Transaction is also a Section 409A Change in Control.

(d) Treatment of Non-Exempt Awards Upon a Corporate Transaction for Non-Employee Directors. The following provisions of this subsection (d) shall apply and shall supersede anything to the contrary that may be set forth in the Plan with respect to the permitted treatment of a Non-Exempt Director Award in connection with a Corporate Transaction.

(i) If the Corporate Transaction is also a Section 409A Change in Control then the Acquiring Entity may not assume, continue or substitute the Non-Exempt Director Award. Upon the Section 409A Change in Control the vesting and settlement of any Non-Exempt Director Award will automatically be accelerated and the shares will be immediately issued to the Participant in respect of the Non-Exempt Director Award. Alternatively, the Company may provide that the Participant will instead receive a cash settlement equal to the Fair Market Value of the shares that would otherwise be issued to the Participant upon the Section 409A Change in Control pursuant to the preceding provision.

(ii) If the Corporate Transaction is not also a Section 409A Change in Control, then the Acquiring Entity must either assume, continue or substitute the Non-Exempt Director Award. Unless otherwise determined by the Board, the Non-Exempt Director Award will remain subject to the same vesting and forfeiture restrictions that were applicable to the Award prior to the Corporate Transaction. The shares to be issued in respect of the Non-Exempt Director Award shall be issued to the Participant by the Acquiring Entity on the same schedule that the shares would have been issued to the Participant if the Corporate Transaction had not occurred. In the Acquiring Entity's discretion, in lieu of an issuance of shares, the Acquiring Entity may instead substitute a cash payment on each applicable issuance date, equal to the Fair Market Value of the shares that would otherwise be issued to the Participant on such issuance dates, with the determination of Fair Market Value made on the date of the Corporate Transaction.

(e) If the RSU Award is a Non-Exempt Award, then the provisions in this Section 11(e) shall apply and supersede anything to the contrary that may be set forth in the Plan or the Award Agreement with respect to the permitted treatment of such Non-Exempt Award:

(i) Any exercise by the Board of discretion to accelerate the vesting of a Non-Exempt Award shall not result in any acceleration of the scheduled issuance dates for the shares in respect of the Non-Exempt Award unless earlier issuance of the shares upon the applicable vesting dates would be in compliance with the requirements of Section 409A.

(ii) The Company explicitly reserves the right to earlier settle any Non-Exempt Award to the extent permitted and in compliance with the requirements of Section 409A, including pursuant to any of the exemptions available in Treasury Regulations Section 1.409A-3(j)(4)(ix).

(iii) To the extent the terms of any Non-Exempt Award provide that it will be settled upon a Change in Control or Corporate Transaction, to the extent it is required for compliance with the requirements of Section 409A, the Change in Control or Corporate Transaction event triggering settlement must also constitute a Section 409A Change in Control. To the extent the terms of a Non-Exempt Award provides that it will be settled upon a termination of employment or termination of Continuous Service, to the extent it is required for

compliance with the requirements of Section 409A, the termination event triggering settlement must also constitute a Separation From Service. However, if at the time the shares would otherwise be issued to a Participant in connection with a "separation from service" such Participant is subject to the distribution limitations contained in Section 409A applicable to "specified employees," as defined in Section 409A(a)(2)(B)(i) of the Code, such shares shall not be issued before the date that is six months following the date of the Participant's Separation From Service, or, if earlier, the date of the Participant's death that occurs within such six month period.

(iv) The provisions in this subsection (e) for delivery of the shares in respect of the settlement of a RSU Award that is a Non-Exempt Award are intended to comply with the requirements of Section 409A so that the delivery of the shares to the Participant in respect of such Non-Exempt Award will not trigger the additional tax imposed under Section 409A, and any ambiguities herein will be so interpreted.

12. SEVERABILITY.

If all or any part of the Plan or any Award Agreement is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity shall not invalidate any portion of the Plan or such Award Agreement not declared to be unlawful or invalid. Any Section of the Plan or any Award Agreement (or part of such a Section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

13. TERMINATION OF THE PLAN.

The Board may suspend or terminate the Plan at any time.

No Incentive Stock Options may be granted after the tenth anniversary of the earlier of: (i) the Adoption Date, or (ii) the date the Plan is approved by the Company's stockholders.

No Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

14. DEFINITIONS.

As used in the Plan, the following definitions apply to the capitalized terms indicated below:

(a) "***Acquiring Entity***" means the surviving or acquiring corporation (or its parent company) in connection with a Corporate Transaction.

(b) "***Adoption Date***" means the date the Plan is first approved by the Board or Compensation Committee.

(c) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 promulgated under the Securities Act. The Board may determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(d) "***Applicable Law***" means shall mean any applicable securities, federal, state, foreign, material local or municipal or other law, statute, constitution, principle of common law, resolution, ordinance, code, edict, decree, rule, listing rule, regulation, judicial decision, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Body (including under the authority of any applicable self-regulating organization such as the Nasdaq Stock Market, New York Stock Exchange, or the Financial Industry Regulatory Authority).

(e) "***Award***" means any right to receive Common Stock, cash or other property granted under the Plan (including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a RSU Award, a SAR, a Performance Award or any Other Award).

(f) "***Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of an Award. The Award Agreement generally consists of the Grant Notice and the agreement containing the written summary of the general terms and conditions applicable to the Award and which is provided to a Participant along with the Grant Notice.

(g) "***Board***" means the Board of Directors of the Company (or its designee). Any decision or determination made by the Board shall be a decision or determination that is made in the sole discretion of the Board (or its designee), and such decision or determination shall be final and binding on all Participants.

(h) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Award after the Effective Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(i) "***Cause***" has the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of any of the following events: (i) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (ii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or of any statutory duty owed to the Company; (iii) such Participant's unauthorized use or disclosure of the Company's confidential information or trade secrets; or (iv) such Participant's gross or willful misconduct. The determination that a termination of the Participant's Continuous Service is either for Cause or without Cause will be made by the Board with respect to Participants who are executive officers of the Company and by the Company's Chief Executive Officer with respect to Participants who are not executive officers of the Company. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Awards held by such Participant will have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(j) "***Change in Control***" or "***Change of Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events; provided, however, to the extent necessary to avoid adverse personal income tax consequences to the Participant in connection with an Award, also constitutes a Section 409A Change in Control:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control shall not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, or (C) solely because the level of Ownership held by any Exchange Act Person (the "*Subject Person*") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control shall be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities

representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction;

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; or

(iv) individuals who, on the date the Plan is adopted by the Board, are members of the Board (the "***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; provided, however, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall, for purposes of this Plan, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing or any other provision of this Plan, (A) the term Change in Control shall not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant shall supersede the foregoing definition with respect to Awards subject to such agreement; provided, however, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition shall apply.

(k) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(l) "***Committee***" means the Compensation Committee and any other committee of Directors to whom authority has been delegated by the Board or Compensation Committee in accordance with the Plan.

(m) "***Common Stock***" means the common stock of the Company.

(n) "***Company***" means Keros Therapeutics, Inc., a Delaware corporation.

(o) "***Compensation Committee***" means the Compensation Committee of the Board.

(p) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan.

Notwithstanding the foregoing, a person is treated as a Consultant under this Plan only if a Form S-8 Registration Statement under the Securities Act is available to register either the offer or the sale of the Company's securities to such person.

(q) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director or Consultant or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; provided, however, that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an Employee of the Company to a Consultant of an Affiliate or to a Director will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in an Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law. In addition, to the extent required for exemption from or compliance with Section 409A, the determination of whether there has been a termination of Continuous Service will be made, and such term will be construed, in a manner that is consistent with the definition of "separation from service" as defined under Treasury Regulation Section 1.409A-1(h) (without regard to any alternative definition thereunder).

(r) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board, of the consolidated assets of the Company and its Subsidiaries;

(ii) a sale or other disposition of at least 50% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(s) "***Director***" means a member of the Board.

(t) "***determine*" *or* "*determined***" means as determined by the Board or the Committee (or its designee) in its sole discretion.

(u) "***Disability***" means, with respect to a Participant, such Participant is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months, as provided in Section 22(e)(3) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(v) "***Effective Date***" means immediately prior to the IPO Date, provided this Plan is approved by the Company's stockholders prior to the IPO Date.

(w) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(x) "***Employer***" means the Company or the Affiliate of the Company that employs the Participant.

(y) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(z) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(aa) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(bb) "***Fair Market Value***" means, as of any date, unless otherwise determined by the Board, the value of the Common Stock (as determined on a per share or aggregate basis, as applicable) determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value will be the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) If there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing selling price on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, or if otherwise determined by the Board, the Fair Market Value will be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(cc) "***Governmental Body***" means any: (a) nation, state, commonwealth, province, territory, county, municipality, district or other jurisdiction of any nature; (b) federal, state, local, municipal, foreign or other government; (c) governmental or regulatory body, or quasi-governmental body of any nature (including any governmental division, department, administrative agency or bureau, commission, authority, instrumentality, official, ministry, fund, foundation, center, organization, unit, body or Entity and any court or other tribunal, and for the avoidance of doubt, any Tax authority) or other body exercising similar powers or authority; or (d) self-regulatory organization (including the Nasdaq Stock Market, New York Stock Exchange, and the Financial Industry Regulatory Authority).

(dd) "***Grant Notice***" means the notice provided to a Participant that he or she has been granted an Award under the Plan and which includes the name of the Participant, the type of Award, the date of grant of the Award, number of shares of Common Stock subject to the Award or potential cash payment right, (if any), the vesting schedule for the Award (if any) and other key terms applicable to the Award.

(ee) "***Incentive Stock Option***" means an option granted pursuant to Section 4 of the Plan that is intended to be, and qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(ff) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(gg) "***Materially Impair***" means any amendment to the terms of the Award that materially adversely affects the Participant's rights under the Award. A Participant's rights under an Award will not be deemed to have been Materially Impaired by any such amendment if the Board, in its sole discretion, determines that the amendment, taken as a whole, does not materially impair the Participant's rights. For example, the following types of amendments to the terms of an Award do not Materially Impair the Participant's rights under the Award: (i) imposition of reasonable restrictions on the minimum number of shares subject to an Option that may be exercised; (ii) to maintain the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code; (iii) to change the terms of an Incentive Stock Option in a manner that disqualifies, impairs or otherwise affects the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code; (iv) to clarify the manner of exemption from, or to bring the Award into compliance with or qualify it for an exemption from, Section 409A; or (v) to comply with other Applicable Laws.

(hh) "***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K; or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(ii) "***Non-Exempt Award***" means any Award that is subject to, and not exempt from, Section 409A, including as the result of (i) a deferral of the issuance of the shares subject to the Award which is elected by the Participant or imposed by the Company, (ii) the terms of any Non-Exempt Severance Agreement.

(jj) "***Non-Exempt Director Award***" means a Non-Exempt Award granted to a Participant who was a Director but not an Employee on the applicable grant date.

(kk) "***Non-Exempt Severance Arrangement***" means a severance arrangement or other agreement between the Participant and the Company that provides for acceleration of vesting of an Award and issuance of the shares in respect of such Award upon the Participant's termination of employment or separation from service (as such term is defined in Section 409A(a)(2)(A)(i) of the Code (and without regard to any alternative definition thereunder) ("***Separation from Service***") and such severance benefit does not satisfy the requirements for an exemption from application of Section 409A provided under Treasury Regulations Section 1.409A-1(b)(4), 1.409A-1(b)(9) or otherwise.

(ll) "***Nonstatutory Stock Option***" means any option granted pursuant to Section 4 of the Plan that does not qualify as an Incentive Stock Option.

(mm) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(nn) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(oo) "***Option Agreement***" means a written agreement between the Company and the Optionholder evidencing the terms and conditions of the Option grant. The Option Agreement includes the Grant Notice for the Option and the agreement containing the written summary of the general terms and conditions applicable to the Option and which is provided to a Participant along with the Grant Notice. Each Option Agreement will be subject to the terms and conditions of the Plan.

(pp) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(qq) "***Other Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 5(c).

(rr) "***Other Award Agreement***" means a written agreement between the Company and a holder of an Other Award evidencing the terms and conditions of an Other Award grant. Each Other Award Agreement will be subject to the terms and conditions of the Plan.

(ss) "***Own,***" "***Owned,***" "***Owner,***" "***Ownership***" means that a person or Entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(tt) "***Participant***" means an Employee, Director or Consultant to whom an Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Award.

(uu) "***Performance Award***" means an Award that may vest or may be exercised or a cash award that may vest or become earned and paid contingent upon the attainment during a Performance Period of certain Performance Goals and which is granted under the terms and conditions of Section 5(b) pursuant to such terms as are approved by the Board. In addition, to the extent permitted by Applicable Law and set forth in the applicable Award Agreement, the Board may determine that cash or other property may be used in payment of Performance Awards. Performance Awards that are settled in cash or other property are not required to be valued in whole or in part by reference to, or otherwise based on, the Common Stock.

(vv) "***Performance Criteria***" means the one or more criteria that the Board will select for purposes of establishing the Performance Goals for a Performance Period. The Performance Criteria that will be used to establish such Performance Goals may be based on any measure of performance selected by the Board.

(ww) "***Performance Goals***" means, for a Performance Period, the one or more goals established by the Board for the Performance Period based upon the Performance Criteria. Performance Goals may be based on a Company-wide basis, with respect to one or more business units, divisions, Affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the Board (i) in the Award Agreement at the time the Award is granted or (ii) in such other document setting forth the Performance Goals at the time the Performance Goals are established, the Board will appropriately make adjustments in the method of calculating the attainment of Performance Goals for a Performance Period as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by the Company achieved performance objectives at targeted levels during the balance of a Performance Period following such

divestiture; (8) to exclude the effect of any change in the outstanding shares of common stock of the Company by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and the award of bonuses under the Company's bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to expense under generally accepted accounting principles; and (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles. In addition, the Board retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of Performance Goals and to define the manner of calculating the Performance Criteria it selects to use for such Performance Period. Partial achievement of the specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the Award Agreement or the written terms of a Performance Cash Award.

(xx) "***Performance Period***" means the period of time selected by the Board over which the attainment of one or more Performance Goals will be measured for the purpose of determining a Participant's right to vesting or exercise of an Award. Performance Periods may be of varying and overlapping duration, at the sole discretion of the Board.

(yy) "***Plan***" means this Keros Therapeutics, Inc. 2020 Equity Incentive Plan, as amended from time to time.

(zz) "***Plan Administrator***" means the person, persons, and/or third-party administrator designated by the Company to administer the day to day operations of the Plan and the Company's other equity incentive programs.

(aaa) "***Post-Termination Exercise Period***" means the period following termination of a Participant's Continuous Service within which an Option or SAR is exercisable, as specified in Section 4(h).

(bbb) "***Prior Plan's Available Reserve***" means the number of shares available for the grant of new awards under the Prior Plan as of the Effective Date.

(ccc) "***Prior Plan***" means the Keros Therapeutics, Inc. 2017 Stock Incentive Plan.

(ddd) "***Prospectus***" means the document containing the Plan information specified in Section 10(a) of the Securities Act.

(eee) "***Restricted Stock Award***" or "***RSA***" means an Award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 5(a).

(fff) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. The Restricted Stock Award Agreement includes the Grant Notice for the Restricted Stock Award and the agreement containing the written summary of the general terms and conditions applicable to the Restricted Stock Award and which is provided to a Participant along with the Grant Notice. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(ggg) "***Returning Shares***" means shares subject to outstanding stock awards granted under the Prior Plan and that following the Effective Date: (A) are not issued because such stock award or any portion thereof expires or otherwise terminates without all of the shares covered by such stock award having been issued; (B) are not issued because such stock award or any portion thereof is settled in cash; (C) are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required for the vesting of such shares; (D) are withheld or reacquired to satisfy the exercise, strike or purchase price; or (E) are withheld or reacquired to satisfy a tax withholding obligation.

(hhh) "***RSU Award***" or "***RSU***" means an Award of restricted stock units representing the right to receive an issuance of shares of Common Stock which is granted pursuant to the terms and conditions of Section 5(a).

(iii) "***RSU Award Agreement***" means a written agreement between the Company and a holder of a RSU Award evidencing the terms and conditions of a RSU Award grant. The RSU Award Agreement includes the Grant Notice for the RSU Award and the agreement containing the written summary of the general terms and conditions applicable to the RSU Award and which is provided to a Participant along with the Grant Notice. Each RSU Award Agreement will be subject to the terms and conditions of the Plan.

(jjj) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(kkk) "***Rule 405***" means Rule 405 promulgated under the Securities Act.

(lll) "***Section 409A***" means Section 409A of the Code and the regulations and other guidance thereunder.

(mmm) "***Section 409A Change in Control***" means a change in the ownership or effective control of the Company, or in the ownership of a substantial portion of the Company's assets, as provided in Section 409A(a)(2)(A)(v) of the Code and Treasury Regulations Section 1.409A-3(i)(5) (without regard to any alternative definition thereunder).

(nnn) "***Securities Act***" means the Securities Act of 1933, as amended.

(ooo) "***Share Reserve***" means the number of shares available for issuance under the Plan as set forth in Section 2(a).

(ppp) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 4.

(qqq) "***SAR Agreement***" means a written agreement between the Company and a holder of a SAR evidencing the terms and conditions of a SAR grant. The SAR Agreement includes the Grant Notice for the SAR and the agreement containing the written summary of the general terms and conditions applicable to the SAR and which is provided to a Participant along with the Grant Notice. Each SAR Agreement will be subject to the terms and conditions of the Plan.

(rrr) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(sss) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

(ttt) "***Trading Policy***" means the Company's policy permitting certain individuals to sell Company shares only during certain "window" periods and/or otherwise restricts the ability of certain individuals to transfer or encumber Company shares, as in effect from time to time.

(uuu) "***Unvested Non-Exempt Award***" means the portion of any Non-Exempt Award that had not vested in accordance with its terms upon or prior to the date of any Corporate Transaction.

(vvv) "***Vested Non-Exempt Award***" means the portion of any Non-Exempt Award that had vested in accordance with its terms upon or prior to the date of a Corporate Transaction.

Exhibit 10.5

KEROS THERAPEUTICS, INC.
STOCK OPTION GRANT NOTICE
(2020 EQUITY INCENTIVE PLAN)

Keros Therapeutics, Inc. (the "***Company***"), pursuant to its 2020 Equity Incentive Plan (the "***Plan***"), has granted to you ("***Optionholder")*** an option to purchase the number of shares of the Common Stock set forth below (the "***Option***"). Your Option is subject to all of the terms and conditions as set forth herein and in the Plan, and the Stock Option Agreement and the Notice of Exercise, all of which are attached hereto and incorporated herein in their entirety. Capitalized terms not explicitly defined herein but defined in the Plan or the Stock Option Agreement shall have the meanings set forth in the Plan or the Stock Option Agreement, as applicable.

Optionholder:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Shares of Common Stock Subject to Option:	_____
Exercise Price (Per Share):	_____
Total Exercise Price:	_____
Expiration Date:	_____

Type of Grant: [Incentive Stock Option] OR [Nonstatutory Stock Option]

Exercise and Vesting Schedule: Subject to the Optionholder's Continuous Service through each applicable vesting date, the Option will vest as follows:

[1/4th of the shares vest and become exercisable one year after the Vesting Commencement Date; the balance of the shares vest and become exercisable in a series of thirty-six (36) successive equal monthly installments measured from the first anniversary of the Vesting Commencement Date on the same date of the month as the Vesting Commencement Date. [Notwithstanding the foregoing, the Option will accelerate vesting and exercisability in full upon a Change in Control which occurs during your Continuous Service.]]

Optionholder Acknowledgements: By your signature below or by electronic acceptance or authentication in a form authorized by the Company, you understand and agree that:

- The Option is governed by this Stock Option Grant Notice, and the provisions of the Plan and the Stock Option Agreement and the Notice of Exercise, all of which are made a part of this document. Unless otherwise provided in the Plan, this Grant Notice and the Stock Option Agreement (together, the "***Option Agreement***") may not be modified, amended or revised except in a writing signed by you and a duly authorized officer of the Company.
- [If the Option is an Incentive Stock Option, it (plus other outstanding Incentive Stock Options granted to you) cannot be first *exercisable* for more than $100,000 in value (measured by exercise price) in any calendar year. Any excess over $100,000 is a Nonstatutory Stock Option.]
- You consent to receive this Grant Notice, the Stock Option Agreement, the Plan, the Prospectus and any other Plan-related documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

- You have read and are familiar with the provisions of the Plan, the Stock Option Agreement, the Notice of Exercise and the Prospectus. In the event of any conflict between the provisions in this Grant Notice, the Option Agreement, the Notice of Exercise, or the Prospectus and the terms of the Plan, the terms of the Plan shall control.
- The Option Agreement sets forth the entire understanding between you and the Company regarding the acquisition of Common Stock and supersedes all prior oral and written agreements, promises and/or representations on that subject with the exception of other equity awards previously granted to you and any written employment agreement, offer letter, severance agreement, written severance plan or policy, or other written agreement between the Company and you in each case that specifies the terms that should govern this Option.
- Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and any counterpart so delivered will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

KEROS THERAPEUTICS, INC.

By: _____
Signature

Title: _____

Date: _____

OPTIONHOLDER:

_____
Signature

Date: _____

ATTACHMENTS: Stock Option Agreement, 2020 Equity Incentive Plan, Notice of Exercise

KEROS THERAPEUTICS, INC.
2020 EQUITY INCENTIVE PLAN

STOCK OPTION AGREEMENT

As reflected by your Stock Option Grant Notice ("***Grant Notice***"), Keros Therapeutics, Inc. (the "***Company***") has granted you an option under its 2020 Equity Incentive Plan (the "***Plan***") to purchase a number of shares of Common Stock at the exercise price indicated in your Grant Notice (the "***Option***"). Capitalized terms not explicitly defined in this Agreement but defined in the Grant Notice or the Plan shall have the meanings set forth in the Grant Notice or Plan, as applicable. The terms of your Option as specified in the Grant Notice and this Stock Option Agreement constitute your Option Agreement.

The general terms and conditions applicable to your Option are as follows:

1. GOVERNING PLAN DOCUMENT. Your Option is subject to all the provisions of the Plan, including but not limited to the provisions in:

(a) Section 6 regarding the impact of a Capitalization Adjustment, dissolution, liquidation, or Corporate Transaction on your Option;

(b) Section 9(e) regarding the Company's retained rights to terminate your Continuous Service notwithstanding the grant of the Option; and

(c) Section 8(c) regarding the tax consequences of your Option.

Your Option is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the Option Agreement and the provisions of the Plan, the provisions of the Plan shall control.

2. EXERCISE.

(a) You may generally exercise the vested portion of your Option for whole shares of Common Stock at any time during its term by delivery of payment of the exercise price and applicable withholding taxes and other required documentation to the Plan Administrator in accordance with the exercise procedures established by the Plan Administrator, which may include an electronic submission. Please review Sections 4(i), 4(j) and 7(b)(v) of the Plan, which may restrict or prohibit your ability to exercise your Option during certain periods.

(b) To the extent permitted by Applicable Law, you may pay your Option exercise price as follows:

(i) cash, check, bank draft or money order;

(ii) subject to Company and/or Committee consent at the time of exercise, pursuant to a "cashless exercise" program as further described in Section 4(c)(ii) of the Plan if at the time of exercise the Common Stock is publicly traded;

(iii) subject to Company and/or Committee consent at the time of exercise, by delivery of previously owned shares of Common Stock as further described in Section 4(c)(iii) of the Plan; or

(iv) subject to Company and/or Committee consent at the time of exercise, if the Option is a Nonstatutory Stock Option, by a "net exercise" arrangement as further described in Section 4(c)(iv) of the Plan.

(c) By accepting your Option, you agree that you will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company held by you, for a period of one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as the underwriters or the Company will request to facilitate compliance with FINRA Rule 2241 or any successor or similar rules or regulation (the "***Lock-Up Period***"); *provided*, *however*, that nothing contained in this section will prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. You further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to your shares of Common Stock until the end of such period. You also agree that any transferee of any shares of Common Stock (or other securities) of the Company held by you will be bound by this Section 2(c). The underwriters of the Company's stock are intended third party beneficiaries of this Section 2(c) and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

3. TERM. You may not exercise your Option before the commencement of its term or after its term expires. The term of your Option commences on the Date of Grant and expires upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) three months after the termination of your Continuous Service for any reason other than Cause, Disability or death;

(c) 12 months after the termination of your Continuous Service due to your Disability;

(d) 24 months after your death if you die during your Continuous Service;

(e) immediately upon a Corporate Transaction if the Board has determined that the Option will terminate in connection with a Corporate Transaction,

(f) the Expiration Date indicated in your Grant Notice; or

(g) the day before the 10th anniversary of the Date of Grant.

Notwithstanding the foregoing, if you die during the period provided in Section 3(b) or 3(c) above, the term of your Option shall not expire until the earlier of (i) 24 months after your death, (ii) upon any termination of the Option in connection with a Corporate Transaction, (iii) the Expiration Date indicated in your Grant Notice, or (iv) the day before the tenth anniversary of the Date of Grant. Additionally, the Post-Termination Exercise Period of your Option may be extended as provided in Section 4(i) of the Plan.

To obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the date of grant of your Option and ending on the day three months before the date of your Option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. If the Company provides for the extended exercisability of your Option under certain circumstances for your benefit, your Option will not necessarily be treated as an Incentive Stock Option if you exercise your Option more than three months after the date your employment terminates.

4. WITHHOLDING OBLIGATIONS. As further provided in Section 8 of the Plan: (a) you may not exercise your Option unless the applicable tax withholding obligations are satisfied, and (b) at the time you exercise your Option, in whole or in part, or at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "cashless exercise" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations, if any, which arise in connection with the exercise of your Option in accordance with the withholding procedures established by the Company. Accordingly, you may not be able to exercise your Option even though the Option is vested, and the Company shall have no obligation to issue shares of Common Stock subject to your Option, unless and until such obligations are satisfied. In the event that the amount of the Company's withholding obligation in connection with your Option was greater than the amount actually withheld by the Company, you agree to indemnify and hold the Company harmless from any failure by the Company to withhold the proper amount.

5. INCENTIVE STOCK OPTION DISPOSITION REQUIREMENT. If your Option is an Incentive Stock Option, you must notify the Company in writing within 15 days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your Option that occurs within two years after the date of your Option grant or within one year after such shares of Common Stock are transferred upon exercise of your Option.

6. TRANSFERABILITY. Except as otherwise provided in Section 4(e) of the Plan, your Option is not transferable, except by will or by the applicable laws of descent and distribution, and is exercisable during your life only by you.

7. CORPORATE TRANSACTION. Your Option is subject to the terms of any agreement governing a Corporate Transaction involving the Company, including, without limitation, a provision for the appointment of a stockholder representative that is authorized to act on your behalf with respect to any escrow, indemnities and any contingent consideration.

8. NO LIABILITY FOR TAXES. As a condition to accepting the Option, you hereby (a) agree to not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from the Option or other Company compensation and (b) acknowledge that you were advised to consult with your own personal tax, financial and other legal advisors regarding the tax consequences of the Option and have either done so or knowingly and voluntarily declined to do so. Additionally, you acknowledge that the Option is exempt from Section 409A only if the exercise price is at least equal to the "fair market value" of the Common Stock on the date of grant as determined by the Internal Revenue Service and there is no other impermissible deferral of compensation associated with the Option. Additionally, as a condition to accepting the Option, you agree not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates in the event that the Internal Revenue Service asserts that such exercise is less than the "fair market value" of the Common Stock on the date of grant as subsequently determined by the Internal Revenue Service.

9. SEVERABILITY. If any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Option Agreement (or part of such a Section) so declared to be unlawful or invalid will, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid

10. OTHER DOCUMENTS. You hereby acknowledge receipt of or the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Prospectus. In addition, you acknowledge receipt of the Company's Trading Policy.

11. QUESTIONS. If you have questions regarding these or any other terms and conditions applicable to your Option, including a summary of the applicable federal income tax consequences please see the Prospectus.

* * * *

KEROS THERAPEUTICS, INC.
(2020 EQUITY INCENTIVE PLAN)

NOTICE OF EXERCISE

KEROS THERAPEUTICS, INC.
99 HAYDEN AVENUE, SUITE 120, BUILDING E
LEXINGTON, MASSACHUSETTS 02421

Date of Exercise: _____

This constitutes notice to **KEROS THERAPEUTICS, INC.** (the "***Company***") that I elect to purchase the below number of shares of Common Stock of the Company (the "***Shares***") by exercising my Option for the price set forth below. Capitalized terms not explicitly defined in this Notice of Exercise but defined in the Grant Notice, Option Agreement or **2020 EQUITY INCENTIVE PLAN** (the "***Plan***") shall have the meanings set forth in the Grant Notice, Option Agreement or Plan, as applicable. Use of certain payment methods is subject to Company and/or Committee consent and certain additional requirements set forth in the Option Agreement and the Plan.

Type of option (check one):	Incentive ☐	Nonstatutory ☐
Date of Grant:	_____	
Number of Shares as to which Option is exercised:	_____	
Certificates to be issued in name of:	_____	
Total exercise price:	$ _____	
Cash, check, bank draft or money order delivered herewith:	$ _____	
Value of _____ Shares delivered herewith:	$ _____	
Regulation T Program (cashless exercise)	$ _____	
Value of _____ Shares pursuant to net exercise:	$ _____	

By this exercise, I agree (i) to provide such additional documents as you may require pursuant to the terms of the Plan, (ii) to satisfy the tax withholding obligations, if any, relating to the exercise of this Option as set forth in the Option Agreement, and (iii) if this exercise relates to an incentive stock option, to notify you in writing within 15 days after the date of any disposition of any of the Shares issued upon exercise of this Option that occurs within two years after the Date of Grant or within one year after such Shares are issued upon exercise of this Option.

I further agree that, if required by the Company (or a representative of the underwriters) in connection with the first underwritten registration of the offering of any securities of the Company under the Securities Act, I will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company for a period of one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act (or such longer period as the underwriters or the Company shall request to facilitate compliance with FINRA Rule 2241 or any successor or similar rule or regulation) (the "***Lock-Up Period***"). I further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to securities subject to the foregoing restrictions until the end of such period.

Very truly yours,

_____

KEROS THERAPEUTICS, INC.
RSU AWARD GRANT NOTICE
(2020 EQUITY INCENTIVE PLAN)

Keros Therapeutics, Inc. (the "***Company***") has awarded to you (the "***Participant***") the number of restricted stock units specified and on the terms set forth below in consideration of your services (the "***RSU Award***"). Your RSU Award is subject to all of the terms and conditions as set forth herein and in the Company's 2020 Equity Incentive Plan (the "***Plan***") and the Award Agreement (the "***Agreement***"), which are attached hereto and incorporated herein in their entirety. Capitalized terms not explicitly defined herein but defined in the Plan or the Agreement shall have the meanings set forth in the Plan or the Agreement.

Participant: _____
Date of Grant: _____
Vesting Commencement Date: _____
Number of Restricted Stock Units: _____

Vesting Schedule: [_____]. [The RSU Award shall vest in full upon a Change in Control that occurs during your Continuous Service.] Notwithstanding the foregoing, vesting shall terminate upon the Participant's termination of Continuous Service.

Issuance Schedule: One share of Common Stock will be issued for each restricted stock unit which vests at the time set forth in Section 5 of the Agreement.

Participant Acknowledgements: By your signature below or by electronic acceptance or authentication in a form authorized by the Company, you understand and agree that:

- The RSU Award is governed by this RSU Award Grant Notice (the "***Grant Notice***"), and the provisions of the Plan and the Agreement, all of which are made a part of this document. Unless otherwise provided in the Plan, this Grant Notice and the Agreement (together, the "***RSU Award Agreement***") may not be modified, amended or revised except in a writing signed by you and a duly authorized officer of the Company.
- You have read and are familiar with the provisions of the Plan, the RSU Award Agreement and the Prospectus. In the event of any conflict between the provisions in the RSU Award Agreement, or the Prospectus and the terms of the Plan, the terms of the Plan shall control.
- The RSU Award Agreement sets forth the entire understanding between you and the Company regarding the acquisition of Common Stock and supersedes all prior oral and written agreements, promises and/or representations on that subject with the exception of: (i) other equity awards previously granted to you, and (ii) any written employment agreement, offer letter, severance agreement, written severance plan or policy, or other written agreement between the Company and you in each case that specifies the terms that should govern this RSU Award.

KEROS THERAPEUTICS, INC.

By: _____
Signature

Title: _____

Date: _____

PARTICIPANT:

_____
Signature

Date: _____

ATTACHMENTS: RSU Award Agreement, 2020 Equity Incentive Plan

KEROS THERAPEUTICS, INC.
2020 EQUITY INCENTIVE PLAN
AWARD AGREEMENT (RSU AWARD)

As reflected by your Restricted Stock Unit Grant Notice ("***Grant Notice***"), Keros Therapeutics, Inc. (the "***Company***") has granted you a RSU Award under its 2020 Equity Incentive Plan (the "***Plan***") for the number of restricted stock units as indicated in your Grant Notice (the "***RSU Award***"). The terms of your RSU Award as specified in this Award Agreement for your RSU Award (the "***Agreement***") and the Grant Notice constitute your "***RSU Award Agreement***". Defined terms not explicitly defined in this Agreement but defined in the Grant Notice or the Plan shall have the same definitions as in the Grant Notice or Plan, as applicable.

The general terms applicable to your RSU Award are as follows:

1. GOVERNING PLAN DOCUMENT. Your RSU Award is subject to all the provisions of the Plan, including but not limited to the provisions in:

(a) Section 6 of the Plan regarding the impact of a Capitalization Adjustment, dissolution, liquidation, or Corporate Transaction on your RSU Award;

(b) Section 9(e) of the Plan regarding the Company's retained rights to terminate your Continuous Service notwithstanding the grant of the RSU Award; and

(c) Section 8(c) of the Plan regarding the tax consequences of your RSU Award.

Your RSU Award is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the RSU Award Agreement and the provisions of the Plan, the provisions of the Plan shall control.

2. GRANT OF THE RSU AWARD. This RSU Award represents your right to be issued on a future date the number of shares of the Company's Common Stock that is equal to the number of restricted stock units indicated in the Grant Notice as modified to reflect any Capitalization Adjustment and subject to your satisfaction of the vesting conditions set forth therein (the "***Restricted Stock Units***"). Any additional Restricted Stock Units that become subject to the RSU Award pursuant to Capitalization Adjustments as set forth in the Plan and the provisions of Section 3 below, if any, shall be subject, in a manner determined by the Board, to the same forfeiture restrictions, restrictions on transferability, and time and manner of delivery as applicable to the other Restricted Stock Units covered by your RSU Award.

3. DIVIDENDS. You may become entitled to receive payments equal to any cash dividends and other distributions paid with respect to a corresponding number of shares of Common Stock to be issued in respect of the Restricted Stock Units covered by your RSU Award. Any such dividends or distributions shall be subject to the same forfeiture restrictions as apply to the Restricted Stock Units and shall be paid at the same time that the corresponding shares are issued in respect of your vested Restricted Stock Units, provided, however that to the extent any such dividends or distributions are paid in shares of Common Stock, then you will automatically be granted a corresponding number of additional Restricted Stock Units subject to the RSU Award (the "***Dividend Units***"), and further provided that such Dividend Units shall be subject to the same forfeiture restrictions and restrictions on transferability, and same timing requirements for issuance of shares, as apply to the Restricted Stock Units subject to the RSU Award with respect to which the Dividend Units relate.

4. WITHHOLDING OBLIGATIONS. As further provided in Section 8 of the Plan, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for, any sums required to satisfy the federal, state, local and foreign tax withholding obligations, if any, which arise in connection with your RSU Award (the "***Withholding Obligation***") in accordance with the withholding procedures established by the Company. Unless the Withholding Obligation is satisfied, the Company shall have no obligation to deliver to you any Common Stock in respect of the RSU Award. In the event the Withholding Obligation of the Company arises prior to the delivery to you of Common Stock or it is determined after the delivery of Common Stock to you that the amount of the Withholding Obligation was greater than the amount withheld by the Company, you agree to indemnify and hold the Company harmless from any failure by the Company to withhold the proper amount.

5. DATE OF ISSUANCE.

(a) The issuance of shares in respect of the Restricted Stock Units is intended to comply with Treasury Regulations Section 1.409A-1(b)(4) and will be construed and administered in such a manner. Subject to the satisfaction of the Withholding Obligation, if any, in the event one or more Restricted Stock Units vests, the Company shall issue to you one (1) share of Common Stock for each Restricted Stock Unit that vests on the applicable vesting date(s) (subject to any adjustment under Section 3 above, and subject to any different provisions in the Grant Notice). Each issuance date determined by this paragraph is referred to as an "***Original Issuance Date***."

(b) If the Original Issuance Date falls on a date that is not a business day, delivery shall instead occur on the next following business day. In addition, if:

(i) the Original Issuance Date does not occur (1) during an "open window period" applicable to you, as determined by the Company in accordance with the Company's then-effective policy on trading in Company securities, or (2) on a date when you are otherwise permitted to sell shares of Common Stock on an established stock exchange or stock market (including but not limited to under a previously established written trading plan that meets the requirements of Rule 10b5-1 under the Exchange Act and was entered into in compliance with the Company's policies (a "***10b5-1 Arrangement***")), *and*

(ii) either (1) a Withholding Obligation does not apply, or (2) the Company decides, prior to the Original Issuance Date, (A) not to satisfy the Withholding Obligation by withholding shares of Common Stock from the shares otherwise due, on the Original Issuance Date, to you under this Award, and (B) not to permit you to enter into a "same day sale" commitment with a broker-dealer (including but not limited to a commitment under a 10b5-1 Arrangement) and (C) not to permit you to pay your Withholding Obligation in cash,

(iii) then the shares that would otherwise be issued to you on the Original Issuance Date will not be delivered on such Original Issuance Date and will instead be delivered on the first business day when you are not prohibited from selling shares of the Company's Common Stock in the open public market, but in no event later than December 31 of the calendar year in which the Original Issuance Date occurs (that is, the last day of your taxable year in which the Original Issuance Date occurs), or, if and only if permitted in a manner that complies with Treasury Regulations Section 1.409A-1(b)(4), no later than the date that is the 15th day of the third calendar month of the applicable year following the year in which the shares of Common Stock under this Award are no longer subject to a "substantial risk of forfeiture" within the meaning of Treasury Regulations Section 1.409A-1(d).

(c) To the extent the RSU Award is a Non-Exempt RSU Award, the provisions of Section 11 of the Plan shall apply.

6. TRANSFERABILITY. Except as otherwise provided in the Plan, your RSU Award is not transferable, except by will or by the applicable laws of descent and distribution

7. CORPORATE TRANSACTION. Your RSU Award is subject to the terms of any agreement governing a Corporate Transaction involving the Company, including, without limitation, a provision for the appointment of a stockholder representative that is authorized to act on your behalf with respect to any escrow, indemnities and any contingent consideration.

8. NO LIABILITY FOR TAXES. As a condition to accepting the RSU Award, you hereby (a) agree to not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from the RSU Award or other Company compensation and (b) acknowledge that you were advised to consult with your own personal tax, financial and other legal advisors regarding the tax consequences of the RSU Award and have either done so or knowingly and voluntarily declined to do so.

9. SEVERABILITY. If any part of this Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Agreement (or part of such a Section) so declared to be unlawful or invalid will, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

10. OTHER DOCUMENTS. You hereby acknowledge receipt of or the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Prospectus. In addition, you acknowledge receipt of the Company's Trading Policy.

11. QUESTIONS. If you have questions regarding these or any other terms and conditions applicable to your RSU Award, including a summary of the applicable federal income tax consequences please see the Prospectus.

KEROS THERAPEUTICS, INC.

2020 EMPLOYEE STOCK PURCHASE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: MARCH 31, 2020
APPROVED BY THE STOCKHOLDERS: MARCH 31, 2020

1. GENERAL; PURPOSE.

(a) The Plan provides a means by which Eligible Employees of the Company and certain designated Related Corporations may be given an opportunity to purchase shares of Common Stock. The Plan permits the Company to grant a series of Purchase Rights to Eligible Employees under an Employee Stock Purchase Plan.

(b) The Company, by means of the Plan, seeks to retain the services of such Employees, to secure and retain the services of new Employees and to provide incentives for such persons to exert maximum efforts for the success of the Company and its Related Corporations.

2. ADMINISTRATION.

(a) The Board will administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine how and when Purchase Rights will be granted and the provisions of each Offering (which need not be identical).

(ii) To designate from time to time which Related Corporations of the Company will be eligible to participate in the Plan.

(iii) To construe and interpret the Plan and Purchase Rights, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan, in a manner and to the extent it deems necessary or expedient to make the Plan fully effective.

(iv) To settle all controversies regarding the Plan and Purchase Rights granted under the Plan.

(v) To suspend or terminate the Plan at any time as provided in Section 12.

(vi) To amend the Plan at any time as provided in Section 12.

(vii) Generally, to exercise such powers and to perform such acts as it deems necessary or expedient to promote the best interests of the Company and its Related Corporations and to carry out the intent that the Plan be treated as an Employee Stock Purchase Plan.

(viii) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees who are foreign nationals or employed outside the United States.

(c) The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee any of the administrative powers the Committee is authorized to exercise (and references to the Board in this Plan and in any applicable Offering Document will thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated. Whether or not the Board has delegated administration of the Plan to a Committee, the Board will have the final power to determine all questions of policy and expediency that may arise in the administration of the Plan.

(d) All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

3. SHARES OF COMMON STOCK SUBJECT TO THE PLAN.

(a) Subject to the provisions of Section 11(a) relating to Capitalization Adjustments, the maximum number of shares of Common Stock that may be issued under the Plan will not exceed 182,341 shares of Common Stock, plus the number of shares of Common Stock that are automatically added on January 1st of each year for a period of up to ten years, commencing on the first January 1 following the IPO Date and ending on (and including) January 1, 2030, in an amount equal to the lesser of (i) 1.0% of the total number of shares of Capital Stock outstanding on December 31st of the preceding calendar year, and (ii) 455,852 shares of Common Stock. Notwithstanding the foregoing, the Board may act prior to the first day of any calendar year to provide that there will be no January 1st increase in the share reserve for such calendar year or that the increase in the share reserve for such calendar year will be a lesser number of shares of Common Stock than would otherwise occur pursuant to the preceding sentence.

(b) If any Purchase Right granted under the Plan terminates without having been exercised in full, the shares of Common Stock not purchased under such Purchase Right will again become available for issuance under the Plan.

(c) The stock purchasable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market.

4. GRANT OF PURCHASE RIGHTS; OFFERING.

(a) The Board may from time to time grant or provide for the grant of Purchase Rights to Eligible Employees under an Offering (consisting of one or more Purchase Periods) on an Offering Date or Offering Dates selected by the Board. Each Offering will be in such form and will contain such terms and conditions as the Board will deem appropriate, and will comply with the requirement of Section 423(b)(5) of the Code that all Employees granted Purchase Rights will have the same rights and privileges. The terms and conditions of an Offering shall be incorporated by reference into the Plan and treated as part of the Plan. The provisions of separate Offerings need not be identical, but each Offering will include (through incorporation of the provisions of this Plan by reference in the document comprising the Offering or otherwise) the period during which the Offering will be effective, which period will not exceed 27 months beginning with the Offering Date, and the substance of the provisions contained in Sections 5 through 8, inclusive.

(b) If a Participant has more than one Purchase Right outstanding under the Plan, unless he or she otherwise indicates in forms delivered to the Company: (i) each form will apply to all of his or her Purchase Rights under the Plan, and (ii) a Purchase Right with a lower exercise price (or an earlier-granted Purchase Right, if different Purchase Rights have identical exercise prices) will be exercised to the fullest possible extent before a Purchase Right with a higher exercise price (or a later-granted Purchase Right if different Purchase Rights have identical exercise prices) will be exercised.

(c) The Board will have the discretion to structure an Offering so that if the Fair Market Value of a share of Common Stock on the first Trading Day of a new Purchase Period within that Offering is less than or equal to the Fair Market Value of a share of Common Stock on the Offering Date for that Offering, then (i) that Offering will terminate immediately as of that first Trading Day, and (ii) the Participants in such terminated Offering will be automatically enrolled in a new Offering beginning on the first Trading Day of such new Purchase Period.

5. ELIGIBILITY.

(a) Purchase Rights may be granted only to Employees of the Company or, as the Board may designate in accordance with Section 2(b), to Employees of a Related Corporation. Except as provided in Section 5(b), an Employee will not be eligible to be granted Purchase Rights unless, on the Offering Date, the Employee has been in the employ of the Company or the Related Corporation, as the case may be, for such continuous period preceding such Offering Date as the Board may require, but in no event will the required period of continuous employment be equal to or greater than two years. In addition, the Board may provide that no Employee will be eligible to be granted Purchase Rights under the Plan unless, on the Offering Date, such Employee's customary employment with the Company or the Related Corporation is more than 20 hours per week and more than five months per calendar year or such other criteria as the Board may determine consistent with Section 423 of the Code.

(b) The Board may provide that each person who, during the course of an Offering, first becomes an Eligible Employee will, on a date or dates specified in the Offering which coincides with the day on which such person becomes an Eligible Employee or which occurs thereafter, receive a Purchase Right under that Offering, which Purchase Right will thereafter be deemed to be a part of that Offering. Such Purchase Right will have the same characteristics as any Purchase Rights originally granted under that Offering, as described herein, except that:

(i) the date on which such Purchase Right is granted will be the "Offering Date" of such Purchase Right for all purposes, including determination of the exercise price of such Purchase Right;

(ii) the period of the Offering with respect to such Purchase Right will begin on its Offering Date and end coincident with the end of such Offering; and

(iii) the Board may provide that if such person first becomes an Eligible Employee within a specified period of time before the end of the Offering, he or she will not receive any Purchase Right under that Offering.

(c) No Employee will be eligible for the grant of any Purchase Rights if, immediately after any such Purchase Rights are granted, such Employee owns stock possessing five percent or more of the total combined voting power or value of all classes of stock of the Company or of any Related Corporation. For purposes of this Section 5(c), the rules of Section 424(d) of the Code will apply in determining the stock ownership of any Employee, and stock which such Employee may purchase under all outstanding Purchase Rights and options will be treated as stock owned by such Employee.

(d) As specified by Section 423(b)(8) of the Code, an Eligible Employee may be granted Purchase Rights only if such Purchase Rights, together with any other rights granted under all Employee Stock Purchase Plans of the Company and any Related Corporations, do not permit such Eligible Employee's rights to purchase stock of the Company or any Related Corporation to accrue at a rate which, when aggregated, exceeds $25,000 of Fair Market Value of such stock (determined at the time such rights are granted, and which, with respect to the Plan, will be determined as of their respective Offering Dates) for each calendar year in which such rights are outstanding at any time.

(e) Officers of the Company and any designated Related Corporation, if they are otherwise Eligible Employees, will be eligible to participate in Offerings under the Plan. Notwithstanding the foregoing, the Board may provide in an Offering that Employees who are highly compensated Employees within the meaning of Section 423(b)(4)(D) of the Code will not be eligible to participate.

6. PURCHASE RIGHTS; PURCHASE PRICE.

(a) On each Offering Date, each Eligible Employee, pursuant to an Offering made under the Plan, will be granted a Purchase Right to purchase up to that number of shares of Common Stock purchasable either with a percentage or with a maximum dollar amount, as designated by the Board, but in either case not exceeding 15% of such Employee's earnings (as defined by the Board in each Offering) during the period that begins on the Offering Date (or such later date as the Board determines for a particular Offering) and ends on the date stated in the Offering, which date will be no later than the end of the Offering.

(b) The Board will establish one or more Purchase Dates during an Offering on which Purchase Rights granted for that Offering will be exercised and shares of Common Stock will be purchased in accordance with such Offering.

(c) In connection with each Offering made under the Plan, the Board may specify (i) a maximum number of shares of Common Stock that may be purchased by any Participant on any Purchase Date during such Offering, (ii) a maximum aggregate number of shares of Common Stock that may be purchased by all Participants pursuant to such Offering and/or (iii) a maximum aggregate number of shares of Common Stock that may be purchased by all Participants on any Purchase Date under the Offering. If the aggregate purchase of shares of Common Stock issuable upon exercise of Purchase Rights granted under the Offering would exceed any such maximum aggregate number, then, in the absence of any Board action otherwise, a pro rata (based on each Participant's accumulated Contributions) allocation of the shares of Common Stock available will be made in as nearly a uniform manner as will be practicable and equitable.

(d) The purchase price of shares of Common Stock acquired pursuant to Purchase Rights will be not less than the lesser of:

(i) an amount equal to 85% of the Fair Market Value of the shares of Common Stock on the Offering Date; or

(ii) an amount equal to 85% of the Fair Market Value of the shares of Common Stock on the applicable Purchase Date.

7. PARTICIPATION; WITHDRAWAL; TERMINATION.

(a) An Eligible Employee may elect to participate in an Offering and authorize payroll deductions as the means of making Contributions by completing and delivering to the Company, within

the time specified in the Offering, an enrollment form provided by the Company. The enrollment form will specify the amount of Contributions not to exceed the maximum amount specified by the Board. Each Participant's Contributions will be credited to a bookkeeping account for such Participant under the Plan and will be deposited with the general funds of the Company except where applicable law requires that Contributions be deposited with a third party. If permitted in the Offering, a Participant may begin such Contributions with the first practicable payroll occurring on or after the Offering Date (or, in the case of a payroll date that occurs after the end of the prior Offering but before the Offering Date of the next new Offering, Contributions from such payroll will be included in the new Offering). If permitted in the Offering, a Participant may thereafter reduce (including to zero) or increase his or her Contributions. If specifically provided in the Offering, in addition to or instead of making Contributions by payroll deductions, a Participant may make Contributions through the payment by cash or check prior to a Purchase Date.

(b) During an Offering, a Participant may cease making Contributions and withdraw from the Offering by delivering to the Company a withdrawal form provided by the Company. The Company may impose a deadline before a Purchase Date for withdrawing. Upon such withdrawal, such Participant's Purchase Right in that Offering will immediately terminate and the Company will distribute as soon as practicable to such Participant all of his or her accumulated but unused Contributions and such Participant's Purchase Right in that Offering shall thereupon terminate. A Participant's withdrawal from that Offering will have no effect upon his or her eligibility to participate in any other Offerings under the Plan, but such Participant will be required to deliver a new enrollment form to participate in subsequent Offerings.

(c) Unless otherwise required by applicable law, Purchase Rights granted pursuant to any Offering under the Plan will terminate immediately if the Participant either (i) is no longer an Employee for any reason or for no reason (subject to any post-employment participation period required by law) or (ii) is otherwise no longer eligible to participate. The Company will distribute to such individual as soon as practicable all of his or her accumulated but unused Contributions.

(d) During a Participant's lifetime, Purchase Rights will be exercisable only by such Participant. Purchase Rights are not transferable by a Participant, except by will, by the laws of descent and distribution, or, if permitted by the Company, by a beneficiary designation as described in Section 10.

(e) Unless otherwise specified in the Offering or required by applicable law, the Company will have no obligation to pay interest on Contributions.

8. EXERCISE OF PURCHASE RIGHTS.

(a) On each Purchase Date, each Participant's accumulated Contributions will be applied to the purchase of shares of Common Stock, up to the maximum number of shares of Common Stock permitted by the Plan and the applicable Offering, at the purchase price specified in the Offering. No fractional shares will be issued unless specifically provided for in the Offering.

(b) Unless otherwise provided in the Offering, if any amount of accumulated Contributions remains in a Participant's account after the purchase of shares of Common Stock and such remaining amount is less than the amount required to purchase one share of Common Stock on the final Purchase Date of an Offering, then such remaining amount will be held in such Participant's account for the purchase of shares of Common Stock under the next Offering under the Plan, unless such Participant withdraws from or is not eligible to participate in such next Offering, in which case such amount will be distributed to such Participant after the final Purchase Date without interest (unless the payment of interest is otherwise required by applicable law). If the amount of Contributions remaining in a

Participant's account after the purchase of shares of Common Stock is at least equal to the amount required to purchase one (1) whole share of Common Stock on the final Purchase Date of an Offering, then such remaining amount will be distributed in full to such Participant after the final Purchase Date of such Offering without interest.

(c) No Purchase Rights may be exercised to any extent unless the shares of Common Stock to be issued upon such exercise under the Plan are covered by an effective registration statement pursuant to the Securities Act and the Plan is in material compliance with all applicable federal, state, foreign and other securities and other laws applicable to the Plan. If on a Purchase Date the shares of Common Stock are not so registered or the Plan is not in such compliance, no Purchase Rights will be exercised on such Purchase Date, and the Purchase Date will be delayed until the shares of Common Stock are subject to such an effective registration statement and the Plan is in material compliance, except that the Purchase Date will in no event be more than 6 months from the Offering Date. If, on the Purchase Date, as delayed to the maximum extent permissible, the shares of Common Stock are not registered and the Plan is not in material compliance with all applicable laws, no Purchase Rights will be exercised and all accumulated but unused Contributions will be distributed to the Participants without interest.

9. COVENANTS OF THE COMPANY.

The Company will seek to obtain from each U.S. federal or state, foreign or other regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Purchase Rights and issue and sell shares of Common Stock thereunder unless the Company determines, in its sole discretion, that doing so would cause the Company to incur costs that are unreasonable. If, after commercially reasonable efforts, the Company is unable to obtain the authority that counsel for the Company deems necessary for the grant of Purchase Rights or the lawful issuance and sale of Common Stock under the Plan, and at a commercially reasonable cost, the Company will be relieved from any liability for failure to grant Purchase Rights and/or to issue and sell Common Stock upon exercise of such Purchase Rights.

10. DESIGNATION OF BENEFICIARY.

(a) The Company may, but is not obligated to, permit a Participant to submit a form designating a beneficiary who will receive any shares of Common Stock and/or Contributions from the Participant's account under the Plan if the Participant dies before such shares and/or Contributions are delivered to the Participant. The Company may, but is not obligated to, permit the Participant to change such designation of beneficiary. Any such designation and/or change must be on a form approved by the Company.

(b) If a Participant dies, and in the absence of a valid beneficiary designation, the Company will deliver any shares of Common Stock and/or Contributions to the executor or administrator of the estate of the Participant. If no executor or administrator has been appointed (to the knowledge of the Company), the Company, in its sole discretion, may deliver such shares of Common Stock and/or Contributions without interest (unless the payment of interest is otherwise required by applicable law) to the Participant's spouse, dependents or relatives, or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate.

11. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; CORPORATE TRANSACTIONS.

(a) In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities by which the share reserve is to increase

automatically each year pursuant to Section 3(a), (iii) the class(es) and number of securities subject to, and the purchase price applicable to outstanding Offerings and Purchase Rights, and (iv) the class(es) and number of securities that are the subject of the purchase limits under each ongoing Offering. The Board will make these adjustments, and its determination will be final, binding and conclusive.

(b) In the event of a Corporate Transaction, then: (i) any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue outstanding Purchase Rights or may substitute similar rights (including a right to acquire the same consideration paid to the stockholders in the Corporate Transaction) for outstanding Purchase Rights, or (ii) if any surviving or acquiring corporation (or its parent company) does not assume or continue such Purchase Rights or does not substitute similar rights for such Purchase Rights, then the Participants' accumulated Contributions will be used to purchase shares of Common Stock within ten business days prior to the Corporate Transaction under the outstanding Purchase Rights, and the Purchase Rights will terminate immediately after such purchase.

12. AMENDMENT, TERMINATION OR SUSPENSION OF THE PLAN.

(a) The Board may amend the Plan at any time in any respect the Board deems necessary or advisable. However, except as provided in Section 11(a) relating to Capitalization Adjustments, stockholder approval will be required for any amendment of the Plan for which stockholder approval is required by applicable law or listing requirements.

(b) The Board may suspend or terminate the Plan at any time. No Purchase Rights may be granted under the Plan while the Plan is suspended or after it is terminated.

(c) Any benefits, privileges, entitlements and obligations under any outstanding Purchase Rights granted before an amendment, suspension or termination of the Plan will not be materially impaired by any such amendment, suspension or termination except (i) with the consent of the person to whom such Purchase Rights were granted, (ii) as necessary to comply with any laws, listing requirements, or governmental regulations (including, without limitation, the provisions of Section 423 of the Code and the regulations and other interpretive guidance issued thereunder relating to Employee Stock Purchase Plans) including without limitation any such regulations or other guidance that may be issued or amended after the date the Plan is adopted by the Board, or (iii) as necessary to obtain or maintain favorable tax, listing, or regulatory treatment. To be clear, the Board may amend outstanding Purchase Rights without a Participant's consent if such amendment is necessary to ensure that the Purchase Right and/or the Plan complies with the requirements of Section 423 of the Code.

Notwithstanding anything in the Plan or any Offering Document to the contrary, the Board will be entitled to: (i) establish the exchange ratio applicable to amounts withheld in a currency other than U.S. dollars; (ii) permit Contributions in excess of the amount designated by a Participant in order to adjust for mistakes in the Company's processing of properly completed Contribution elections; (iii) establish reasonable waiting and adjustment periods and/or accounting and crediting procedures to ensure that amounts applied toward the purchase of Common Stock for each Participant properly correspond with amounts withheld from the Participant's Contributions; (iv) amend any outstanding Purchase Rights or clarify any ambiguities regarding the terms of any Offering to enable the Purchase Rights to qualify under and/or comply with Section 423 of the Code; and (v) establish other limitations or procedures as the Board determines in its sole discretion advisable that are consistent with the Plan. The actions of the Board pursuant to this paragraph will not be considered to alter or impair any Purchase Rights granted under an Offering as they are part of the initial terms of each Offering and the Purchase Rights granted under each Offering.

13. EFFECTIVE DATE OF PLAN.

The Plan will become effective immediately prior to and contingent upon the IPO Date. No Purchase Rights will be exercised unless and until the Plan has been approved by the stockholders of the Company, which approval must be within 12 months before or after the date the Plan is adopted (or if required under Section 12(a) above, materially amended) by the Board.

14. MISCELLANEOUS PROVISIONS.

(a) Proceeds from the sale of shares of Common Stock pursuant to Purchase Rights will constitute general funds of the Company.

(b) A Participant will not be deemed to be the holder of, or to have any of the rights of a holder with respect to, shares of Common Stock subject to Purchase Rights unless and until the Participant's shares of Common Stock acquired upon exercise of Purchase Rights are recorded in the books of the Company (or its transfer agent).

(c) The Plan and Offering do not constitute an employment contract. Nothing in the Plan or in the Offering will in any way alter the at will nature of a Participant's employment or be deemed to create in any way whatsoever any obligation on the part of any Participant to continue in the employ of the Company or a Related Corporation, or on the part of the Company or a Related Corporation to continue the employment of a Participant.

(d) The provisions of the Plan will be governed by the laws of the State of Delaware without resort to that state's conflict of laws rules.

15. DEFINITIONS.

As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Board***" means the Board of Directors of the Company.

(b) "***Capital Stock***" means each and every class of common stock of the Company, regardless of the number of votes per share.

(c) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Purchase Right after the date the Plan is adopted by the Board without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or other similar equity restructuring transaction, as that term is used in Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(d) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(e) "***Committee***" means a committee of one or more members of the Board to whom authority has been delegated by the Board in accordance with Section 2(c).

(f) "***Common Stock***" means, as of the IPO Date, the common stock of the Company.

(g) "***Company***" means Keros Therapeutics, Inc., a Delaware corporation.

(h) ***"Contributions***" means the payroll deductions and other additional payments specifically provided for in the Offering that a Participant contributes to fund the exercise of a Purchase Right. A Participant may make additional payments into his or her account if specifically provided for in the Offering, and then only if the Participant has not already had the maximum permitted amount withheld during the Offering through payroll deductions.

(i) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its subsidiaries;

(ii) a sale or other disposition of more than 50% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(j) "***Director***" means a member of the Board.

(k) "***Eligible Employee***" means an Employee who meets the requirements set forth in the document(s) governing the Offering for eligibility to participate in the Offering, provided that such Employee also meets the requirements for eligibility to participate set forth in the Plan.

(l) "***Employee***" means any person, including an Officer or Director, who is "employed" for purposes of Section 423(b)(4) of the Code by the Company or a Related Corporation. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(m) "***Employee Stock Purchase Plan***" means a plan that grants Purchase Rights intended to be options issued under an "employee stock purchase plan," as that term is defined in Section 423(b) of the Code.

(n) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended and the rules and regulations promulgated thereunder.

(o) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock will be, unless otherwise

determined by the Board, the **closing sales price** for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) **on the date of determination**, as reported in such source as the Board deems reliable. Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing sales price on the last preceding date for which such quotation exists.

(ii) In the absence of such markets for the Common Stock, the Fair Market Value will be determined by the Board in good faith in compliance with applicable laws and in a manner that complies with Sections 409A of the Code.

(iii) Notwithstanding the foregoing, for any Offering that commences on the IPO Date, the Fair Market Value of the shares of Common Stock on the Offering Date will be the price per share at which shares are first sold to the public in the Company's initial public offering as specified in the final prospectus for that initial public offering.

(p) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(q) "***Offering***" means the grant to Eligible Employees of Purchase Rights, with the exercise of those Purchase Rights automatically occurring at the end of one or more Purchase Periods. The terms and conditions of an Offering will generally be set forth in the "***Offering Document***" approved by the Board for that Offering.

(r) "***Offering Date***" means a date selected by the Board for an Offering to commence.

(s) "***Officer***" means a person who is an officer of the Company or a Related Corporation within the meaning of Section 16 of the Exchange Act.

(t) "***Participant***" means an Eligible Employee who holds an outstanding Purchase Right.

(u) "***Plan***" means this Keros Therapeutics, Inc. 2020 Employee Stock Purchase Plan, as amended from time to time.

(v) "***Purchase Date***" means one or more dates during an Offering selected by the Board on which Purchase Rights will be exercised and on which purchases of shares of Common Stock will be carried out in accordance with such Offering.

(w) "***Purchase Period***" means a period of time specified within an Offering, generally beginning on the Offering Date or on the first Trading Day following a Purchase Date, and ending on a Purchase Date. An Offering may consist of one or more Purchase Periods.

(x) "***Purchase Right***" means an option to purchase shares of Common Stock granted pursuant to the Plan.

(y) "***Related Corporation***" means any "parent corporation" or "subsidiary corporation" of the Company whether now or subsequently established, as those terms are defined in Sections 424(e) and (f), respectively, of the Code.

(z) "***Securities Act***" means the Securities Act of 1933, as amended.

(aa) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than fifty percent (50%) of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than fifty percent (50%). For purposes of the foregoing clause (i), the Company will be deemed to "Own" or have "Owned" such securities if the Company, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(bb) "***Trading Day***" means any day on which the exchange(s) or market(s) on which shares of Common Stock are listed, including but not limited to the NYSE, Nasdaq Global Select Market, the Nasdaq Global Market, the Nasdaq Capital Market or any successors thereto, is open for trading.

EXECUTIVE EMPLOYMENT AGREEMENT

THIS EXECUTIVE EMPLOYMENT AGREEMENT (this "Agreement"), by and between Keros Therapeutics, Inc. (the "Company"), and Jasbir Seehra ("Executive") (collectively referred to as the "Parties" or individually referred to as a "Party"), is effective as of the date the Company consummates an initial public offering (the "Effective Date").

R E C I T A L S

WHEREAS, on December 15, 2015, the Executive was employed as the Chief Executive Officer of the Company, pursuant to the terms of the December 14, 2015 offer letter (the "Offer Letter");

WHEREAS, the Company desires to continue to employ Executive as its Chief Executive Officer following the Effective Date pursuant to the terms of the Agreement, which shall amend and restate the Offer Letter in its entirety; and

WHEREAS, Executive desires to accept such employment and enter into such an agreement.

A G R E E M E N T

NOW, THEREFORE, in consideration of the premises and mutual covenants herein and for other good and valuable consideration, the Parties agree as follows:

1. Duties and Scope of Employment.

(a) Positions and Duties. As of the Effective Date, Executive will serve as Chief Executive Officer of the Company. Executive will render such business and professional services in the performance of Executive's duties, consistent with Executive's position within the Company, as shall reasonably be assigned to Executive by the Company's Board of Directors (the "Board"). The period of Executive's at-will employment under the terms of this Agreement is referred to herein as the "Employment Term."

(b) Board Membership. During the Employment Term, Executive will serve as a member and Chairman of the Board, subject to any required Board and/or stockholder approval.

(c) Obligations. During the Employment Term, Executive will perform Executive's duties faithfully and to the best of Executive's ability and will devote Executive's full business efforts and time to the Company. For the duration of the Employment Term, Executive agrees not to actively engage in any other employment, occupation or consulting activity for any direct or indirect remuneration without the prior approval of the Board.

2. At-Will Employment. Subject to Sections 7, 8, and 9 below, the parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated at any time with or without cause or notice, for any reason or no reason. Executive understands and agrees that neither Executive's job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of Executive's employment with the Company.

3. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for Executive's services a base salary of $525,300 per year, as modified from time to time at the discretion of the Board or a duly constituted committee of the Board (the "Base Salary"). The Base Salary will

be paid in regular installments in accordance with the Company's normal payroll practices (subject to required withholding). Any increase or decrease in Base Salary (together with the then existing Base Salary) shall serve as the "Base Salary" for future employment under this Agreement. The first and last payment will be adjusted, if necessary, to reflect a commencement or termination date other than the first or last working day of a pay period.

(b) Annual Bonus. Executive will also be eligible to earn an annual discretionary bonus with a target amount equal to 50% of the Base Salary ("Target Bonus"). The amount of this bonus, if any, will be determined in the sole discretion of the Board and based, in part, on Executive's performance and the performance of the Company during the calendar year. The Company will pay Executive this bonus, if any, by no later than March 1st of the following calendar year. The bonus is not earned until paid and no pro-rated amount will be paid if Executive's employment terminates for any reason prior to the payment date.

(c) Stock Option. The Executive acknowledges that as of the Effective Date, he has received the equity awards set forth on Exhibit A hereto, under, and subject to the terms and conditions of the Company's 2017 Stock Incentive Plan, as amended ("2017 Plan") and applicable award agreements thereunder. The Executive acknowledges and agrees that from and after the Effective Date, such equity awards shall only be subject to accelerated vesting in accordance with Section 9 of this Agreement.

(i) Executive will be eligible to receive awards of stock options, restricted stock or other equity awards pursuant to any plans or arrangements the Company may have in effect from time to time. The Board or a committee of the Board shall determine in its discretion whether Executive shall be granted any such equity awards and the terms of any such award in accordance with the terms of any applicable plan or arrangement that may be in effect from time to time.

4. Employee Benefits. During the Employment Term, Executive will be eligible to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, including, without limitation, the Company's group medical, dental, vision, disability, life insurance, and flexible-spending account plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

5. Vacation. Executive will be eligible to accrue a maximum of four (4) weeks paid vacation per year, in accordance with the Company's vacation policy, which shall be taken subject to the demands of the Company's business and Executive's obligations as an employee of the Company with a substantial degree of responsibility.

6. Business Expenses. During the Employment Term, the Company will reimburse Executive for reasonable business travel, entertainment or other business expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

7. Termination on Death or Disability.

(a) Effectiveness. Executive's employment will terminate automatically upon Executive's Death or, upon fourteen (14) days prior written notice from the Company, in the event of Disability.

(b) Effect of Termination. Upon any termination for death or Disability, Executive shall be entitled to: (i) Executive's Base Salary through the effective date of termination; (ii) the right to continue health care benefits under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended ("COBRA"), at Executive's cost, to the extent required and available by law; (iii) reimbursement of expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

8. Involuntary Termination for Cause; Resignation Without Good Reason.

(a) Effectiveness. Notwithstanding any other provision of this Agreement, the Company may terminate Executive's employment at any time for Cause or Executive may resign from Executive's employment with the Company at any time without Good Reason. Termination for Cause, or Executive's resignation without Good Reason, shall be effective on the date either Party gives notice to the other Party of such termination in accordance with this Agreement unless otherwise agreed by the Parties. In the event that the Company accelerates the effective date of a resignation, such acceleration shall not be construed as a termination of Executives employment by the Company or deemed Good Reason for such resignation.

(b) Effect of Termination. In the case of the Company's termination of Executive's employment for Cause, or Executive's resignation without Good Reason, Executive shall be entitled to receive: (i) Base Salary through the effective date of the termination or resignation, as applicable; (ii) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; (iii) the right to continue health care benefits under COBRA, at Executive's cost, to the extent required and available by law; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

9. Involuntary Termination Without Cause and Resignation for Good Reason.

(a) Effect of Termination. The Company shall be entitled to terminate Executive with or without Cause at any time, subject to the following:

(i) Involuntary Termination by Company without Cause or By Executive for Good Reason not in Connection with a Change in Control. If Executive is terminated by the Company involuntarily without Cause (excluding any termination due to death or Disability) or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of twelve (12) months from the date of such termination, to be paid periodically in accordance with the Company's normal payroll practices.

(3) continued vesting of Executive's stock options, subject to the terms and conditions of the 2017 Plan, as amended and applicable award agreements thereunder, for a period of twelve (12) months from the date of such termination.

(4) a payment equal to 100% of the Target Bonus for the year in which Executive's employment is terminated, prorated by the duration of the year in which Executive provided services (the "Prorated Target Bonus"), but only if Executive is terminated on or after July 1 of the calendar year. The Company shall pay the Prorated Target Bonus, subject to standard deductions and withholdings, in a lump sum on the first regularly scheduled payroll date following the date the Release becomes effective and can no longer be revoked provided that, if the release execution period begins in one taxable year and ends in another taxable year, payment shall not be made until the beginning of the second taxable year.

(5) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(6) if Executive is eligible for and timely elects to continue health insurance coverage under the Consolidated Omnibus Budget Reconciliation Act of 1985 or the state equivalent ("COBRA"), the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) twelve (12) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(7) no other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(ii) Involuntary Termination by Company without Cause or by Executive for Good Reason in Connection with a Change of Control. If immediately before or within twelve (12) months following a Change of Control (as defined below), Executive is involuntarily terminated by the Company or successor corporation for other than Cause, death or Disability, or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation for Good Reason.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of eighteen (18) months from the date of such termination, to be paid periodically in accordance with the Company's normal payroll practices.

(3) a payment equal to 100% of the Target Bonus for the year in which Executive's employment is terminated. The Company shall pay the Target Bonus, subject to standard deductions and withholdings, in a lump sum on the first regularly scheduled payroll date following the later of the date the Release becomes effective and can no longer be revoked provided that, if the release execution period begins in one taxable year and ends in another taxable year, payment shall not be made until the beginning of the second taxable year.

(4) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(5) if Executive is eligible for and timely elects to continue health insurance coverage under COBRA, the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) eighteen (18) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(6) Executive shall be entitled to acceleration of 100% of Executive's then-unvested and outstanding equity awards.

(7) No other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(b) Conditions Precedent. Any severance payments contemplated by Section 9(a) above are conditional on Executive: (i) continuing to comply with the terms of this Agreement and the Confidential Information Agreement; and (ii) signing and not revoking a separation agreement and release of known and unknown claims in the form provided by the Company (including non-competition, nondisparagement and a cooperation provisions) (the "Release") and which will be provided by the Company no later than ten (10) days after the termination date and provided that such Release becomes effective and irrevocable no later than forty-five (45) days following the termination date or such earlier date required by the release (such deadline, the "Release Deadline"). If the Release does not become effective by the Release Deadline, Executive will forfeit any rights to severance or benefits under this Section 9 or elsewhere in this Agreement. Any severance payments or other benefits under this Agreement that would be considered Deferred Compensation Separation Benefits (as defined in Section 25) will be paid on, or, in the case of installments, will not commence until, the forty-fifth (45th) day following Executive's separation from service, or, if later, such time as required by Section 25(b). Except as required by Section 25(b), any installment payments that would have been made to Employee during the forty-five (45) day period immediately following Executive's separation from service but for the preceding sentence will be paid to Executive on the forty-fifth (45th) day following Executive's separation from service and the remaining payments will be made as provided in this Agreement, unless subject to the 6-month payment delay described herein. Any severance payments under this Agreement that would not be considered Deferred Compensation Separation Benefits will be paid on, or, in the case of installments, will not commence until, the first payroll date that occurs on or after the date the Release becomes effective and any installment payments that would have been made to Executive during the period prior to the date the Release becomes effective following Executive's separation from service but for the preceding sentence will be paid to Executive on the first payroll date that occurs on or after the date the Release becomes effective. Notwithstanding the foregoing, this Section 9(b) shall not limit Executive's ability to obtain expense reimbursements under Section 6 or any other compensation or benefits otherwise required by law or in accordance with written Company plans or policies, as then in effect.

10. Indemnification. Regardless of the manner of Executive's termination, Executive will be indemnified to the extent permitted by law, for claims brought against Executive during or after Executive's employment for the Company. The Company will indemnify Executive to the extent permitted by its charter and bylaws and by applicable law against all costs, charges and expenses, including, without limitation, attorneys' fees, incurred or sustained by me in connection with any action, suit or proceeding to which Executive may be made a party by reason of being an officer, director or employee of the Company. In connection with the foregoing, Executive will be covered under any liability insurance policy that protects other officers of the Company. The Company will provide Executive its standard indemnification agreement, which is subject to approval by the Board of Directors and is consistent with the agreement for the other directors and officers of the Company.

11. Definitions.

(a) Cause. For purposes of this Agreement, "Cause" shall mean: (i) Executive's continued failure to substantially perform the material duties and obligations under this Agreement (for reasons other than death or Disability), which failure, if curable within the discretion of the Company, is not cured to the

reasonable satisfaction of the Company within thirty (30) days after receipt of written notice from the Company of such failure; (ii) Executive's failure or refusal to comply with the policies, standards and regulations established by the Company from time to time which failure, if curable in the discretion of the Company, is not cured to the reasonable satisfaction of the Company within thirty (30) days after receipt of written notice of such failure from the Company; (iii) any act of personal dishonesty, fraud, embezzlement, misrepresentation, or other unlawful act committed by Executive that benefits Executive at the expense of the Company; (iv) the Executive's violation of a federal or state law or regulation applicable to the Company's business; (v) the Executive's violation of, or a plea of nolo contendre or guilty to, a felony under the laws of the United States or any state; or (vi) the Executive's material breach of the terms of this Agreement or the Confidential Information Agreement (defined below).

(b) Change of Control. For purposes of this Agreement, "Change of Control" shall have the meaning attributed to such term in the Company's 2020 Equity Incentive Plan, as amended from time to time (the "2020 Plan").

(c) Disability. For purposes of this Agreement, "Disability" means that Executive, at the time notice is given, has been unable to substantially perform Executive's duties under this Agreement for not less than one-hundred and twenty (120) work days within a twelve (12) consecutive month period as a result of Executive's incapacity due to a physical or mental condition and, if reasonable accommodation is required by law, after any reasonable accommodation.

(d) Good Reason. For purposes of this Agreement, "Good Reason" means Executive's written notice of Executive's intent to resign for Good Reason with a reasonable description of the grounds therefor within 30 days after the occurrence of one or more of the following without Executive's consent, and subsequent resignation within 30 days following the expiration of any Company cure period (discussed below): (i) a material reduction of Executive's duties, position or responsibilities; (ii) a material reduction in Executive's Base Salary (other than a reduction of not more than 10% that is applicable to similarly situated executives of the Company); (iii) a material breach of this Agreement by the Company; or (iv) a material change in the geographic location of Executive's primary work facility or location; provided, that a relocation of less than 50 miles from Executive's then present location will not be considered a material change in geographic location. Executive will not resign for Good Reason without first providing the Company with written notice of the acts or omissions constituting the grounds for "Good Reason" within 30 days of the initial existence of the grounds for "Good Reason" and a reasonable cure period of not less than 30 days following the date of such notice if such act or omission is capable of cure.

12. Company Matters.

(a) Proprietary Information and Inventions. In connection with Executive's employment with the Company, Executive will receive and have access to Company confidential information and trade secrets. Accordingly, enclosed with this Agreement is an Employee Confidential Information and Inventions Assignment Agreement (the "Confidential Information Agreement") which contains restrictive covenants and prohibits unauthorized use or disclosure of the Company's confidential information and trade secrets, among other obligations. Executive agrees to review the Confidential Information Agreement and only sign it after careful consideration.

(b) Resignation on Termination. On termination of Executive's employment, regardless of the reason for such termination, Executive shall immediately (and with contemporaneous effect) resign any directorships, offices or other positions that Executive may hold in the Company or any affiliate, unless otherwise agreed in writing by the Parties.

(c) Notification of New Employer. In the event that Executive leaves the employ of the Company, Executive grants consent to notification by the Company to Executive's new employer about Executive's rights and obligations under this Agreement and the Confidential Information Agreement.

13. Arbitration. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Confidential Information Agreement, or Executive's employment, or the termination of Executive's employment, including but not limited to all statutory claims (including, but not limited to, the Massachusetts Antidiscrimination Act, Mass. Gen. Laws ch.151B and the Massachusetts Wage Act, Mass. Gen. Laws ch. 149), will be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration by a single arbitrator conducted in ***Boston, Massachusetts*** by Judicial Arbitration and Mediation Services Inc. ("**JAMS**") under the then applicable JAMS rules (at the following web address: https://www.jamsadr.com/rules-employment-arbitration/); provided, however, this arbitration provision shall not apply to sexual harassment claims to the extent prohibited by applicable law. A hard copy of the rules will be provided to you upon request. A hard copy of the rules will be provided to Executive upon request. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding**. In addition, all claims, disputes, or causes of action under this section, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The Arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. Questions of whether a claim is subject to arbitration under this Agreement) shall be decided by the arbitrator. Likewise, procedural questions which grow out of the dispute and bear on the final disposition are also matters for the arbitrator. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award; and (c) be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Executive and the Company shall equally share all JAMS' arbitration fees. Except as modified in the Confidential Information Agreement, each party is responsible for its own attorneys' fees. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

14. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

15. Notices. All notices, requests, demands and other communications called for under this Agreement shall be in writing and shall be delivered via e-mail, personally by hand or by courier, mailed by United States first-class mail, postage prepaid, or sent by facsimile directed to the Party to be notified at the address or facsimile number indicated for such Party on the signature page to this Agreement, or at such other address or facsimile number as such Party may designate by ten (10) days' advance written notice to the other Parties hereto. All such notices and other communications shall be deemed given upon personal delivery, three (3) days after the date of mailing, or upon confirmation of facsimile transfer or e-mail. Notices sent via e-mail under this Section shall be sent to either the e-mail address in this Agreement, or for e-mails sent by the Company to Executive, to the last e-mail address on file with the Company.

16. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

17. Integration. This Agreement, together with the 2017 Plan, 2020 Plan, applicable award agreements and the Confidential Information Agreement represents the entire agreement and understanding between the parties as to the subject matter herein and supersedes all prior or contemporaneous agreements whether written or oral. No waiver, alteration, or modification of any of the provisions of this Agreement will be binding unless in writing and signed by duly authorized representatives of the parties hereto.

18. Tax Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

19. Waiver. No Party shall be deemed to have waived any right, power or privilege under this Agreement or any provisions hereof unless such waiver shall have been duly executed in writing and acknowledged by the Party to be charged with such waiver. The failure of any Party at any time to insist on performance of any of the provisions of this Agreement shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of this Agreement or any part hereof. No waiver of any breach of this Agreement shall be held to be a waiver of any other subsequent breach

20. Governing Law. This Agreement will be governed by the laws of the State of Massachusetts (with the exception of its conflict of laws provisions).

21. Acknowledgment. Executive acknowledges that Executive has had the opportunity to discuss this matter with and obtain advice from Executive's legal counsel, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

22. Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed to be an original, and all such counterparts shall constitute but one instrument.

23. Effect of Headings. The section and subsection headings contained herein are for convenience only and shall not affect the construction hereof.

24. Construction of Agreement. This Agreement has been negotiated by the respective Parties, and the language shall not be construed for or against either Party.

25. Section 409A.

(a) Notwithstanding anything to the contrary in this Agreement, no severance pay or benefits to be paid or provided to Executive, if any, pursuant to this Agreement, when considered together with any other severance payments or separation benefits that are considered deferred compensation under Section 409A

("Section 409A") of the Internal Revenue Code of 1986, as amended and the regulations and other guidance thereunder or any state law of similar effect (together, the "Deferred Compensation Separation Benefits") will be paid or otherwise provided until Executive has a "separation from service" within the meaning of Section 409A.

(b) Notwithstanding anything to the contrary in this Agreement, if Executive is a "specified employee" within the meaning of Section 409A at the time of Executive's termination (other than due to death), then the Deferred Compensation Separation Benefits that are payable within the first six (6) months following Executive's separation from service, will become payable on the first payroll date that occurs on or after the date six (6) months and one (1) day following the date of Executive's separation from service. All subsequent Deferred Compensation Separation Benefits, if any, will be payable in accordance with the payment schedule applicable to each payment or benefit. Notwithstanding anything herein to the contrary, if Executive dies following Executive's separation from service, but prior to the six (6) month anniversary of the separation from service, then any payments delayed in accordance with this paragraph will be payable in a lump sum as soon as administratively practicable after the date of Executive's death and all other Deferred Compensation Separation Benefits will be payable in accordance with the payment schedule applicable to each payment or benefit. Each payment and benefit payable under this Agreement is intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the Treasury Regulations.

(c) Any amount paid under this Agreement that satisfies the requirements of the "short-term deferral" rule set forth in Section 1.409A-1(b)(4) of the Treasury Regulations will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above.

(d) Any amount paid under this Agreement that qualifies as a payment made as a result of an involuntary separation from service pursuant to Section 1.409A-1(b)(9)(iii) of the Treasury Regulations that does not exceed the Section 409A Limit will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above. For purposes of this Agreement, "Section 409A Limit" will mean the lesser of two (2) times: (i) Executive's annualized compensation based upon the annual rate of pay paid to Executive during the Executive's taxable year preceding Executive's taxable year of Executive's termination of employment as determined under Treasury Regulation Section 1.409A-1(b)(9)(iii)(A)(1) and any Internal Revenue Service guidance issued with respect thereto; or (ii) the maximum amount that may be taken into account under a qualified plan pursuant to Section 401(a)(17) of the Code for the year in which Executive's employment is terminated.

(e) The foregoing provisions are intended to be exempt from or comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder will be subject to the additional tax imposed under Section 409A, and any ambiguities herein will be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

[*Remainder of page is intentionally blank; Signature page follows*]

IN WITNESS WHEREOF, each of the Parties has executed this Agreement as of the day and year first above written.

"COMPANY"

KEROS THERAPEUTICS, INC.

By: /s/ Keith Regnante

Address:
99 Hayden Ave, Lexington
MA 02421, USA
Attn: _____
Fax Number: _____
Email: _____

"EXECUTIVE"

JASBIR SEEHRA

/s/ Jasbir Seehra
Executive Name

Address:

_____
_____
_____
Fax Number: _____
Email: _____

Enclosures
Duplicate Executive Employment Agreement
Employee Confidential Information and Inventions Assignment Agreement

Exhibit A

Grant Date	Type of Award	Number of Shares subject to Award(1)	Exercise Price(1)
April 3, 2017	ISO	41,468	$ 0.10
March 26, 2018	ISO	301,811	$ 0.30
March 26, 2018	ISO	41,468	$ 0.30
June 19, 2019	ISO	49,087	$ 0.47

(1) Share numbers and exercise prices adjusted to give effect to the Company's one-for-2.1703 reverse stock split

Exhibit 10.15

EXECUTIVE EMPLOYMENT AGREEMENT

THIS EXECUTIVE EMPLOYMENT AGREEMENT (this "Agreement"), by and between Keros Therapeutics, Inc. (the "Company"), and Jennifer Lachey ("Executive") (collectively referred to as the "Parties" or individually referred to as a "Party"), is effective as of the date the Company consummates an initial public offering (the "Effective Date").

R E C I T A L S

WHEREAS, on May 9, 2016, the Executive was employed as the VP, Biology and Pharmacology of the Company, pursuant to the terms of the April 20, 2016 offer letter (the "Offer Letter");

WHEREAS, on June 12, 2019, the Company's Board of Directors (the "Board"), voted to change the Executive's status from VP, Biology and Pharmacology to Chief Scientific Officer;

WHEREAS, the Company desires to continue to employ Executive as its Chief Scientific Officer following the Effective Date pursuant to the terms of the Agreement, which shall amend and restate the Offer Letter in its entirety; and

WHEREAS, Executive desires to accept such employment and enter into such an agreement.

A G R E E M E N T

NOW, THEREFORE, in consideration of the premises and mutual covenants herein and for other good and valuable consideration, the Parties agree as follows:

1. Duties and Scope of Employment.

(a) Positions and Duties. As of the Effective Date, Executive will serve as Chief Scientific Officer of the Company. Executive will render such business and professional services in the performance of Executive's duties, consistent with Executive's position within the Company, as shall reasonably be assigned to Executive by the Company's Chief Executive Officer. The period of Executive's at-will employment under the terms of this Agreement is referred to herein as the "Employment Term."

(b) Obligations. During the Employment Term, Executive will perform Executive's duties faithfully and to the best of Executive's ability and will devote Executive's full business efforts and time to the Company. For the duration of the Employment Term, Executive agrees not to actively engage in any other employment, occupation or consulting activity for any direct or indirect remuneration without the prior approval of the Board.

2. At-Will Employment. Subject to Sections 7, 8, and 9 below, the parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated at any time with or without cause or notice, for any reason or no reason. Executive understands and agrees that neither Executive's job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of Executive's employment with the Company.

3. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for Executive's services a base salary of $380,000 per year, as modified from time to time at the discretion of the Board or a duly constituted committee of the Board (the "Base Salary"). The Base Salary will

be paid in regular installments in accordance with the Company's normal payroll practices (subject to required withholding). Any increase or decrease in Base Salary (together with the then existing Base Salary) shall serve as the "Base Salary" for future employment under this Agreement. The first and last payment will be adjusted, if necessary, to reflect a commencement or termination date other than the first or last working day of a pay period.

(b) Annual Bonus. Executive will also be eligible to earn an annual discretionary bonus with a target amount equal to 40% of the Base Salary ("Target Bonus"). The amount of this bonus, if any, will be determined in the sole discretion of the Board and based, in part, on Executive's performance and the performance of the Company during the calendar year. The Company will pay Executive this bonus, if any, by no later than March 1st of the following calendar year. The bonus is not earned until paid and no pro-rated amount will be paid if Executive's employment terminates for any reason prior to the payment date.

(c) Stock Option. The Executive acknowledges that as of the Effective Date, he has received the equity awards set forth on Exhibit A hereto, under, and subject to the terms and conditions of the Company's 2017 Stock Incentive Plan, as amended ("2017 Plan") and applicable award agreements thereunder. The Executive acknowledges and agrees that from and after the Effective Date, such equity awards shall only be subject to accelerated vesting in accordance with Section 9 of this Agreement.

(i) Executive will be eligible to receive awards of stock options, restricted stock or other equity awards pursuant to any plans or arrangements the Company may have in effect from time to time. The Board or a committee of the Board shall determine in its discretion whether Executive shall be granted any such equity awards and the terms of any such award in accordance with the terms of any applicable plan or arrangement that may be in effect from time to time.

4. Employee Benefits. During the Employment Term, Executive will be eligible to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, including, without limitation, the Company's group medical, dental, vision, disability, life insurance, and flexible-spending account plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

5. Vacation. Executive will be eligible to accrue a maximum of three (3) weeks paid vacation per year, in accordance with the Company's vacation policy, which shall be taken subject to the demands of the Company's business and Executive's obligations as an employee of the Company with a substantial degree of responsibility.

6. Business Expenses. During the Employment Term, the Company will reimburse Executive for reasonable business travel, entertainment or other business expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

7. Termination on Death or Disability.

(a) Effectiveness. Executive's employment will terminate automatically upon Executive's Death or, upon fourteen (14) days prior written notice from the Company, in the event of Disability.

(b) Effect of Termination. Upon any termination for death or Disability, Executive shall be entitled to: (i) Executive's Base Salary through the effective date of termination; (ii) the right to continue health care benefits under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended ("COBRA"), at Executive's cost, to the extent required and available by law; (iii) reimbursement of expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

8. Involuntary Termination for Cause; Resignation Without Good Reason.

(a) Effectiveness. Notwithstanding any other provision of this Agreement, the Company may terminate Executive's employment at any time for Cause or Executive may resign from Executive's employment with the Company at any time without Good Reason. Termination for Cause, or Executive's resignation without Good Reason, shall be effective on the date either Party gives notice to the other Party of such termination in accordance with this Agreement unless otherwise agreed by the Parties. In the event that the Company accelerates the effective date of a resignation, such acceleration shall not be construed as a termination of Executives employment by the Company or deemed Good Reason for such resignation.

(b) Effect of Termination. In the case of the Company's termination of Executive's employment for Cause, or Executive's resignation without Good Reason, Executive shall be entitled to receive: (i) Base Salary through the effective date of the termination or resignation, as applicable; (ii) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; (iii) the right to continue health care benefits under COBRA, at Executive's cost, to the extent required and available by law; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

9. Involuntary Termination Without Cause and Resignation for Good Reason.

(a) Effect of Termination. The Company shall be entitled to terminate Executive with or without Cause at any time, subject to the following:

(i) Involuntary Termination by the Company without Cause or by Executive for Good Reason not in Connection with a Change in Control. If Executive is terminated by the Company involuntarily without Cause (excluding any termination due to death or Disability) or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of twelve (12) months from the date of such termination, to be paid periodically in accordance with the Company's normal payroll practices.

(3) continued vesting of Executive's stock options, subject to the terms and conditions of the 2017 Plan, as amended and applicable award agreements thereunder, for a period of twelve (12) months from the date of such termination.

(4) a payment equal to 100% of the Target Bonus for the year in which Executive's employment is terminated, prorated by the duration of the year in which Executive provided services (the "Prorated Target Bonus"), but only if Executive is terminated on or after July 1 of the calendar year. The Company shall pay the Prorated Target Bonus, subject to standard deductions and withholdings, in a lump sum on the first regularly scheduled payroll date following the date the Release becomes effective and can no longer be revoked provided that, if the release execution period begins in one taxable year and ends in another taxable year, payment shall not be made until the beginning of the second taxable year.

(5) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(6) if Executive is eligible for and timely elects to continue health insurance coverage under the Consolidated Omnibus Budget Reconciliation Act of 1985 or the state equivalent ("COBRA"), the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) nine (9) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(7) no other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(ii) Involuntary Termination by Company without Cause or by Executive for Good Reason in connection with a Change of Control. If immediately before or within twelve (12) months following a Change of Control (as defined below), Executive is involuntarily terminated by the Company or successor corporation for other than Cause, death or Disability, or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation for Good Reason.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of twelve (12) months from the date of such termination, to be paid periodically in accordance with the Company's normal payroll practices.

(3) a payment equal to 100% of the Target Bonus for the year in which Executive's employment is terminated. The Company shall pay the Target Bonus, subject to standard deductions and withholdings, in a lump sum on the first regularly scheduled payroll date following the later of the date the Release becomes effective and can no longer be revoked provided that, if the release execution period begins in one taxable year and ends in another taxable year, payment shall not be made until the beginning of the second taxable year.

(4) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(5) if Executive is eligible for and timely elects to continue health insurance coverage under COBRA, the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) twelve (12) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(6) Executive shall be entitled to acceleration of 100% of Executive's then-unvested and outstanding equity awards.

(7) No other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(b) Conditions Precedent. Any severance payments contemplated by Section 9(a) above are conditional on Executive: (i) continuing to comply with the terms of this Agreement and the Confidential Information Agreement; and (ii) signing and not revoking a separation agreement and release of known and unknown claims in the form provided by the Company (including non-competition, nondisparagement and a cooperation provisions) (the "Release") and which will be provided by the Company no later than ten (10) days after the termination date and provided that such Release becomes effective and irrevocable no later than forty-five (45) days following the termination date or such earlier date required by the release (such deadline, the "Release Deadline"). If the Release does not become effective by the Release Deadline, Executive will forfeit any rights to severance or benefits under this Section 9 or elsewhere in this Agreement. Any severance payments or other benefits under this Agreement that would be considered Deferred Compensation Separation Benefits (as defined in Section 25) will be paid on, or, in the case of installments, will not commence until, the forty-fifth (45th) day following Executive's separation from service, or, if later, such time as required by Section 25(b). Except as required by Section 25(b), any installment payments that would have been made to Employee during the forty-five (45) day period immediately following Executive's separation from service but for the preceding sentence will be paid to Executive on the forty-fifth (45th) day following Executive's separation from service and the remaining payments will be made as provided in this Agreement, unless subject to the 6-month payment delay described herein. Any severance payments under this Agreement that would not be considered Deferred Compensation Separation Benefits will be paid on, or, in the case of installments, will not commence until, the first payroll date that occurs on or after the date the Release becomes effective and any installment payments that would have been made to Executive during the period prior to the date the Release becomes effective following Executive's separation from service but for the preceding sentence will be paid to Executive on the first payroll date that occurs on or after the date the Release becomes effective. Notwithstanding the foregoing, this Section 9(b) shall not limit Executive's ability to obtain expense reimbursements under Section 6 or any other compensation or benefits otherwise required by law or in accordance with written Company plans or policies, as then in effect.

10. Indemnification. Regardless of the manner of Executive's termination, Executive will be indemnified to the extent permitted by law, for claims brought against Executive during or after Executive's employment for the Company. The Company will indemnify Executive to the extent permitted by its charter and bylaws and by applicable law against all costs, charges and expenses, including, without limitation, attorneys' fees, incurred or sustained by me in connection with any action, suit or proceeding to which Executive may be made a party by reason of being an officer, director or employee of the Company. In connection with the foregoing, Executive will be covered under any liability insurance policy that protects other officers of the Company. The Company will provide Executive its standard indemnification agreement, which is subject to approval by the Board of Directors and is consistent with the agreement for the other directors and officers of the Company.

11. Definitions.

(a) Cause. For purposes of this Agreement, "Cause" shall mean: (i) Executive's continued failure to substantially perform the material duties and obligations under this Agreement (for reasons other than death or Disability), which failure, if curable within the discretion of the Company, is not cured to the

reasonable satisfaction of the Company within thirty (30) days after receipt of written notice from the Company of such failure; (ii) Executive's failure or refusal to comply with the policies, standards and regulations established by the Company from time to time which failure, if curable in the discretion of the Company, is not cured to the reasonable satisfaction of the Company within thirty (30) days after receipt of written notice of such failure from the Company; (iii) any act of personal dishonesty, fraud, embezzlement, misrepresentation, or other unlawful act committed by Executive that benefits Executive at the expense of the Company; (iv) the Executive's violation of a federal or state law or regulation applicable to the Company's business; (v) the Executive's violation of, or a plea of nolo contendre or guilty to, a felony under the laws of the United States or any state; or (vi) the Executive's material breach of the terms of this Agreement or the Confidential Information Agreement (defined below).

(b) Change of Control. For purposes of this Agreement, "Change of Control" shall have the meaning attributed to such term in the Company's 2020 Equity Incentive Plan, as amended from time to time (the "2020 Plan").

(c) Disability. For purposes of this Agreement, "Disability" means that Executive, at the time notice is given, has been unable to substantially perform Executive's duties under this Agreement for not less than one-hundred and twenty (120) work days within a twelve (12) consecutive month period as a result of Executive's incapacity due to a physical or mental condition and, if reasonable accommodation is required by law, after any reasonable accommodation.

(d) Good Reason. For purposes of this Agreement, "Good Reason" means Executive's written notice of Executive's intent to resign for Good Reason with a reasonable description of the grounds therefor within 30 days after the occurrence of one or more of the following without Executive's consent, and subsequent resignation within 30 days following the expiration of any Company cure period (discussed below): (i) a material reduction of Executive's duties, position or responsibilities; (ii) a material reduction in Executive's Base Salary (other than a reduction of not more than 10% that is applicable to similarly situated executives of the Company); (iii) a material breach of this Agreement by the Company; or (iv) a material change in the geographic location of Executive's primary work facility or location; provided, that a relocation of less than 50 miles from Executive's then present location will not be considered a material change in geographic location. Executive will not resign for Good Reason without first providing the Company with written notice of the acts or omissions constituting the grounds for "Good Reason" within 30 days of the initial existence of the grounds for "Good Reason" and a reasonable cure period of not less than 30 days following the date of such notice if such act or omission is capable of cure.

12. Company Matters.

(a) Proprietary Information and Inventions. In connection with Executive's employment with the Company, Executive will receive and have access to Company confidential information and trade secrets. Accordingly, enclosed with this Agreement is an Employee Confidential Information and Inventions Assignment Agreement (the "Confidential Information Agreement") which contains restrictive covenants and prohibits unauthorized use or disclosure of the Company's confidential information and trade secrets, among other obligations. Executive agrees to review the Confidential Information Agreement and only sign it after careful consideration.

(b) Resignation on Termination. On termination of Executive's employment, regardless of the reason for such termination, Executive shall immediately (and with contemporaneous effect) resign any directorships, offices or other positions that Executive may hold in the Company or any affiliate, unless otherwise agreed in writing by the Parties.

(c) Notification of New Employer. In the event that Executive leaves the employ of the Company, Executive grants consent to notification by the Company to Executive's new employer about Executive's rights and obligations under this Agreement and the Confidential Information Agreement.

13. Arbitration. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Confidential Information Agreement, or Executive's employment, or the termination of Executive's employment, including but not limited to all statutory claims (including, but not limited to, the Massachusetts Antidiscrimination Act, Mass. Gen. Laws ch.151B and the Massachusetts Wage Act, Mass. Gen. Laws ch. 149), will be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration by a single arbitrator conducted in ***Boston, Massachusetts*** by Judicial Arbitration and Mediation Services Inc. ("**JAMS**") under the then applicable JAMS rules (at the following web address: https://www.jamsadr.com/rules-employment-arbitration/); provided, however, this arbitration provision shall not apply to sexual harassment claims to the extent prohibited by applicable law. A hard copy of the rules will be provided to you upon request. A hard copy of the rules will be provided to Executive upon request. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding**. In addition, all claims, disputes, or causes of action under this section, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The Arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. Questions of whether a claim is subject to arbitration under this Agreement) shall be decided by the arbitrator. Likewise, procedural questions which grow out of the dispute and bear on the final disposition are also matters for the arbitrator. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award; and (c) be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Executive and the Company shall equally share all JAMS' arbitration fees. Except as modified in the Confidential Information Agreement, each party is responsible for its own attorneys' fees. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

14. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

15. Notices. All notices, requests, demands and other communications called for under this Agreement shall be in writing and shall be delivered via e-mail, personally by hand or by courier, mailed by United States first-class mail, postage prepaid, or sent by facsimile directed to the Party to be notified at the address or facsimile number indicated for such Party on the signature page to this Agreement, or at such other address or facsimile number as such Party may designate by ten (10) days' advance written notice to the other Parties hereto. All such notices and other communications shall be deemed given upon personal delivery, three (3) days after the date of mailing, or upon confirmation of facsimile transfer or e-mail. Notices sent via e-mail under this Section shall be sent to either the e-mail address in this Agreement, or for e-mails sent by the Company to Executive, to the last e-mail address on file with the Company.

16. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

17. Integration. This Agreement, together with the 2017 Plan, the 2020 Plan, applicable award agreements and the Confidential Information Agreement represents the entire agreement and understanding between the parties as to the subject matter herein and supersedes all prior or contemporaneous agreements whether written or oral. No waiver, alteration, or modification of any of the provisions of this Agreement will be binding unless in writing and signed by duly authorized representatives of the parties hereto.

18. Tax Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

19. Waiver. No Party shall be deemed to have waived any right, power or privilege under this Agreement or any provisions hereof unless such waiver shall have been duly executed in writing and acknowledged by the Party to be charged with such waiver. The failure of any Party at any time to insist on performance of any of the provisions of this Agreement shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of this Agreement or any part hereof. No waiver of any breach of this Agreement shall be held to be a waiver of any other subsequent breach.

20. Governing Law. This Agreement will be governed by the laws of the State of Massachusetts (with the exception of its conflict of laws provisions).

21. Acknowledgment. Executive acknowledges that Executive has had the opportunity to discuss this matter with and obtain advice from Executive's legal counsel, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

22. Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed to be an original, and all such counterparts shall constitute but one instrument.

23. Effect of Headings. The section and subsection headings contained herein are for convenience only and shall not affect the construction hereof.

24. Construction of Agreement. This Agreement has been negotiated by the respective Parties, and the language shall not be construed for or against either Party.

25. Section 409A.

(a) Notwithstanding anything to the contrary in this Agreement, no severance pay or benefits to be paid or provided to Executive, if any, pursuant to this Agreement, when considered together with any other severance payments or separation benefits that are considered deferred compensation under Section 409A

("Section 409A") of the Internal Revenue Code of 1986, as amended and the regulations and other guidance thereunder or any state law of similar effect (together, the "Deferred Compensation Separation Benefits") will be paid or otherwise provided until Executive has a "separation from service" within the meaning of Section 409A.

(b) Notwithstanding anything to the contrary in this Agreement, if Executive is a "specified employee" within the meaning of Section 409A at the time of Executive's termination (other than due to death), then the Deferred Compensation Separation Benefits that are payable within the first six (6) months following Executive's separation from service, will become payable on the first payroll date that occurs on or after the date six (6) months and one (1) day following the date of Executive's separation from service. All subsequent Deferred Compensation Separation Benefits, if any, will be payable in accordance with the payment schedule applicable to each payment or benefit. Notwithstanding anything herein to the contrary, if Executive dies following Executive's separation from service, but prior to the six (6) month anniversary of the separation from service, then any payments delayed in accordance with this paragraph will be payable in a lump sum as soon as administratively practicable after the date of Executive's death and all other Deferred Compensation Separation Benefits will be payable in accordance with the payment schedule applicable to each payment or benefit. Each payment and benefit payable under this Agreement is intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the Treasury Regulations.

(c) Any amount paid under this Agreement that satisfies the requirements of the "short-term deferral" rule set forth in Section 1.409A-1(b)(4) of the Treasury Regulations will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above.

(d) Any amount paid under this Agreement that qualifies as a payment made as a result of an involuntary separation from service pursuant to Section 1.409A-1(b)(9)(iii) of the Treasury Regulations that does not exceed the Section 409A Limit will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above. For purposes of this Agreement, "Section 409A Limit" will mean the lesser of two (2) times: (i) Executive's annualized compensation based upon the annual rate of pay paid to Executive during the Executive's taxable year preceding Executive's taxable year of Executive's termination of employment as determined under Treasury Regulation Section 1.409A-1(b)(9)(iii)(A)(1) and any Internal Revenue Service guidance issued with respect thereto; or (ii) the maximum amount that may be taken into account under a qualified plan pursuant to Section 401(a)(17) of the Code for the year in which Executive's employment is terminated.

(e) The foregoing provisions are intended to be exempt from or comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder will be subject to the additional tax imposed under Section 409A, and any ambiguities herein will be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

[*Remainder of page is intentionally blank; Signature page follows*]

IN WITNESS WHEREOF, each of the Parties has executed this Agreement as of the day and year first above written.

"COMPANY"

KEROS THERAPEUTICS, INC.

By: /s/ Jasbir Seehra

Address:
99 Hayden Avenue
Lexington, MA 02421
Attn: _____
Fax Number: _____
Email: _____

"EXECUTIVE"

JENNIFER LACHEY

/s/ Jennifer Lachey
Executive Name

Address:

_____
_____
_____
Fax Number: _____
Email: _____

Enclosures
Duplicate Executive Employment Agreement
Employee Confidential Information and Inventions Assignment Agreement

Exhibit A

Grant Date	Type of Award	Number of Shares subject to Award(1)	Exercise Price(1)
February 6, 2017	ISO	69,114	$ 0.10
April 3, 2017	ISO	8,293	$ 0.10
March 26, 2018	ISO	150,905	$ 0.30
March 26, 2018	ISO	8,293	$ 0.30
June 12, 2019	ISO	48,380	$ 0.47
June 19, 2019	ISO	36,861	$ 0.47

(1) Share numbers and exercise prices adjusted to give effect to the Company's one-for-2.1703 reverse stock split

Exhibit 10.16

EXECUTIVE EMPLOYMENT AGREEMENT

THIS EXECUTIVE EMPLOYMENT AGREEMENT (this "Agreement"), by and between Keros Therapeutics, Inc. (the "Company"), and Claudia Ordonez ("Executive") (collectively referred to as the "Parties" or individually referred to as a "Party"), is effective as of the date the Company consummates an initial public offering (the "Effective Date").

R E C I T A L S

WHEREAS, on September 16, 2019, the Executive was employed as the Chief Medical Officer of the Company, pursuant to the terms of the August 20, 2019 offer letter (the "Offer Letter");

WHEREAS, the Company desires to continue to employ Executive as its Chief Medical Officer, following the Effective Date pursuant to the terms of the Agreement, which shall amend and restate the Offer Letter in its entirety; and

WHEREAS, Executive desires to accept such employment and enter into such an agreement.

A G R E E M E N T

NOW, THEREFORE, in consideration of the premises and mutual covenants herein and for other good and valuable consideration, the Parties agree as follows:

1. Duties and Scope of Employment.

(a) Positions and Duties. As of the Effective Date, Executive will serve as Chief Medical Officer of the Company. Executive will render such business and professional services in the performance of Executive's duties, consistent with Executive's position within the Company, as shall reasonably be assigned to Executive by the Company's Chief Executive Officer. The period of Executive's at-will employment under the terms of this Agreement is referred to herein as the "Employment Term."

(b) Obligations. During the Employment Term, Executive will perform Executive's duties faithfully and to the best of Executive's ability and will devote Executive's full business efforts and time to the Company. For the duration of the Employment Term, Executive agrees not to actively engage in any other employment, occupation or consulting activity for any direct or indirect remuneration without the prior approval of the Company's Board of Directors (the "Board").

2. At-Will Employment. Subject to Sections 7, 8, and 9 below, the parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated at any time with or without cause or notice, for any reason or no reason. Executive understands and agrees that neither Executive's job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of Executive's employment with the Company.

3. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for Executive's services a base salary of $385,000 per year, as modified from time to time at the discretion of the Board or a duly constituted committee of the Board (the "Base Salary"). The Base Salary will be paid in regular installments in accordance with the Company's normal payroll practices (subject to required withholding). Any increase or decrease in Base Salary (together with the then existing Base Salary) shall serve as the "Base Salary" for future employment under this Agreement. The first and last payment will be adjusted, if necessary, to reflect a commencement or termination date other than the first or last working day of a pay period.

(b) Annual Bonus. Executive will also be eligible to earn an annual discretionary bonus with a target amount equal to 40% of the Base Salary ("Target Bonus"). The amount of this bonus, if any, will be determined in the sole discretion of the Board and based, in part, on Executive's performance and the performance of the Company during the calendar year. The Company will pay Executive this bonus, if any, by no later than March 1st of the following calendar year. The bonus is not earned until paid and no pro-rated amount will be paid if Executive's employment terminates for any reason prior to the payment date.

(c) Stock Option. The Executive acknowledges that as of the Effective Date, he has received the equity awards set forth on Exhibit A hereto, under, and subject to the terms and conditions of the Company's 2017 Stock Incentive Plan, as amended ("2017 Plan") and applicable award agreements thereunder. The Executive acknowledges and agrees that from and after the Effective Date, such equity awards shall only be subject to accelerated vesting in accordance with Section 9 of this Agreement.

(i) Executive will be eligible to receive awards of stock options, restricted stock or other equity awards pursuant to any plans or arrangements the Company may have in effect from time to time. The Board or a committee of the Board shall determine in its discretion whether Executive shall be granted any such equity awards and the terms of any such award in accordance with the terms of any applicable plan or arrangement that may be in effect from time to time.

4. Employee Benefits. During the Employment Term, Executive will be eligible to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, including, without limitation, the Company's group medical, dental, vision, disability, life insurance, and flexible-spending account plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

5. Vacation. Executive will be eligible to accrue a maximum of three (3) weeks paid vacation per year, in accordance with the Company's vacation policy, which shall be taken subject to the demands of the Company's business and Executive's obligations as an employee of the Company with a substantial degree of responsibility.

6. Business Expenses. During the Employment Term, the Company will reimburse Executive for reasonable business travel, entertainment or other business expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

7. Termination on Death or Disability.

(a) Effectiveness. Executive's employment will terminate automatically upon Executive's Death or, upon fourteen (14) days prior written notice from the Company, in the event of Disability.

(b) Effect of Termination. Upon any termination for death or Disability, Executive shall be entitled to: (i) Executive's Base Salary through the effective date of termination; (ii) the right to continue health care benefits under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended ("COBRA"), at Executive's cost, to the extent required and available by law; (iii) reimbursement of expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

8. Involuntary Termination for Cause; Resignation Without Good Reason.

(a) Effectiveness. Notwithstanding any other provision of this Agreement, the Company may terminate Executive's employment at any time for Cause or Executive may resign from Executive's employment with the Company at any time without Good Reason. Termination for Cause, or Executive's resignation without Good Reason, shall be effective on the date either Party gives notice to the other Party of such termination in accordance with this Agreement unless otherwise agreed by the Parties. In the event that the Company accelerates the effective date of a resignation, such acceleration shall not be construed as a termination of Executives employment by the Company or deemed Good Reason for such resignation.

(b) Effect of Termination. In the case of the Company's termination of Executive's employment for Cause, or Executive's resignation without Good Reason, Executive shall be entitled to receive: (i) Base Salary through the effective date of the termination or resignation, as applicable; (ii) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; (iii) the right to continue health care benefits under COBRA, at Executive's cost, to the extent required and available by law; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

9. Involuntary Termination Without Cause and Resignation for Good Reason.

(a) Effect of Termination. The Company shall be entitled to terminate Executive with or without Cause at any time, subject to the following:

(i) Involuntary Termination by Company Without Cause or by Executive for Good Reason not in Connection with a Change in Control. If Executive is terminated by the Company involuntarily without Cause (excluding any termination due to death or Disability) or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of nine (9) months from the date of such termination , to be paid periodically in accordance with the Company's normal payroll practices.

(3) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(4) if Executive is eligible for and timely elects to continue health insurance coverage under the Consolidated Omnibus Budget Reconciliation Act of 1985 or the state equivalent ("COBRA"), the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) nine (9) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(5) no other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(ii) Involuntary Termination by Company without Cause or by Executive for Good Reason in Connection with a Change of Control. If immediately before or within twelve (12) months following a Change of Control (as defined below), Executive is involuntarily terminated by the Company or successor corporation for other than Cause, death or Disability, or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation for Good Reason.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of twelve (12) months from the date of such termination, to be paid periodically in accordance with the Company's normal payroll practices.

(3) a payment equal to 100% of the Target Bonus for the year in which Executive's employment is terminated. The Company shall pay the Target Bonus, subject to standard deductions and withholdings, in a lump sum on the first regularly scheduled payroll date following the date the Release becomes effective and can no longer be revoked provided that, if the release execution period begins in one taxable year and ends in another taxable year, payment shall not be made until the beginning of the second taxable year.

(4) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(5) if Executive is eligible for and timely elects to continue health insurance coverage under COBRA, the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) twelve (12) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(6) Executive shall be entitled to acceleration of 100% of Executive's then-unvested and outstanding equity awards.

(7) No other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(b) Conditions Precedent. Any severance payments contemplated by Section 9(a) above are conditional on Executive: (i) continuing to comply with the terms of this Agreement and the Confidential Information Agreement; and (ii) signing and not revoking a separation agreement and release of known and unknown claims in the form provided by the Company (including non-competition, nondisparagement and a cooperation provisions) (the "Release") and which will be provided by the Company no later than ten (10) days after the termination date and provided that such Release becomes effective and irrevocable no later than forty-five (45) days following the termination date or such earlier date required by the release (such deadline, the "Release Deadline"). If the Release does not become effective by the Release Deadline, Executive will forfeit any rights to severance or benefits under this Section 9 or elsewhere in this Agreement. Any severance payments or other benefits under this Agreement that would be considered Deferred Compensation Separation Benefits (as defined in Section 25) will be paid on, or, in the case of installments, will not commence until, the

forty-fifth (45th) day following Executive's separation from service, or, if later, such time as required by Section 25(b). Except as required by Section 25(b), any installment payments that would have been made to Employee during the forty-five (45) day period immediately following Executive's separation from service but for the preceding sentence will be paid to Executive on the forty-fifth (45th) day following Executive's separation from service and the remaining payments will be made as provided in this Agreement, unless subject to the 6-month payment delay described herein. Any severance payments under this Agreement that would not be considered Deferred Compensation Separation Benefits will be paid on, or, in the case of installments, will not commence until, the first payroll date that occurs on or after the date the Release becomes effective and any installment payments that would have been made to Executive during the period prior to the date the Release becomes effective following Executive's separation from service but for the preceding sentence will be paid to Executive on the first payroll date that occurs on or after the date the Release becomes effective. Notwithstanding the foregoing, this Section 9(b) shall not limit Executive's ability to obtain expense reimbursements under Section 6 or any other compensation or benefits otherwise required by law or in accordance with written Company plans or policies, as then in effect.

10. Indemnification. Regardless of the manner of Executive's termination, Executive will be indemnified to the extent permitted by law, for claims brought against Executive during or after Executive's employment for the Company. The Company will indemnify Executive to the extent permitted by its charter and bylaws and by applicable law against all costs, charges and expenses, including, without limitation, attorneys' fees, incurred or sustained by me in connection with any action, suit or proceeding to which Executive may be made a party by reason of being an officer, director or employee of the Company. In connection with the foregoing, Executive will be covered under any liability insurance policy that protects other officers of the Company. The Company will provide Executive its standard indemnification agreement, which is subject to approval by the Board of Directors and is consistent with the agreement for the other directors and officers of the Company.

11. Definitions.

(a) Cause. For purposes of this Agreement, "Cause" shall mean: (i) Executive's continued failure to substantially perform the material duties and obligations under this Agreement (for reasons other than death or Disability), which failure, if curable within the discretion of the Company, is not cured to the reasonable satisfaction of the Company within thirty (30) days after receipt of written notice from the Company of such failure; (ii) Executive's failure or refusal to comply with the policies, standards and regulations established by the Company from time to time which failure, if curable in the discretion of the Company, is not cured to the reasonable satisfaction of the Company within thirty (30) days after receipt of written notice of such failure from the Company; (iii) any act of personal dishonesty, fraud, embezzlement, misrepresentation, or other unlawful act committed by Executive that benefits Executive at the expense of the Company; (iv) the Executive's violation of a federal or state law or regulation applicable to the Company's business; (v) the Executive's violation of, or a plea of nolo contendre or guilty to, a felony under the laws of the United States or any state; or (vi) the Executive's material breach of the terms of this Agreement or the Confidential Information Agreement (defined below).

(b) Change of Control. For purposes of this Agreement, "Change of Control" shall have the meaning attributed to such term in the Company's 2020 Equity Incentive Plan, as amended from time to time (the "2020 Plan").

(c) Disability. For purposes of this Agreement, "Disability" means that Executive, at the time notice is given, has been unable to substantially perform Executive's duties under this Agreement for not less than one-hundred and twenty (120) work days within a twelve (12) consecutive month period as a result of Executive's incapacity due to a physical or mental condition and, if reasonable accommodation is required by law, after any reasonable accommodation.

(d) Good Reason. For purposes of this Agreement, "Good Reason" means Executive's written notice of Executive's intent to resign for Good Reason with a reasonable description of the grounds therefor within 30 days after the occurrence of one or more of the following without Executive's consent, and subsequent resignation within 30 days following the expiration of any Company cure period (discussed below): (i) a material reduction of Executive's duties, position or responsibilities; (ii) a material reduction in Executive's Base Salary (other than a reduction of not more than 10% that is applicable to similarly situated executives of the Company); (iii) a material breach of this Agreement by the Company; or (iv) a material change in the geographic location of Executive's primary work facility or location; provided, that a relocation of less than 50 miles from Executive's then present location will not be considered a material change in geographic location. Executive will not resign for Good Reason without first providing the Company with written notice of the acts or omissions constituting the grounds for "Good Reason" within 30 days of the initial existence of the grounds for "Good Reason" and a reasonable cure period of not less than 30 days following the date of such notice if such act or omission is capable of cure.

12. Company Matters.

(a) Proprietary Information and Inventions. In connection with Executive's employment with the Company, Executive will receive and have access to Company confidential information and trade secrets. Accordingly, enclosed with this Agreement is an Employee Confidential Information and Inventions Assignment Agreement (the "Confidential Information Agreement") which contains restrictive covenants and prohibits unauthorized use or disclosure of the Company's confidential information and trade secrets, among other obligations. Executive agrees to review the Confidential Information Agreement and only sign it after careful consideration.

(b) Resignation on Termination. On termination of Executive's employment, regardless of the reason for such termination, Executive shall immediately (and with contemporaneous effect) resign any directorships, offices or other positions that Executive may hold in the Company or any affiliate, unless otherwise agreed in writing by the Parties.

(c) Notification of New Employer. In the event that Executive leaves the employ of the Company, Executive grants consent to notification by the Company to Executive's new employer about Executive's rights and obligations under this Agreement and the Confidential Information Agreement.

13. Arbitration. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Confidential Information Agreement, or Executive's employment, or the termination of Executive's employment, including but not limited to all statutory claims (including, but not limited to, the Massachusetts Antidiscrimination Act, Mass. Gen. Laws ch.151B and the Massachusetts Wage Act, Mass. Gen. Laws ch. 149), will be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration by a single arbitrator conducted in ***Boston, Massachusetts*** by Judicial Arbitration and Mediation Services Inc. ("**JAMS**") under the then applicable JAMS rules (at the following web address: https://www.jamsadr.com/rules-employment-arbitration/); provided, however, this arbitration provision shall not apply to sexual harassment claims to the extent prohibited by applicable law. A hard copy of the rules will be provided to you upon request. A hard copy of the rules will be provided to Executive upon request. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding**. In addition, all claims, disputes, or causes of action under this section, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The

Arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. Questions of whether a claim is subject to arbitration under this Agreement) shall be decided by the arbitrator. Likewise, procedural questions which grow out of the dispute and bear on the final disposition are also matters for the arbitrator. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award; and (c) be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Executive and the Company shall equally share all JAMS' arbitration fees. Except as modified in the Confidential Information Agreement, each party is responsible for its own attorneys' fees. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

14. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

15. Notices. All notices, requests, demands and other communications called for under this Agreement shall be in writing and shall be delivered via e-mail, personally by hand or by courier, mailed by United States first-class mail, postage prepaid, or sent by facsimile directed to the Party to be notified at the address or facsimile number indicated for such Party on the signature page to this Agreement, or at such other address or facsimile number as such Party may designate by ten (10) days' advance written notice to the other Parties hereto. All such notices and other communications shall be deemed given upon personal delivery, three (3) days after the date of mailing, or upon confirmation of facsimile transfer or e-mail. Notices sent via e-mail under this Section shall be sent to either the e-mail address in this Agreement, or for e-mails sent by the Company to Executive, to the last e-mail address on file with the Company.

16. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

17. Integration. This Agreement, together with the 2017 Plan, 2020 Plan, applicable award agreements and the Confidential Information Agreement represents the entire agreement and understanding between the parties as to the subject matter herein and supersedes all prior or contemporaneous agreements whether written or oral. No waiver, alteration, or modification of any of the provisions of this Agreement will be binding unless in writing and signed by duly authorized representatives of the parties hereto.

18. Tax Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

19. Waiver. No Party shall be deemed to have waived any right, power or privilege under this Agreement or any provisions hereof unless such waiver shall have been duly executed in writing and acknowledged by the Party to be charged with such waiver. The failure of any Party at any time to insist on performance of any of the provisions of this Agreement shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of this Agreement or any part hereof. No waiver of any breach of this Agreement shall be held to be a waiver of any other subsequent breach

20. Governing Law. This Agreement will be governed by the laws of the State of Massachusetts (with the exception of its conflict of laws provisions).

21. Acknowledgment. Executive acknowledges that Executive has had the opportunity to discuss this matter with and obtain advice from Executive's legal counsel, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

22. Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed to be an original, and all such counterparts shall constitute but one instrument.

23. Effect of Headings. The section and subsection headings contained herein are for convenience only and shall not affect the construction hereof.

24. Construction of Agreement. This Agreement has been negotiated by the respective Parties, and the language shall not be construed for or against either Party.

25. Section 409A.

(a) Notwithstanding anything to the contrary in this Agreement, no severance pay or benefits to be paid or provided to Executive, if any, pursuant to this Agreement, when considered together with any other severance payments or separation benefits that are considered deferred compensation under Section 409A ("Section 409A") of the Internal Revenue Code of 1986, as amended and the regulations and other guidance thereunder or any state law of similar effect (together, the "Deferred Compensation Separation Benefits") will be paid or otherwise provided until Executive has a "separation from service" within the meaning of Section 409A.

(b) Notwithstanding anything to the contrary in this Agreement, if Executive is a "specified employee" within the meaning of Section 409A at the time of Executive's termination (other than due to death), then the Deferred Compensation Separation Benefits that are payable within the first six (6) months following Executive's separation from service, will become payable on the first payroll date that occurs on or after the date six (6) months and one (1) day following the date of Executive's separation from service. All subsequent Deferred Compensation Separation Benefits, if any, will be payable in accordance with the payment schedule applicable to each payment or benefit. Notwithstanding anything herein to the contrary, if Executive dies following Executive's separation from service, but prior to the six (6) month anniversary of the separation from service, then any payments delayed in accordance with this paragraph will be payable in a lump sum as soon as administratively practicable after the date of Executive's death and all other Deferred Compensation Separation Benefits will be payable in accordance with the payment schedule applicable to each payment or benefit. Each payment and benefit payable under this Agreement is intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the Treasury Regulations.

(c) Any amount paid under this Agreement that satisfies the requirements of the "short-term deferral" rule set forth in Section 1.409A-1(b)(4) of the Treasury Regulations will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above.

(d) Any amount paid under this Agreement that qualifies as a payment made as a result of an involuntary separation from service pursuant to Section 1.409A-1(b)(9)(iii) of the Treasury Regulations that does not exceed the Section 409A Limit will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above. For purposes of this Agreement, "Section 409A Limit" will mean the lesser of two (2) times: (i) Executive's annualized compensation based upon the annual rate of pay paid to Executive during the Executive's taxable year preceding Executive's taxable year of Executive's termination of employment as determined under Treasury Regulation Section 1.409A-1(b)(9)(iii)(A)(1) and any Internal Revenue Service guidance issued with respect thereto; or (ii) the maximum amount that may be taken into account under a qualified plan pursuant to Section 401(a)(17) of the Code for the year in which Executive's employment is terminated.

(e) The foregoing provisions are intended to be exempt from or comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder will be subject to the additional tax imposed under Section 409A, and any ambiguities herein will be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

[*Remainder of page is intentionally blank; Signature page follows*]

IN WITNESS WHEREOF, each of the Parties has executed this Agreement as of the day and year first above written.

"COMPANY"

KEROS THERAPEUTICS, INC.

By: /s/ Jasbir Seehra

Address:
99 Hayden Ave
Lexington, MA 02421
Attn:
Fax Number:
Email:

"EXECUTIVE"

CLAUDIA ORDONEZ

/s/ Claudia Ordonez
Executive Name

Address:

Fax Number:
Email:

Enclosures
Duplicate Executive Employment Agreement
Employee Confidential Information and Inventions Assignment Agreement

Exhibit A

Grant Date	Type of Award	Number of Shares subject to Award(1)	Exercise Price(1)
September 16, 2019	ISO	103,211	$ 0.47

(1) Share numbers and exercise prices adjusted to give effect to the Company's one-for-2.1703 reverse stock split

Exhibit 10.17

EXECUTIVE EMPLOYMENT AGREEMENT

THIS EXECUTIVE EMPLOYMENT AGREEMENT (this "Agreement"), by and between Keros Therapeutics, Inc. (the "Company"), and Keith Regnante ("Executive") (collectively referred to as the "Parties" or individually referred to as a "Party"), is effective as of the date the Company consummates an initial public offering (the "Effective Date").

R E C I T A L S

WHEREAS, on February 24, 2020, the Executive was employed as the Chief Financial Officer of the Company, pursuant to the terms of the February 7, 2020 offer letter (the "Offer Letter");

WHEREAS, the Company desires to continue to employ Executive as its Chief Financial Officer following the Effective Date pursuant to the terms of the Agreement, which shall amend and restate the Offer Letter in its entirety; and

WHEREAS, Executive desires to accept such employment and enter into such an agreement.

A G R E E M E N T

NOW, THEREFORE, in consideration of the premises and mutual covenants herein and for other good and valuable consideration, the Parties agree as follows:

1. Duties and Scope of Employment.

(a) Positions and Duties. As of the Effective Date, Executive will serve as Chief Financial Officer of the Company. Executive will render such business and professional services in the performance of Executive's duties, consistent with Executive's position within the Company, as shall reasonably be assigned to Executive by the Company's Chief Executive Officer. The period of Executive's at-will employment under the terms of this Agreement is referred to herein as the "Employment Term."

(b) Obligations. During the Employment Term, Executive will perform Executive's duties faithfully and to the best of Executive's ability and will devote Executive's full business efforts and time to the Company. For the duration of the Employment Term, Executive agrees not to actively engage in any other employment, occupation or consulting activity for any direct or indirect remuneration without the prior approval of the Company's Board of Directors (the "Board").

2. At-Will Employment. Subject to Sections 7, 8, and 9 below, the parties agree that Executive's employment with the Company will be "at-will" employment and may be terminated at any time with or without cause or notice, for any reason or no reason. Executive understands and agrees that neither Executive's job performance nor promotions, commendations, bonuses or the like from the Company give rise to or in any way serve as the basis for modification, amendment, or extension, by implication or otherwise, of Executive's employment with the Company.

3. Compensation.

(a) Base Salary. During the Employment Term, the Company will pay Executive as compensation for Executive's services a base salary of $382,200 per year, as modified from time to time at the discretion of the Board or a duly constituted committee of the Board (the "Base Salary"). The Base Salary will be paid in regular installments in accordance with the Company's normal payroll practices (subject to required withholding). Any increase or decrease in Base Salary (together with the then existing Base Salary) shall serve as the "Base Salary" for future employment under this Agreement. The first and last payment will be adjusted, if necessary, to reflect a commencement or termination date other than the first or last working day of a pay period.

(b) Annual Bonus. Executive will also be eligible to earn an annual discretionary bonus with a target amount equal to 40% of the Base Salary ("Target Bonus"). The amount of this bonus, if any, will be determined in the sole discretion of the Board and based, in part, on Executive's performance and the performance of the Company during the calendar year. The Company will pay Executive this bonus, if any, by no later than March 1st of the following calendar year. The bonus is not earned until paid and no pro-rated amount will be paid if Executive's employment terminates for any reason prior to the payment date.

(c) Stock Option. The Executive acknowledges that as of the Effective Date, he is entitled to the equity awards set forth on Exhibit A hereto, under, and subject to the terms and conditions of the Company's 2020 Equity Incentive Plan, ("2020 Plan"), which will become effective immediately prior to the execution of the underwriting agreement to be entered into in connection with the Company's initial public offering, and applicable award agreements thereunder. The Executive acknowledges and agrees that from and after the Effective Date, such equity awards shall only be subject to accelerated vesting in accordance with Section 9 of this Agreement.

(i) Executive will be eligible to receive awards of stock options, restricted stock or other equity awards pursuant to any plans or arrangements the Company may have in effect from time to time. The Board or a committee of the Board shall determine in its discretion whether Executive shall be granted any such equity awards and the terms of any such award in accordance with the terms of any applicable plan or arrangement that may be in effect from time to time.

4. Employee Benefits. During the Employment Term, Executive will be eligible to participate in the employee benefit plans currently and hereafter maintained by the Company of general applicability to other senior executives of the Company, including, without limitation, the Company's group medical, dental, vision, disability, life insurance, and flexible-spending account plans. The Company reserves the right to cancel or change the benefit plans and programs it offers to its employees at any time.

5. Vacation. Executive will be eligible to accrue a maximum of three (3) weeks paid vacation per year, in accordance with the Company's vacation policy, which shall be taken subject to the demands of the Company's business and Executive's obligations as an employee of the Company with a substantial degree of responsibility.

6. Business Expenses. During the Employment Term, the Company will reimburse Executive for reasonable business travel, entertainment or other business expenses incurred by Executive in the furtherance of or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

7. Termination on Death or Disability.

(a) Effectiveness. Executive's employment will terminate automatically upon Executive's Death or, upon fourteen (14) days prior written notice from the Company, in the event of Disability.

(b) Effect of Termination. Upon any termination for death or Disability, Executive shall be entitled to: (i) Executive's Base Salary through the effective date of termination; (ii) the right to continue health care benefits under Title X of the Consolidated Budget Reconciliation Act of 1985, as amended ("COBRA"), at Executive's cost, to the extent required and available by law; (iii) reimbursement of expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

8. Involuntary Termination for Cause; Resignation Without Good Reason.

(a) Effectiveness. Notwithstanding any other provision of this Agreement, the Company may terminate Executive's employment at any time for Cause or Executive may resign from Executive's employment with the Company at any time without Good Reason. Termination for Cause, or Executive's resignation without Good Reason, shall be effective on the date either Party gives notice to the other Party of such termination in accordance with this Agreement unless otherwise agreed by the Parties. In the event that the Company accelerates the effective date of a resignation, such acceleration shall not be construed as a termination of Executives employment by the Company or deemed Good Reason for such resignation.

(b) Effect of Termination. In the case of the Company's termination of Executive's employment for Cause, or Executive's resignation without Good Reason, Executive shall be entitled to receive: (i) Base Salary through the effective date of the termination or resignation, as applicable; (ii) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed; (iii) the right to continue health care benefits under COBRA, at Executive's cost, to the extent required and available by law; and (iv) no other severance or benefits of any kind, unless required by law or pursuant to any other written Company plans or policies, as then in effect.

9. Involuntary Termination Without Cause and Resignation for Good Reason.

(a) Effect of Termination. The Company shall be entitled to terminate Executive with or without Cause at any time, subject to the following:

(i) Involuntary Termination by Company without Cause or by Executive for Good Reason not in Connection with a Change in Control. If Executive is terminated by the Company involuntarily without Cause (excluding any termination due to death or Disability) or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of nine (9) months from the date of such termination, to be paid periodically in accordance with the Company's normal payroll practices.

(3) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(4) if Executive is eligible for and timely elects to continue health insurance coverage under the Consolidated Omnibus Budget Reconciliation Act of 1985 or the state equivalent ("COBRA"), the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) nine (9) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(5) no other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(ii) Involuntary Termination by Company without Cause or by Executive for Good Reason in Connection with a Change of Control. If immediately before or within twelve (12) months following a Change of Control (as defined below), Executive is involuntarily terminated by the Company or successor corporation for other than Cause, death or Disability, or Executive resigns for Good Reason, then, subject to the limitations of Sections 9(b) and 25 below, Executive shall be entitled to receive:

(1) Executive's Base Salary through the effective date of the termination or resignation for Good Reason.

(2) continuing severance pay at a rate equal to one hundred percent (100%) of Executive's Base Salary, as then in effect (less applicable withholding), for a period of twelve (12) months from the date of such termination, to be paid periodically in accordance with the Company's normal payroll practices.

(3) a payment equal to 100% of the Target Bonus for the year in which Executive's employment is terminated. The Company shall pay the Target Bonus, subject to standard deductions and withholdings, in a lump sum on the first regularly scheduled payroll date following the later of the date the Release becomes effective and can no longer be revoked provided that, if the release execution period begins in one taxable year and ends in another taxable year, payment shall not be made until the beginning of the second taxable year.

(4) reimbursement of all business expenses for which Executive is entitled to be reimbursed pursuant to Section 6 above, but for which Executive has not yet been reimbursed.

(5) if Executive is eligible for and timely elects to continue health insurance coverage under COBRA, the Company will pay, on Executive's behalf, on a monthly basis, the total cost of COBRA premiums for Executive and Executive's eligible dependents, if any, until the earlier of (i) twelve (12) months from Separation Date, (ii) the expiration of Executive's eligibility for the continuation coverage under COBRA, or (iii) such time as Executive becomes employed by another employer or self-employed through which you are eligible for health insurance (thereafter, Executive will be responsible for all COBRA premium payments, if any). Executive will be required to notify the Company immediately if Executive becomes eligible to enroll for health coverage under an insurance plan of a subsequent employer. For purposes of this Section, any applicable insurance premiums that are paid by the Company will not include any amounts payable by Executive under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are the sole responsibility of Executive.

(6) Executive shall be entitled to acceleration of 100% of Executive's then-unvested and outstanding equity awards.

(7) No other severance or benefits of any kind, unless required by law or pursuant to any written Company plans or policies, as then in effect.

(b) Conditions Precedent. Any severance payments contemplated by Section 9(a) above are conditional on Executive: (i) continuing to comply with the terms of this Agreement and the Confidential Information Agreement; and (ii) signing and not revoking a separation agreement and release of known and unknown claims in the form provided by the Company (including non-competition, nondisparagement and a cooperation provisions) (the "Release") and which will be provided by the Company no later than ten (10) days after the termination date and provided that such Release becomes effective and irrevocable no later than forty-five (45) days following the termination date or such earlier date required by the release (such deadline, the "Release Deadline"). If the Release does not become effective by the Release Deadline, Executive will forfeit

any rights to severance or benefits under this Section 9 or elsewhere in this Agreement. Any severance payments or other benefits under this Agreement that would be considered Deferred Compensation Separation Benefits (as defined in Section 25) will be paid on, or, in the case of installments, will not commence until, the forty-fifth (45th) day following Executive's separation from service, or, if later, such time as required by Section 25(b). Except as required by Section 25(b), any installment payments that would have been made to Employee during the forty-five (45) day period immediately following Executive's separation from service but for the preceding sentence will be paid to Executive on the forty-fifth (45th) day following Executive's separation from service and the remaining payments will be made as provided in this Agreement, unless subject to the 6-month payment delay described herein. Any severance payments under this Agreement that would not be considered Deferred Compensation Separation Benefits will be paid on, or, in the case of installments, will not commence until, the first payroll date that occurs on or after the date the Release becomes effective and any installment payments that would have been made to Executive during the period prior to the date the Release becomes effective following Executive's separation from service but for the preceding sentence will be paid to Executive on the first payroll date that occurs on or after the date the Release becomes effective. Notwithstanding the foregoing, this Section 9(b) shall not limit Executive's ability to obtain expense reimbursements under Section 6 or any other compensation or benefits otherwise required by law or in accordance with written Company plans or policies, as then in effect.

10. Indemnification. Regardless of the manner of Executive's termination, Executive will be indemnified to the extent permitted by law, for claims brought against Executive during or after Executive's employment for the Company. The Company will indemnify Executive to the extent permitted by its charter and bylaws and by applicable law against all costs, charges and expenses, including, without limitation, attorneys' fees, incurred or sustained by me in connection with any action, suit or proceeding to which Executive may be made a party by reason of being an officer, director or employee of the Company. In connection with the foregoing, Executive will be covered under any liability insurance policy that protects other officers of the Company. The Company will provide Executive its standard indemnification agreement, which is subject to approval by the Board of Directors and is consistent with the agreement for the other directors and officers of the Company.

11. Definitions.

(a) Cause. For purposes of this Agreement, "Cause" shall mean: (i) Executive's continued failure to substantially perform the material duties and obligations under this Agreement (for reasons other than death or Disability), which failure, if curable within the discretion of the Company, is not cured to the reasonable satisfaction of the Company within thirty (30) days after receipt of written notice from the Company of such failure; (ii) Executive's failure or refusal to comply with the policies, standards and regulations established by the Company from time to time which failure, if curable in the discretion of the Company, is not cured to the reasonable satisfaction of the Company within thirty (30) days after receipt of written notice of such failure from the Company; (iii) any act of personal dishonesty, fraud, embezzlement, misrepresentation, or other unlawful act committed by Executive that benefits Executive at the expense of the Company; (iv) the Executive's violation of a federal or state law or regulation applicable to the Company's business; (v) the Executive's violation of, or a plea of nolo contendre or guilty to, a felony under the laws of the United States or any state; or (vi) the Executive's material breach of the terms of this Agreement or the Confidential Information Agreement (defined below).

(b) Change of Control. For purposes of this Agreement, "Change of Control" shall have the meaning attributed to such term in the 2020 Plan.

(c) Disability. For purposes of this Agreement, "Disability" means that Executive, at the time notice is given, has been unable to substantially perform Executive's duties under this Agreement for not less than one-hundred and twenty (120) work days within a twelve (12) consecutive month period as a result of Executive's incapacity due to a physical or mental condition and, if reasonable accommodation is required by law, after any reasonable accommodation.

(d) Good Reason. For purposes of this Agreement, "Good Reason" means Executive's written notice of Executive's intent to resign for Good Reason with a reasonable description of the grounds therefor within 30 days after the occurrence of one or more of the following without Executive's consent, and subsequent resignation within 30 days following the expiration of any Company cure period (discussed below): (i) a material reduction of Executive's duties, position or responsibilities; (ii) a material reduction in Executive's Base Salary (other than a reduction of not more than 10% that is applicable to similarly situated executives of the Company); (iii) a material breach of this Agreement by the Company; or (iv) a material change in the geographic location of Executive's primary work facility or location; provided, that a relocation of less than 50 miles from Executive's then present location will not be considered a material change in geographic location. Executive will not resign for Good Reason without first providing the Company with written notice of the acts or omissions constituting the grounds for "Good Reason" within 30 days of the initial existence of the grounds for "Good Reason" and a reasonable cure period of not less than 30 days following the date of such notice if such act or omission is capable of cure.

12. Company Matters.

(a) Proprietary Information and Inventions. In connection with Executive's employment with the Company, Executive will receive and have access to Company confidential information and trade secrets. Accordingly, enclosed with this Agreement is an Employee Confidential Information and Inventions Assignment Agreement (the "Confidential Information Agreement") which contains restrictive covenants and prohibits unauthorized use or disclosure of the Company's confidential information and trade secrets, among other obligations. Executive agrees to review the Confidential Information Agreement and only sign it after careful consideration.

(b) Resignation on Termination. On termination of Executive's employment, regardless of the reason for such termination, Executive shall immediately (and with contemporaneous effect) resign any directorships, offices or other positions that Executive may hold in the Company or any affiliate, unless otherwise agreed in writing by the Parties.

(c) Notification of New Employer. In the event that Executive leaves the employ of the Company, Executive grants consent to notification by the Company to Executive's new employer about Executive's rights and obligations under this Agreement and the Confidential Information Agreement.

13. Arbitration. To ensure the timely and economical resolution of disputes that may arise in connection with Executive's employment with the Company, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, Confidential Information Agreement, or Executive's employment, or the termination of Executive's employment, including but not limited to all statutory claims (including, but not limited to, the Massachusetts Antidiscrimination Act, Mass. Gen. Laws ch.151B and the Massachusetts Wage Act, Mass. Gen. Laws ch. 149), will be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration by a single arbitrator conducted in ***Boston, Massachusetts*** by Judicial Arbitration and Mediation Services Inc. ("**JAMS**") under the then applicable JAMS rules (at the following web address: https://www.jamsadr.com/rules-employment-arbitration/); provided, however, this arbitration provision shall not apply to sexual harassment claims to the extent prohibited by applicable law. A hard copy of the rules will be provided to you upon request. A hard copy of the rules will be provided to Executive upon request. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding**. In addition, all claims,

disputes, or causes of action under this section, whether by Executive or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The Arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences regarding class claims or proceedings are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration. The Company acknowledges that Executive will have the right to be represented by legal counsel at any arbitration proceeding. Questions of whether a claim is subject to arbitration under this Agreement) shall be decided by the arbitrator. Likewise, procedural questions which grow out of the dispute and bear on the final disposition are also matters for the arbitrator. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award; and (c) be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. Executive and the Company shall equally share all JAMS' arbitration fees. Except as modified in the Confidential Information Agreement, each party is responsible for its own attorneys' fees. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

14. Assignment. This Agreement will be binding upon and inure to the benefit of (a) the heirs, executors and legal representatives of Executive upon Executive's death and (b) any successor of the Company. Any such successor of the Company will be deemed substituted for the Company under the terms of this Agreement for all purposes. For this purpose, "successor" means any person, firm, corporation or other business entity which at any time, whether by purchase, merger or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of Executive to receive any form of compensation payable pursuant to this Agreement may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance or other disposition of Executive's right to compensation or other benefits will be null and void.

15. Notices. All notices, requests, demands and other communications called for under this Agreement shall be in writing and shall be delivered via e-mail, personally by hand or by courier, mailed by United States first-class mail, postage prepaid, or sent by facsimile directed to the Party to be notified at the address or facsimile number indicated for such Party on the signature page to this Agreement, or at such other address or facsimile number as such Party may designate by ten (10) days' advance written notice to the other Parties hereto. All such notices and other communications shall be deemed given upon personal delivery, three (3) days after the date of mailing, or upon confirmation of facsimile transfer or e-mail. Notices sent via e-mail under this Section shall be sent to either the e-mail address in this Agreement, or for e-mails sent by the Company to Executive, to the last e-mail address on file with the Company.

16. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without said provision.

17. Integration. This Agreement, together with the 2020 Plan, applicable award agreements and the Confidential Information Agreement represents the entire agreement and understanding between the parties as to the subject matter herein and supersedes all prior or contemporaneous agreements whether written or oral. No waiver, alteration, or modification of any of the provisions of this Agreement will be binding unless in writing and signed by duly authorized representatives of the parties hereto.

18. Tax Withholding. All payments made pursuant to this Agreement will be subject to withholding of applicable taxes.

19. Waiver. No Party shall be deemed to have waived any right, power or privilege under this Agreement or any provisions hereof unless such waiver shall have been duly executed in writing and acknowledged by the Party to be charged with such waiver. The failure of any Party at any time to insist on performance of any of the provisions of this Agreement shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of this Agreement or any part hereof. No waiver of any breach of this Agreement shall be held to be a waiver of any other subsequent breach

20. Governing Law. This Agreement will be governed by the laws of the State of Massachusetts (with the exception of its conflict of laws provisions).

21. Acknowledgment. Executive acknowledges that Executive has had the opportunity to discuss this matter with and obtain advice from Executive's legal counsel, has had sufficient time to, and has carefully read and fully understands all the provisions of this Agreement, and is knowingly and voluntarily entering into this Agreement.

22. Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed to be an original, and all such counterparts shall constitute but one instrument.

23. Effect of Headings. The section and subsection headings contained herein are for convenience only and shall not affect the construction hereof.

24. Construction of Agreement. This Agreement has been negotiated by the respective Parties, and the language shall not be construed for or against either Party.

25. Section 409A.

(a) Notwithstanding anything to the contrary in this Agreement, no severance pay or benefits to be paid or provided to Executive, if any, pursuant to this Agreement, when considered together with any other severance payments or separation benefits that are considered deferred compensation under Section 409A ("Section 409A") of the Internal Revenue Code of 1986, as amended and the regulations and other guidance thereunder or any state law of similar effect (together, the "Deferred Compensation Separation Benefits") will be paid or otherwise provided until Executive has a "separation from service" within the meaning of Section 409A.

(b) Notwithstanding anything to the contrary in this Agreement, if Executive is a "specified employee" within the meaning of Section 409A at the time of Executive's termination (other than due to death), then the Deferred Compensation Separation Benefits that are payable within the first six (6) months following Executive's separation from service, will become payable on the first payroll date that occurs on or after the date six (6) months and one (1) day following the date of Executive's separation from service. All subsequent Deferred Compensation Separation Benefits, if any, will be payable in accordance with the payment schedule applicable to each payment or benefit. Notwithstanding anything herein to the contrary, if Executive dies following Executive's separation from service, but prior to the six (6) month anniversary of the separation from service, then any payments delayed in accordance with this paragraph will be payable in a lump sum as soon as administratively practicable after the date of Executive's death and all other Deferred Compensation Separation Benefits will be payable in accordance with the payment schedule applicable to each payment or benefit. Each payment and benefit payable under this Agreement is intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the Treasury Regulations.

(c) Any amount paid under this Agreement that satisfies the requirements of the "short-term deferral" rule set forth in Section 1.409A-1(b)(4) of the Treasury Regulations will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above.

(d) Any amount paid under this Agreement that qualifies as a payment made as a result of an involuntary separation from service pursuant to Section 1.409A-1(b)(9)(iii) of the Treasury Regulations that does not exceed the Section 409A Limit will not constitute Deferred Compensation Separation Benefits for purposes of clause (a) above. For purposes of this Agreement, "Section 409A Limit" will mean the lesser of two (2) times: (i) Executive's annualized compensation based upon the annual rate of pay paid to Executive during the Executive's taxable year preceding Executive's taxable year of Executive's termination of employment as determined under Treasury Regulation Section 1.409A-1(b)(9)(iii)(A)(1) and any Internal Revenue Service guidance issued with respect thereto; or (ii) the maximum amount that may be taken into account under a qualified plan pursuant to Section 401(a)(17) of the Code for the year in which Executive's employment is terminated.

(e) The foregoing provisions are intended to be exempt from or comply with the requirements of Section 409A so that none of the severance payments and benefits to be provided hereunder will be subject to the additional tax imposed under Section 409A, and any ambiguities herein will be interpreted to so comply. The Company and Executive agree to work together in good faith to consider amendments to this Agreement and to take such reasonable actions which are necessary, appropriate or desirable to avoid imposition of any additional tax or income recognition prior to actual payment to Executive under Section 409A.

[*Remainder of page is intentionally blank; Signature page follows*]

IN WITNESS WHEREOF, each of the Parties has executed this Agreement as of the day and year first above written.

"COMPANY"

KEROS THERAPEUTICS, INC.

By: /s/ Jasbir Seehra

Address:
99 Hayden Avenue
Lexington, MA 02421
Attn:
Fax Number:
Email:

"EXECUTIVE"

KEITH REGNANTE

/s/ Keith Regnante
Executive Name

Address:

Fax Number:
Email:

Enclosures
Duplicate Executive Employment Agreement
Employee Confidential Information and Inventions Assignment Agreement

Exhibit A

Grant Date	Type of Award	Number of Shares subject to Award(1)	Exercise Price(1)
(2)	ISO	133,622	(3)

(1) Share numbers and exercise prices adjusted to give effect to the Company's one-for-2.1703 reverse stock split.

(2) Pursuant to the terms of the Offer Letter, Mr. Regnante was eligible to receive this option, subject to the approval of the Board, in connection with the commencement of his employment with the Company. The option was approved by the Board in March 2020 and will be granted contingent and effective upon the execution of the underwriting agreement for the Company's initial public offering (the "IPO Effective Time"), provided that the IPO Effective Time occurs prior to December 31, 2020 and that Mr. Regnante remains in Continuous Service (as defined in the 2020 Plan) as of such date.

(3) The Exercise Price per share will be the initial price per share that the Company's common stock is first sold to the public in connection with its initial public offering at the IPO Effective Time.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the use in this Amendment No. 1 to Registration Statement on Form S-1 (No. 333-237212) of our report dated February 26, 2020 (April 1, 2020, as to the subsequent events described in Note 15), relating to the consolidated financial statements of Keros Therapeutics, Inc. and its subsidiary. We also consent to the reference to us under the heading “Experts” in such Registration Statement.

/s/ Deloitte & Touche LLP

Boston, Massachusetts
April 1, 2020