As confidentially submitted to the Securities and Exchange Commission on January 21, 2020.
This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains strictly confidential.

Registration Statement No. 333-

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

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)

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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)
Common Stock, $0.0001 par value per share	$	$

(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 offering price of additional shares that the underwriters have the 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.

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.

EXPLANATORY NOTE

Pursuant to the applicable provisions of the Fixing America's Surface Transportation Act, we are omitting our consolidated financial statements as of and for the year ended December 31, 2017 and the nine months ended September 30, 2019 and 2018. While this financial information is otherwise required by Regulation S-X, we reasonably believe that it will not be required to be included in the prospectus at the time of the contemplated offering. We intend to amend this registration statement to include all financial information required by Regulation S-X at the date of such amendment before distributing a preliminary prospectus to investors.

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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 , 2020

PRELIMINARY PROSPECTUS

Shares

Common Stock

We are offering 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 $ and $ per share. We intend to apply 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 11 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 158 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 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. 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 . We also plan to commence a Phase 2 clinical trial evaluating KER-050 for the treatment of patients with myelofibrosis-associated cytopenias in .

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 report data from this trial in . We expect to commence a Phase 2 clinical trial in patients with IRIDA in and a Phase 2 clinical trial in patients with FOP in .

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.

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.

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.

- 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, Seres Therapeutics, Inc., Vertex Pharmaceuticals Incorporated and Akcea Therapeutics, Inc.

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 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.

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	shares.
Common stock to be outstanding immediately after this offering	shares (or 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 shares from us.
Use of proceeds	We estimate that we will receive net proceeds of approximately $ million (or approximately $ million if the underwriters exercise in full their option to purchase additional shares), based on an assumed initial public offering price of $ 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, and 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 one in patients with FOP. We intend to use the remainder of the net proceeds to fund other research and development activities, 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 19,575,235 shares of our common stock (which includes 75,000 shares of restricted common stock subject to repurchase) outstanding as of December 31, 2019 and excludes:

- 2,526,538 shares of our common stock issuable upon the exercise of options outstanding as of December 31, 2019, at a weighted-average exercise price of $0.16 per share;
- 138,806 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;
- shares of our common stock reserved for future issuance pursuant to our 2020 Equity Incentive Plan, or 2020 Plan, 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

- 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- reverse stock split of our common stock to be effected prior to the closing of this offering;
- the automatic conversion of all of our outstanding shares of convertible preferred stock into an aggregate of 14,227,004 shares of our common stock upon the closing of this offering;
- 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 the registration statement of which this prospectus forms a part is declared effective, it will include consolidated financial statements as of and for the years ended December 31, 2018 and 2019. Pursuant to the applicable provisions of the Fixing America's Surface Transportation Act, we are omitting our consolidated financial statements as of and for the year ended December 31, 2017 and nine months ended September 30, 2019 and 2018. While this financial information is otherwise required by Regulation S-X, we reasonably believe that it will not be required to be included in the prospectus at the time of the contemplated offering. We intend to amend this registration statement to include all financial information required by Regulation S-X at the date of such amendment before distributing a preliminary prospectus to investors.

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	$
Total revenue	10,000	
Operating expenses:		
Research and development	(10,111)	
General and administrative	(1,580)	
Total operating expenses	(11,691)	
Loss from operations	(1,691)	
Other income, net:		
Interest income, net	6	
Research and development incentive income	370	
Other income, net	237	
Total other income, net	613	
Loss before income taxes	(1,078)	
Income tax provision	(257)	
Net loss	$ (1,335)	$
Net loss attributable to common stockholders—basic and diluted	$ (2,346)	$
Net loss per share attributable to common stockholders—basic and diluted	$ (0.50)	$
Weighted average common stock outstanding—basic and diluted	4,719,371	

	YEAR ENDED DECEMBER 31,	
	2018	2019
	(in thousands, expect share and per-share data)	
Pro forma net loss per share attributable to common stockholders—basic and diluted(1)		$
Pro forma weighted average common stock outstanding—basic and diluted(1)		

(1) See Note 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 give effect to the automatic conversion of all then outstanding shares of convertible preferred stock into an aggregate of 14,227,004 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 shares of our common stock in this offering at an assumed initial public offering price of $ 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	$	$	$
Working capital(1)			
Total assets			
Total liabilities			
Convertible preferred stock			
Total stockholders' (deficit) equity			

(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 $ 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 $ 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 $ 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 $ million, respectively. As of December 31, 2019, we had an accumulated deficit of $ 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, and any future product candidates.

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 , and myelofibrosis in ;
- complete our Phase 1 clinical trial of KER-047 in healthy volunteers;
- 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 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 through at least . 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 or our 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;
- 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. 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 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, and both KER-050 and KER-047 are still in early-stage clinical trials. 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 and any future product candidates we develop, which may never occur. KER-050, KER-047 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 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 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 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, or natural disasters including earthquakes, typhoons, floods and fires.

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 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 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 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 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. 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.

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, 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, 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 and KER-047, 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. 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 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 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.

Inadequate funding for the FDA, the SEC and other government agencies could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner 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, and statutory, regulatory and policy changes. 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. If a prolonged government shutdown occurs, 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 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 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 FDCA, 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 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 and KER-047. 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.

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. 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 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 our KER-050, KER-047 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 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 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 AUD$ during 2020 for research expenditures made during 2018. 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. In addition, we may conduct certain future clinical trials outside of the United States. 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 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.

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." Notwithstanding the reduction in the corporate income tax rate, the overall impact of the Tax 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. The impact of the Tax 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 $ million of U.S. federal and $ million of state net operating loss, or NOL, carryforwards. Under the Tax Act, federal NOLs incurred in tax years ending after December 31, 2017, may be carried forward indefinitely, but the deductibility of federal NOLs generated in tax years beginning after December 31, 2017, is limited.

Our NOL carryforwards are subject to review and possible adjustment by the U.S. and state tax authorities. 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 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 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.

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 $ 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 $ 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 % of the total amount invested by stockholders since inception but will only own % 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 one in patients with FOP, and the remainder to fund other research and development activities, 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 19,575,235 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 14,227,004 shares of our common stock upon the closing of this offering and the sale of 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 % 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 shares in this offering, upon the completion of this offering, we will have outstanding a total of shares of common stock, assuming no exercise of the underwriters' option to purchase an additional shares. Of these shares, the 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 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, 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 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, the holders of 16,358,871 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.

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, this decision may be reviewed and 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 completion of our ongoing Phase 1 clinical trial and the timing of initiation for future clinical trials for our lead product candidates, KER-050 and KER-047;
- 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 and other foreign countries;
- 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 $ million, or approximately $ 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 $ 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 $ 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 $ 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 $ 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 $ 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 $ 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 one in patients with FOP; and
- the remainder to fund other research and development activities, 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 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, giving effect to (1) the automatic conversion of all of our outstanding shares of preferred stock into an aggregate of 14,227,004 shares of our common stock upon the closing of this offering and (2) 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 shares of common stock in this offering at an assumed initial public offering price of $ 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	$	$	$
Convertible preferred stock:			
Series A preferred stock, $0.0001 par value per share; 10,000,000 shares authorized, 10,000,000 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$	$	$
Series A-1 preferred stock, $0.0001 par value per share; 800,000 shares authorized, 800,000 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted			
Series B-1 preferred stock, $0.0001 par value per share; 3,427,004 shares authorized, 3,427,004 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted			
Series B-2 preferred stock, $0.0001 par value per share; 3,062,891 shares authorized, 0 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, 19,575,235 shares issued and outstanding, actual; shares authorized, shares issued and outstanding, pro forma and shares issued and outstanding, pro forma as adjusted			
Preferred stock, $0.0001 par value per share; no shares authorized, issued or outstanding, actual; shares authorized, no shares issued or outstanding, pro forma and pro forma as adjusted			
Additional paid-in capital			
Accumulated deficit			
Total stockholders’ (deficit) equity			
Total capitalization	$	$	$

(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 $ 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 $ 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 $ 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 19,575,235 shares of our common stock (which includes 75,000 shares of restricted common stock subject to repurchase) outstanding as of December 31, 2019 and excludes:

- 2,526,538 shares of our common stock issuable upon the exercise of options outstanding as of December 31, 2019, at a weighted-average exercise price of $0.16 per share;
- 138,806 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;
- shares of our common stock reserved for future issuance pursuant to our 2020 Equity Incentive Plan, or 2020 Plan, 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
- 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 $ million, or $ 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 $ million, or $ 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 shares of restricted common stock subject to repurchase) outstanding as of December 31, 2019, after giving effect to the automatic conversion of all of our outstanding shares of convertible preferred stock into an aggregate of 14,227,004 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 shares of common stock in this offering at an assumed initial public offering price of $ 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 $ million, or $ per share of common stock. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution of $ 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		$
Historical net tangible book value per share as of December 31, 2019	$	
Increase per share attributable to the pro forma adjustments described above		
Pro forma net tangible book value per share as of December 31, 2019		
Increase in pro forma net tangible book value per share attributed to new investors purchasing shares from us in this offering		
Pro forma as adjusted net tangible book value per share after giving effect to this offering		
Dilution per share to new investors participating in this offering		$

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 $ 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 $ per share and the dilution per share to investors participating in this offering by $ 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 $ and decrease the dilution per share to investors participating in this offering by $,

assuming the assumed initial public offering price of $ 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 $ and increase the dilution per share to new investors participating in this offering by $, assuming the assumed initial public offering price of $ 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 shares of our common stock in this offering, the pro forma as adjusted net tangible book value would increase to $ per share, representing an immediate increase to existing stockholders of $ per share and the dilution per share to new investors participating in this offering would be $ per share, assuming the assumed initial public offering price of $ 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 $ 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		%	$	%	$
New investors					
Total		100.0%	$	100.0%	$

Each $1.00 increase or decrease in the assumed initial public offering price of $ 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 $ 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 $ million, assuming the assumed initial public offering price of $ 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 additional shares from us, the number of shares held by the existing stockholders after this offering would be reduced to % 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 % of the total number of shares of our common stock outstanding after this offering.

The tables and calculations above are based on 19,575,235 shares of our common stock outstanding (which includes 75,000 shares of restricted common stock subject to repurchase) as of December 31, 2019 and excludes:

- 2,526,538 shares of our common stock issuable upon the exercise of options outstanding as of December 31, 2019, at a weighted-average exercise price of $0.16 per share;

- 138,806 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;
- shares of our common stock reserved for future issuance pursuant to our 2020 Equity Incentive Plan, or 2020 Plan, 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
- 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. When the registration statement of which this prospectus forms a part is declared effective, it will include consolidated financial statements as of and for the years ended December 31, 2018 and 2019. Pursuant to the applicable provisions of the Fixing America's Surface Transportation Act, we are omitting our consolidated financial statements as of and for the year ended December 31, 2017 and nine months ended September 30, 2019 and 2018. While this financial information is otherwise required by Regulation S-X, we reasonably believe that it will not be required to be included in the prospectus at the time of the contemplated offering. We intend to amend this registration statement to include all financial information required by Regulation S-X at the date of such amendment before distributing a preliminary prospectus to investors. 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	$
Total revenue	10,000	
Operating expenses:		
Research and development	(10,111)	
General and administrative	(1,580)	
Total operating expenses	(11,691)	
Loss from operations	(1,691)	
Other income, net:		
Interest income, net	6	
Research and development incentive income	370	
Other income, net	237	
Total other income, net	613	
Loss before income taxes	(1,078)	
Income tax provision	(257)	
Net loss	$ (1,335)	$
Net loss attributable to common stockholders—basic and diluted	$ (2,346)	$
Net loss per share attributable to common stockholders—basic and diluted	$ (0.50)	$
Weighted average common stock outstanding—basic and diluted	4,719,371	
Pro forma net loss per share attributable to common stockholders—basic and diluted(1)		$
Pro forma weighted average common stock outstanding—basic and diluted(1)		

(1) See Note 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	$
Working capital(1)	14,062	
Total assets	27,412	
Total liabilities	14,654	
Convertible preferred stock	19,941	
Total stockholders' (deficit) equity	(7,183)	

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

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 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, a rare musculoskeletal order, and is currently in a Phase 1 clinical trial. 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 a net loss of $1.3 million for the year ended December 31, 2018. In addition, as of December 31, 2018, we had an accumulated deficit of $7.3 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 $ 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 through . 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 and reimbursed MGH approximately $0.3 million of prior patent prosecution expenses related to the licensed patents. We also issued MGH an aggregate of 778,432 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 relating 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, Net

Interest income, net primarily consists of interest earned on cash checking 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 and includes fluctuations in the fair value of our preferred stock tranche obligation 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 obligations based on the remeasurement at each reporting period are recorded in other income, net.

Results of Operations

The following table summarizes our results of operations for the year ended December 31, 2018:

	YEAR ENDED DECEMBER 31, 2018 (in thousands)
Revenue:	
Research collaboration revenue	$ 10,000
Total revenue	10,000
Operating expenses:	
Research and development	(10,111)
General and administrative	(1,580)
Total operating expenses	(11,691)
Loss from operations	(1,691)
Other income, net:	
Interest income, net	6
Research and development incentive income	370
Other income, net	237
Total other income, net	613
Loss before income taxes	(1,078)
Income tax provision	(257)
Net loss	$ (1,335)

Revenue

Our revenue for the year ended December 31, 2018 was $10.0 million, which constituted the portion of the $20.0 million payment received under the Novo Nordisk Agreement that was recognized in 2018 in line with the performance of our research and development services.

Research and Development Expenses

The following table summarizes our research and development expenses for the year ended December 31, 2018:

	YEAR ENDED DECEMBER 31, 2018 (in thousands)
Personnel expenses (including stock-based compensation)	$ 1,660
Preclinical and development expenses	6,646
Facilities and supplies	1,434
Professional fees	180
Other expenses	191
	$ 10,111

Research and development expenses for the year ended December 31, 2018 were $10.1 million. Our research and development expenses for the year included $6.6 million of preclinical and development expenses primarily related

to preclinical studies. We had $1.4 million of research and development expenses related to facilities and supplies, primarily due to purchases of product and lab supplies. Personnel expenses of $1.7 million included $30,000 of stock-based compensation expense. Other expenses included travel costs as well as depreciation expense.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the year ended December 31, 2018:

	YEAR ENDED DECEMBER 31, 2018 (in thousands)
Personnel expenses (including stock-based compensation)	$ 947
Facilities and supplies	300
Legal and professional fees	212
Other expenses	121
	$ 1,580

General and administrative expenses were $1.6 million for the year ended December 31, 2018. Our personnel expenses included $0.8 million of salaries and benefits, $0.1 million of bonuses and $51,000 of stock-based compensation expense. The remaining general and administrative expenses consisted of $0.3 million of facilities costs, $0.2 million stemming primarily from increased legal and professional fees related to our intellectual property, and $0.1 million related to travel costs and depreciation expense.

Research and Development Incentive Income

Income related to the R&D Incentive was $0.4 million for the year ended December 31, 2018.

Other Income, Net

Other income, net was $0.2 million for the year ended December 31, 2018, primarily related to dividend income from money market fund accounts as well as to the change in the fair value of the preferred stock tranche obligation between the date of the Series B-1 preferred stock issuance and December 31, 2018.

Liquidity and Capital Resources

As of December 31, 2018, we have raised $22.4 million from the sale of convertible preferred stock, which we have used to fund our operations. 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 in the aggregate, in 2018. As of December 31, 2019, we had cash and cash equivalents of $ million. In Note 1 to our consolidated financial statements, we disclose that there is substantial doubt about our ability to continue as a going concern. However, we expect that the net proceeds from this offering, together with our existing cash and cash equivalents, will allow us to fund our operating expenses and capital expenditure requirements through . 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 and KER-047;
- 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 year ended December 31, 2018:

	YEAR ENDED DECEMBER 31, 2018 (in thousands)
Net cash provided by operating activities	$ 7,042
Net cash used in investing activities	(217)
Net cash provided by financing activities	11,463
Net increase in cash and cash equivalents and restricted cash	$ 18,288

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. Of the $20.0 million received, $16.0 million was the upfront payment for the Novo Nordisk Agreement and $4.0 million is related to the collaboration payments due from Novo Nordisk for both 2018 and 2019, as all cash was received in 2018. This cash inflow was primarily offset by a decrease in $10.0 million of deferred revenue related to unearned revenue under the Novo Nordisk Agreement and a decrease in prepaid expenses and other assets of $2.2 million. The inflow was also offset by other changes in our operating assets and liabilities, including a $0.4 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.

Investing Activities

During the year ended December 31, 2018, we used $0.2 million of cash in investing activities for purchases of property and equipment.

Financing Activities

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

Contractual Obligations and Commitments

The following table summarizes our contractual obligations at December 31, 2018 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	$ 912	$ 218	$ 455	$ 239	$ —
Loan for leasehold improvements	227	32	130	65	—
Total	$ 1,139	$ 250	$ 585	$ 304	$ —

We have entered into an operating lease for rental space in Lexington, Massachusetts. The table above includes future lease payments under the non-cancelable lease arrangement. A portion of the 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 are due in monthly installments beginning 18 months after the commencement of the lease in 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 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. We are also obligated to pay a percentage of non-royalty related payments received by us 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.

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, revenue and expenses and the disclosure of contingent assets and liabilities in our consolidated 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 revenue has consisted solely of amounts earned 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; (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 milestone consideration is constrained until the cumulative revenue related to the consideration is no longer probable of reversal. Variable royalty consideration is constrained until the underlying sale occurs and the royalty is earned.

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 estimates used to measure 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 an appropriate 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. 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 values of the preferred stock tranche obligation, or the Preferred Stock Tranche Obligation, recognized in connection with our issuance of convertible preferred stock in April 2016, August 2016 and November 2018 were determined based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. The initial fair values of the obligations were estimated based on results of a 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 consolidated financial statements included elsewhere in this prospectus for additional information regarding our issuances of preferred stock.

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 sum of the Preferred Stock Tranche Obligation and 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 value of our Series B-2 preferred stock, discount rates, estimated time to liquidity and probability of tranche closing/milestone achievement. We remeasured each tranche obligation at each reporting period and prior to settlement.

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 valuation of our enterprise value determined by a 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*).

We 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, 2018, the exercise price per share of common stock of the options, the fair value per share of common stock on each grant date, and the estimated per share fair value of the options:

GRANT DATE	NUMBER OF SHARES OF COMMON STOCK SUBJECT TO OPTIONS GRANTED	EXERCISE PRICE PER SHARE OF COMMON STOCK (1)	FAIR VALUE PER SHARE OF COMMON STOCK AT GRANT DATE (1)	ESTIMATED PER SHARE FAIR VALUE OF OPTIONS (2)
March 26, 2018	1,282,683	$ 0.14	$ 0.14	$ 0.09
June 21, 2018	104,000	$ 0.14	$ 0.14	$ 0.09
September 17, 2018	110,000	$ 0.14	$ 0.14	$ 0.09
October 28, 2018	50,000	$ 0.14	$ 0.14	$ 0.09

(1) The exercise price per share of common stock 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.

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, 2018, we had cash and cash equivalents of $23.3 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 a 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, 2018, 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.

Recent Accounting Pronouncements

See the section titled “Summary of Significant Accounting Policies—Recently Adopted Accounting Pronouncements” in Note 2 to our consolidated financial statements included elsewhere in this prospectus for additional details.

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. However, as of the date of this prospectus, we have adopted all recently issued 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. 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 . We also plan to commence a Phase 2 clinical trial evaluating KER-050 for the treatment of patients with myelofibrosis-associated cytopenias in .

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 report data from this trial in . We expect to commence a Phase 2 clinical trial in patients with IRIDA in and a Phase 2 clinical trial in patients with FOP in .

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, 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.

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 . We also plan to commence a Phase 2 clinical trial evaluating the treatment of patients with myelofibrosis-associated cytopenias in .
- *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 report data from this trial in . We expect to commence a Phase 2 clinical trial in patients with IRIDA and a Phase 2 clinical trial in patients with FOP in . 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.
- *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

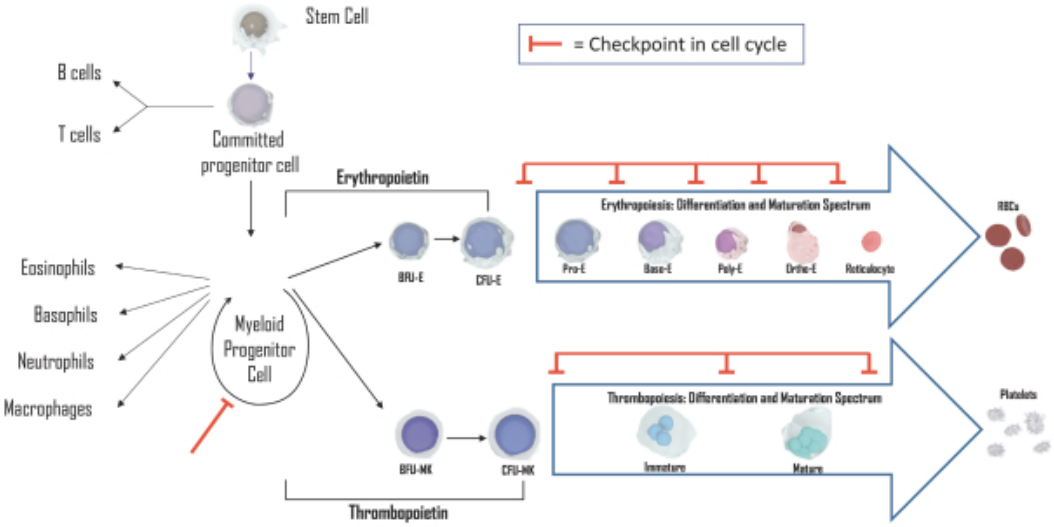
Our two lead product candidates, KER-050 and KER-047, are designed to target TGF-ß signaling pathways to address diseases that arise from ineffective hematopoiesis as well as anemias that result from elevated levels of hepcidin.

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.

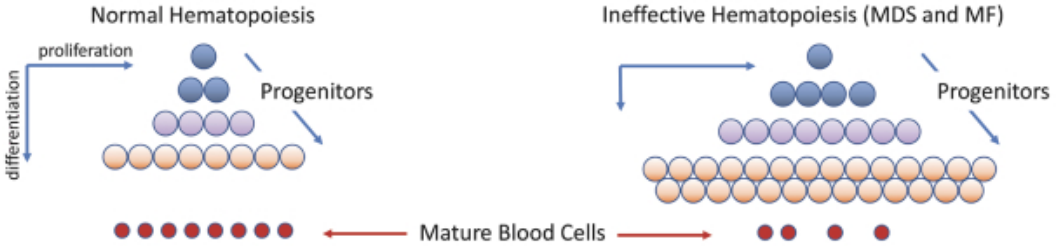
Hematopoiesis is the production of red blood cells, white blood cells and platelets from common progenitor stem cells, or progenitor cells. This process begins when a hematopoietic progenitor cell becomes committed to a specific cellular lineage. These cells progress through a series of intermediate 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.

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 and a median age at diagnosis of 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.

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.

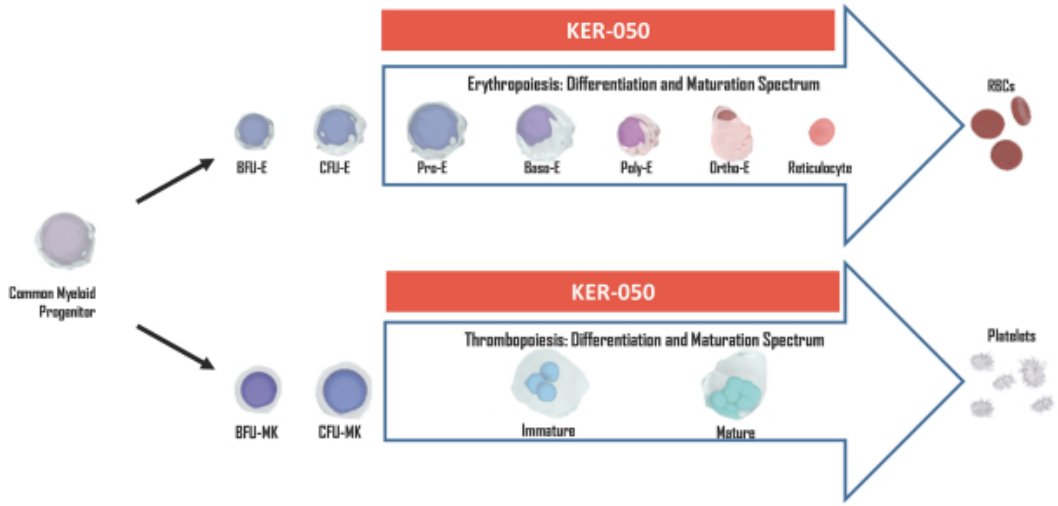
Currently approved products for the treatment of myelofibrosis, including JAK inhibitors ruxolitinib (Jakafi) and fedratinib (Inrebic), have been observed to exacerbate myelofibrosis-associated cytopenias. In a Phase 3 clinical trial of Jakafi and a Phase 3 clinical trial of Inrebic, treatment led to 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. 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 and inhibit 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:

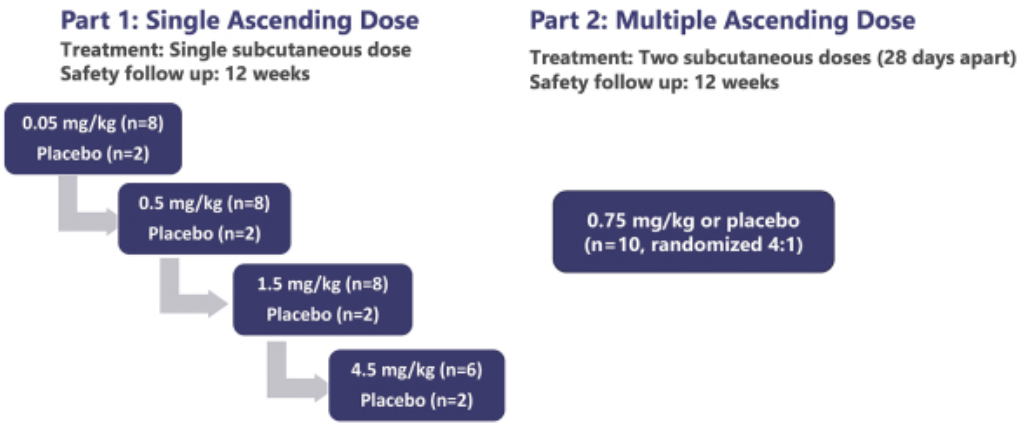
- *Dual mechanism affecting both the early and terminal stages of erythropoiesis.* Patients with MDS can have defects occurring anywhere along the differentiation and maturation spectrum of erythropoiesis, and often have multiple mutations that cause ineffective erythropoiesis. By acting on cell types 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, ten subjects received either KER-050 or placebo, randomized on a four-to-one basis, 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 Part 1 of this Phase 1 clinical trial at dose levels up to 4.5 mg/kg, the highest dose level tested. 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 headache, upper respiratory tract infection, nausea and, consistent with the mechanism of action of KER-050, increased hemoglobin and hypertension.

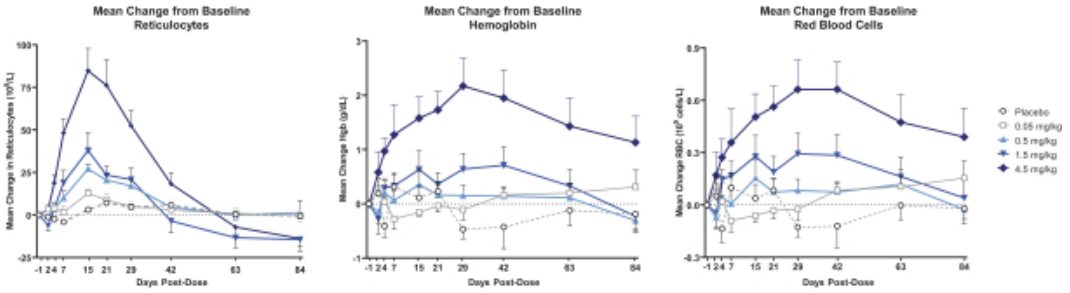
Long half-life observed, potentially supporting monthly or less frequent dosing

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 pharmaocodynamic effect observed in the hematologic

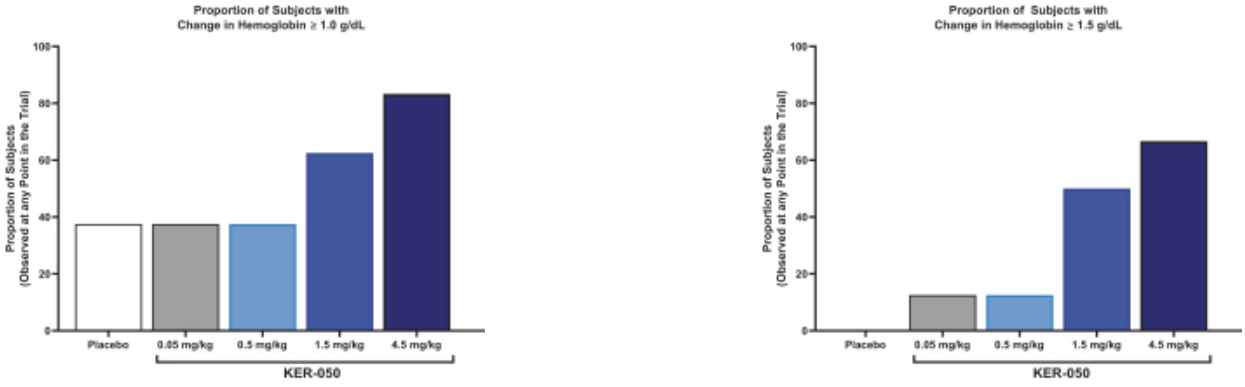
parameters support the potential for administration of monthly or less frequent dosing, which we believe will decrease the burden on patients and improve compliance.

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

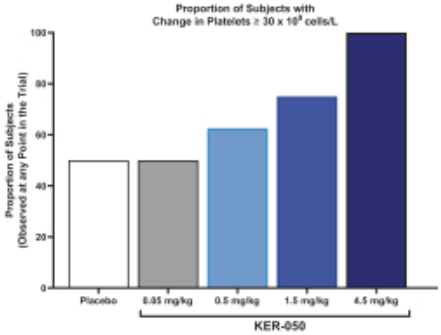
In Part 1 of this trial, we observed rapid and sustained increases in mean reticulocyte counts, hemoglobin, red blood cell counts and platelet counts. Consistent with the underlying biology, increases in reticulocytes were observed early with increases of hemoglobin following thereafter. Increases in 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 . We also expect to commence an open-label Phase 2 clinical trial evaluating the treatment of patients with myelofibrosis-associated cytopenias in .

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.

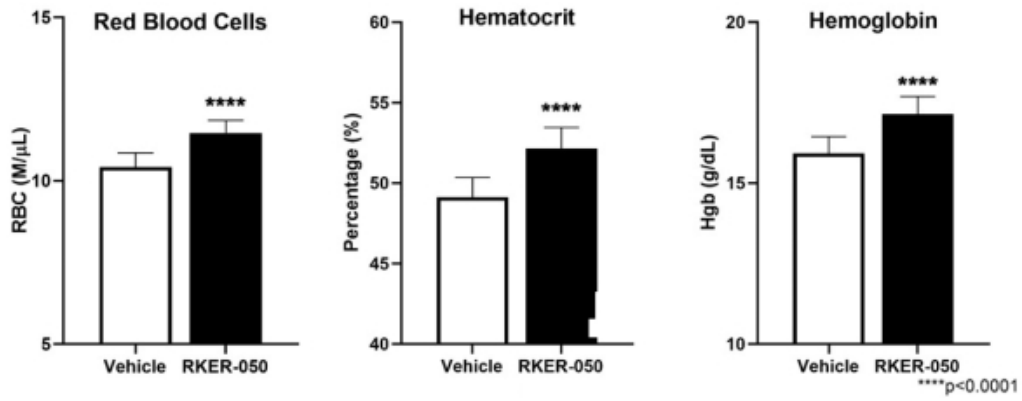
KER-050 observed to target ligands that signal through ActRIIA and ActRIIB

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.

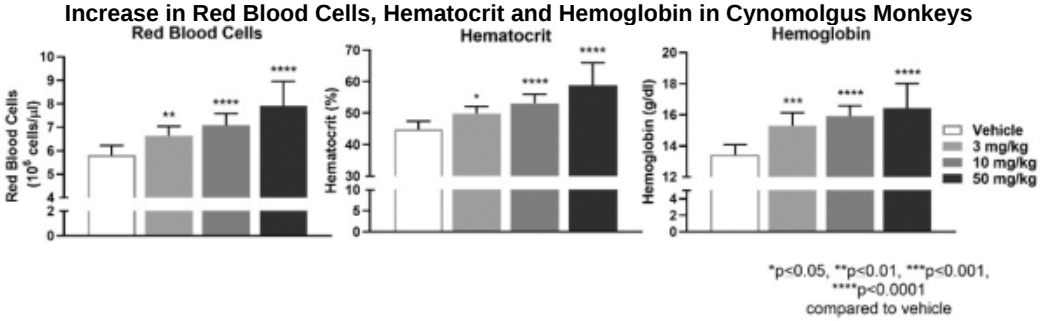
Increase in Red Blood Cells, Hematocrit and Hemoglobin in Mice



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.

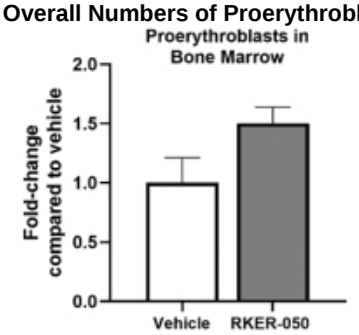
Increase in Red Blood Cells, Hematocrit and Hemoglobin in Cynomolgus Monkeys



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.

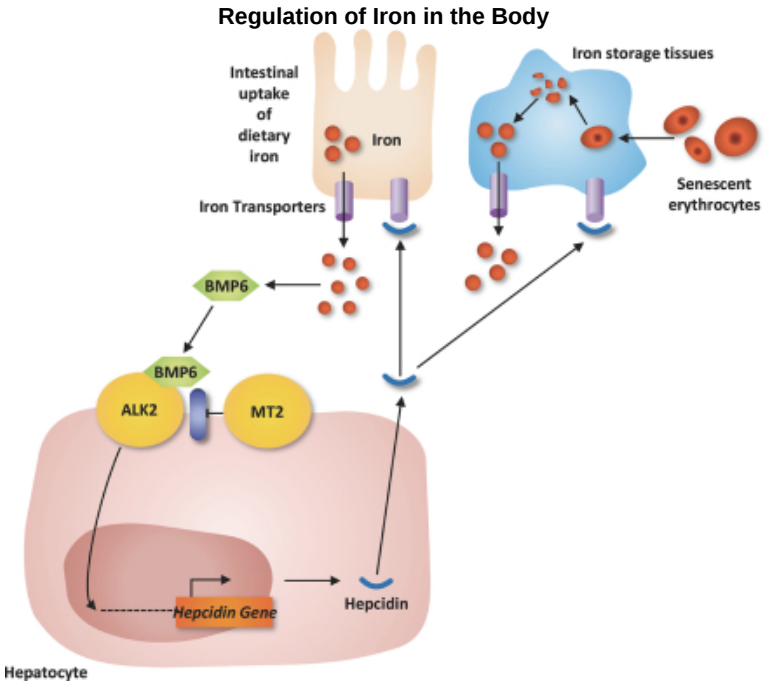
KER-047: For the Treatment of Anemia Arising from High Hepcidin Levels

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.

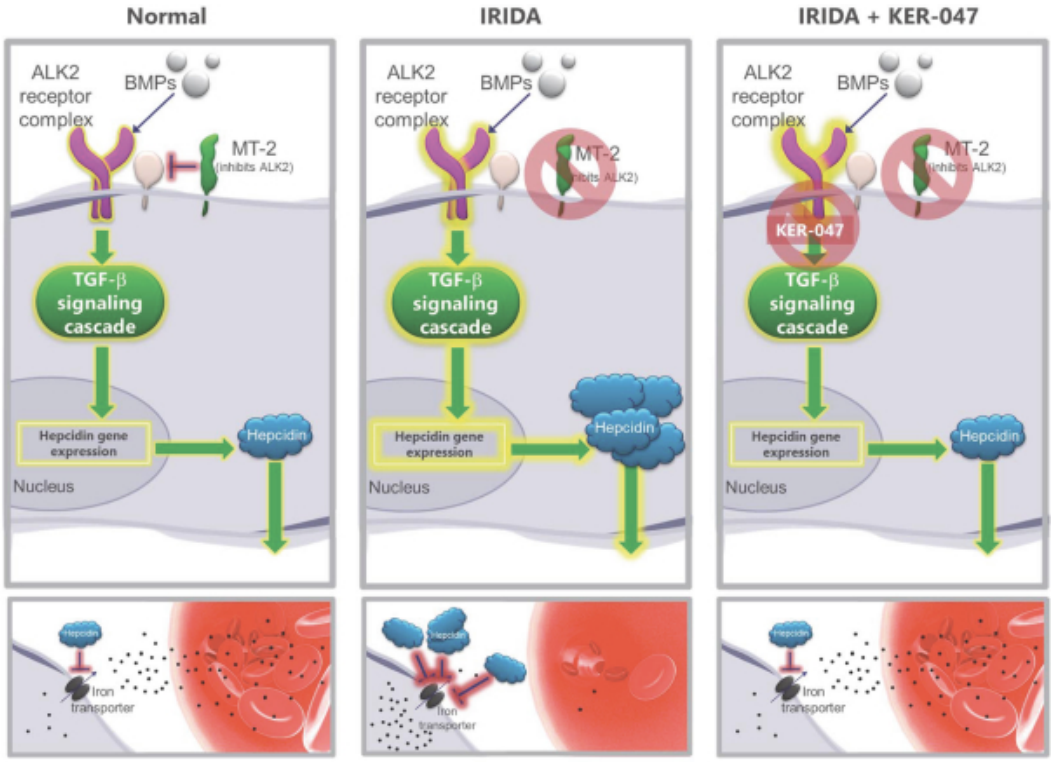
Limitations of Current Treatment Options for Anemia Arising from High Hepcidin Levels, including IRIDA

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



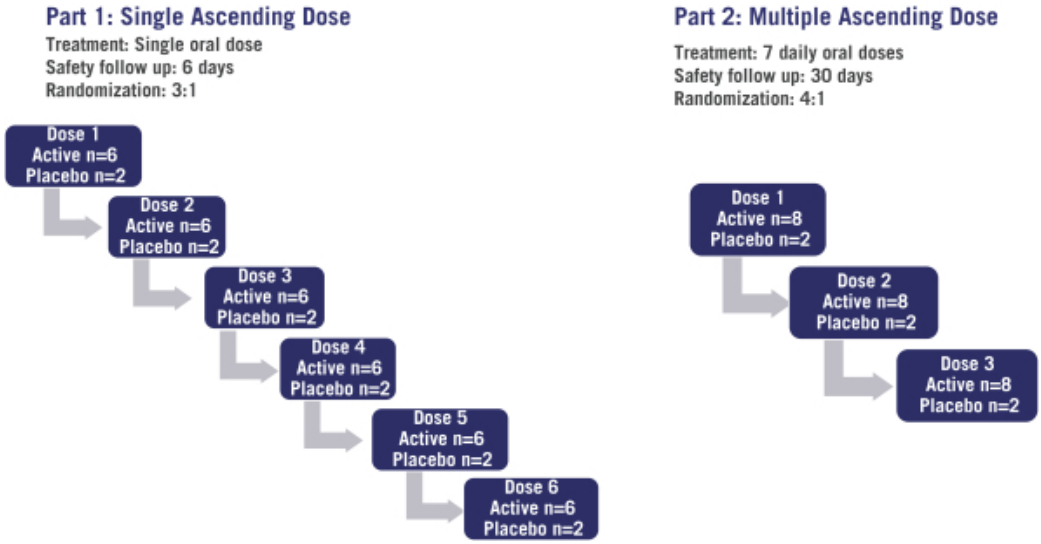
We believe that KER-047 has the potential to address the underlying cause of anemia arising from high hepcidin levels by suppressing ALK2 signaling to normalize hepcidin expression, thereby correcting serum iron levels and restoring the production of functional red blood cells. By ameliorating anemia 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 report data from this trial in , and to commence a Phase 2 clinical trial in patients with IRIDA in .

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 report data from this trial in , and to commence a Phase 2 clinical trial in patients with IRIDA in . The data from this Phase 2 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

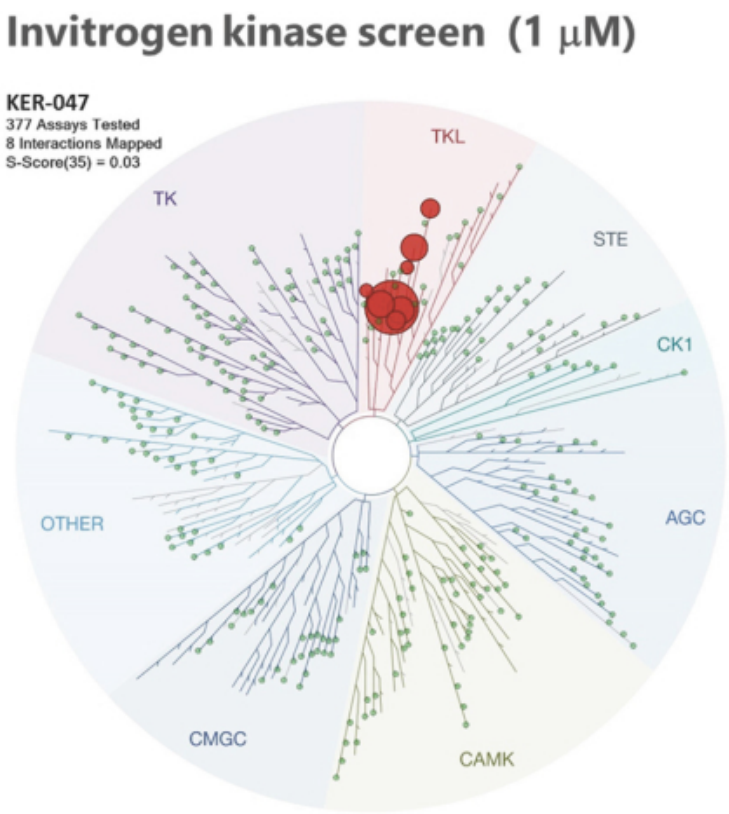
KER-047 was observed in preclinical studies to be a potent and highly selective ALK2 inhibitor and to change serum iron levels. Specifically, KER-047 demonstrated in these studies:

- 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.

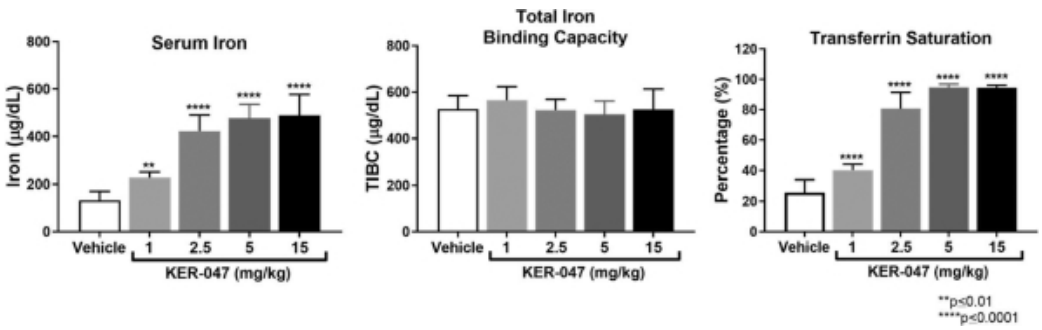
KER-047 inhibition of ALK2 signaling resulted in increased serum iron and transferrin saturation in multiple animal models

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.

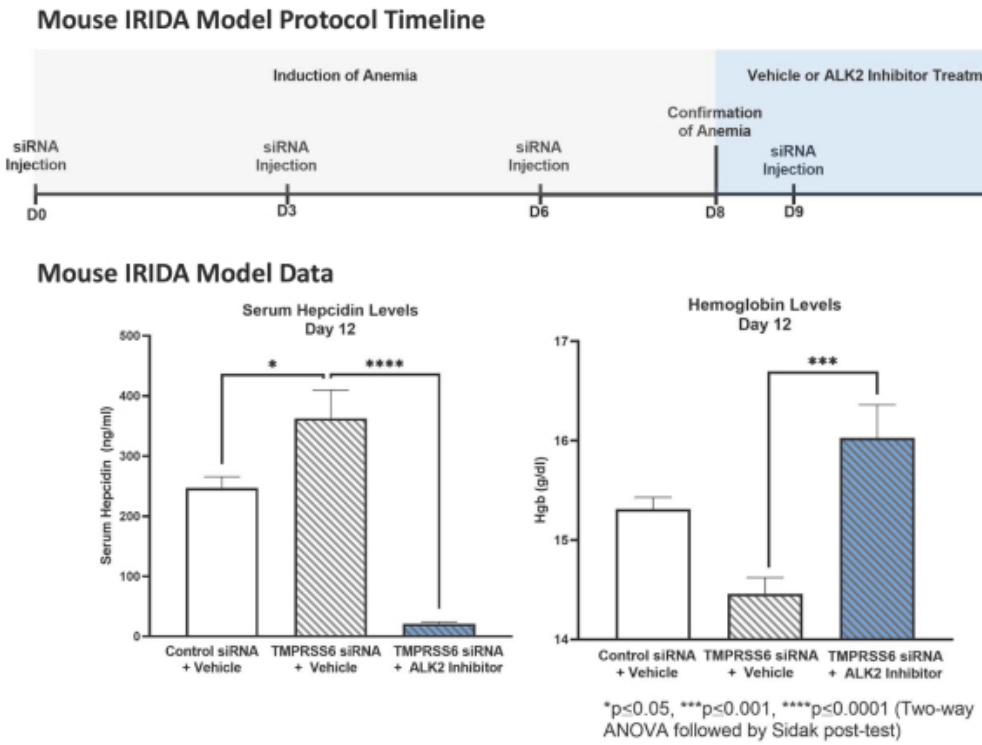
Increased Serum Iron, Total Iron Binding Capacity and Transferrin Saturation in Rats



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.

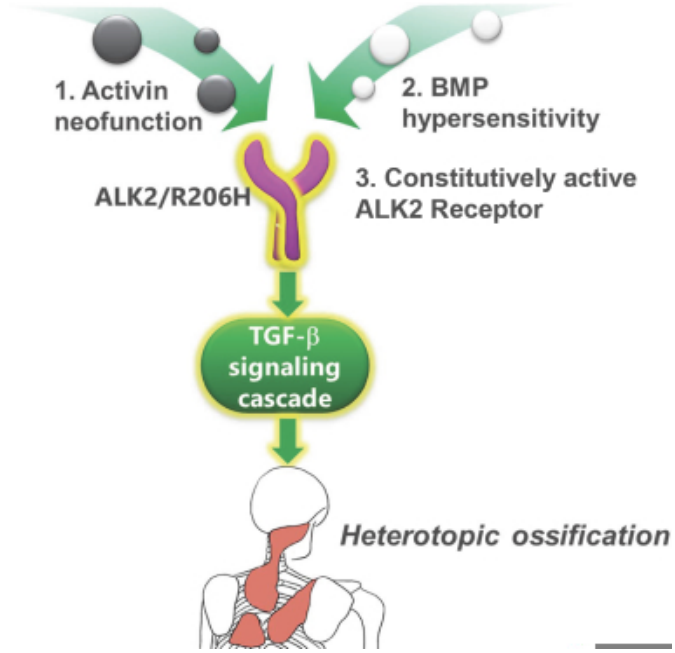
Our Fibrodysplasia Ossificans Progressiva Program

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.

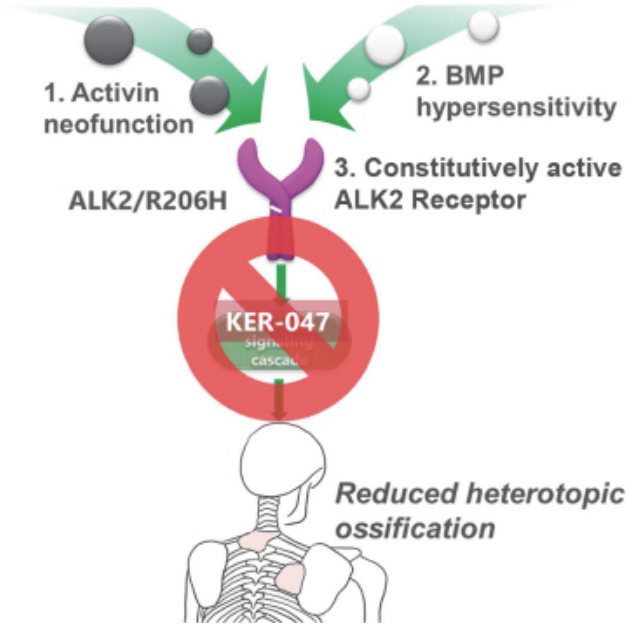
Limitations of Current Treatment Options for FOP

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 .

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.

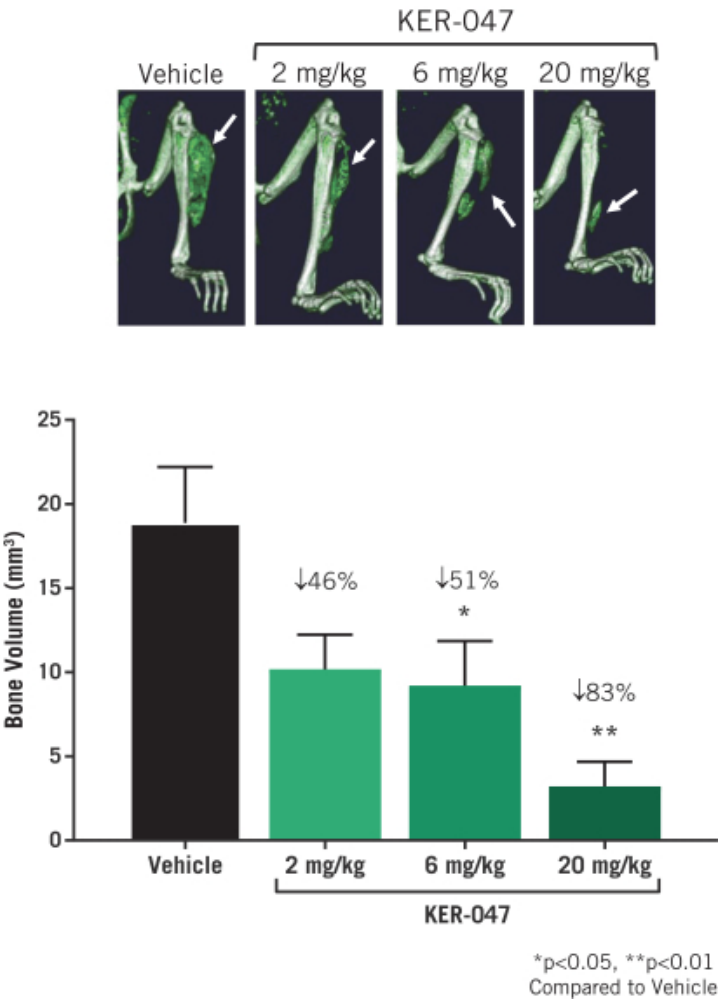
KER-047 inhibited ALK2 signaling and was associated with reduced bone formation in a mouse model of heterotopic ossification

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

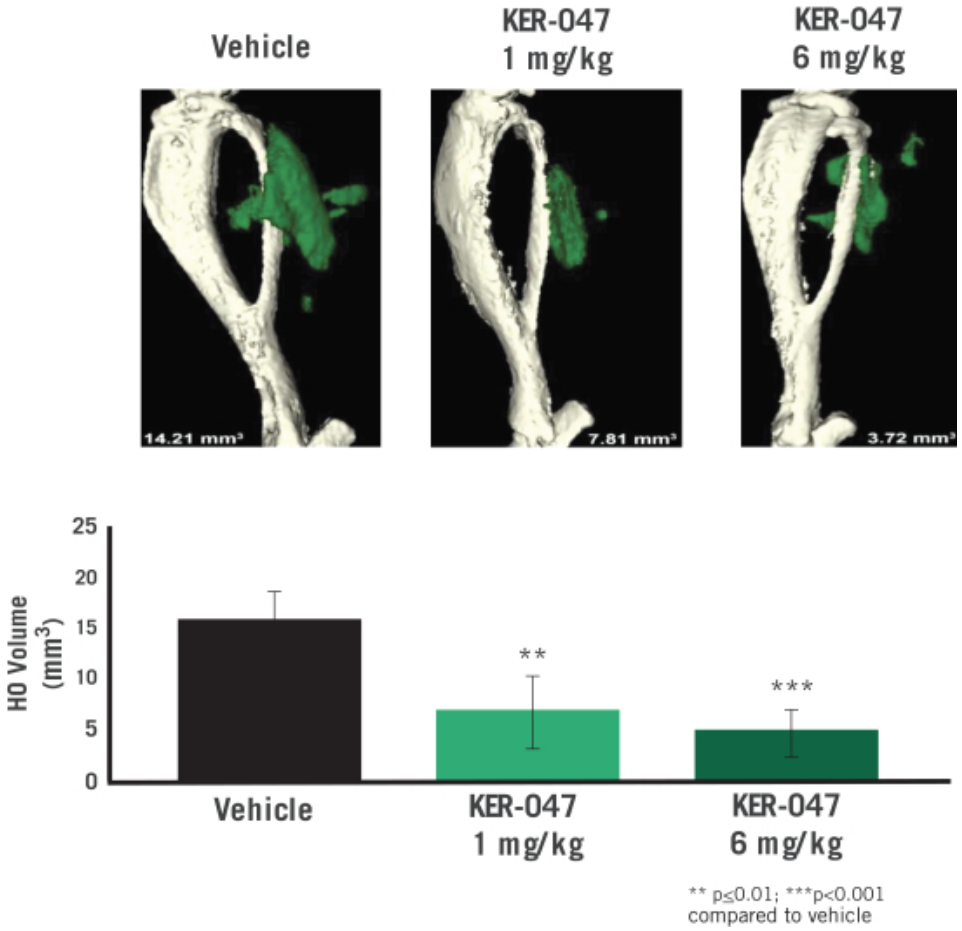


In an R206H mouse model of FOP, KER-047 was associated with a dose-dependent reduction in heterotopic ossification. In our preclinical study, mice were treated with either vehicle or doses of 1 mg/kg or 6 mg/kg of

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

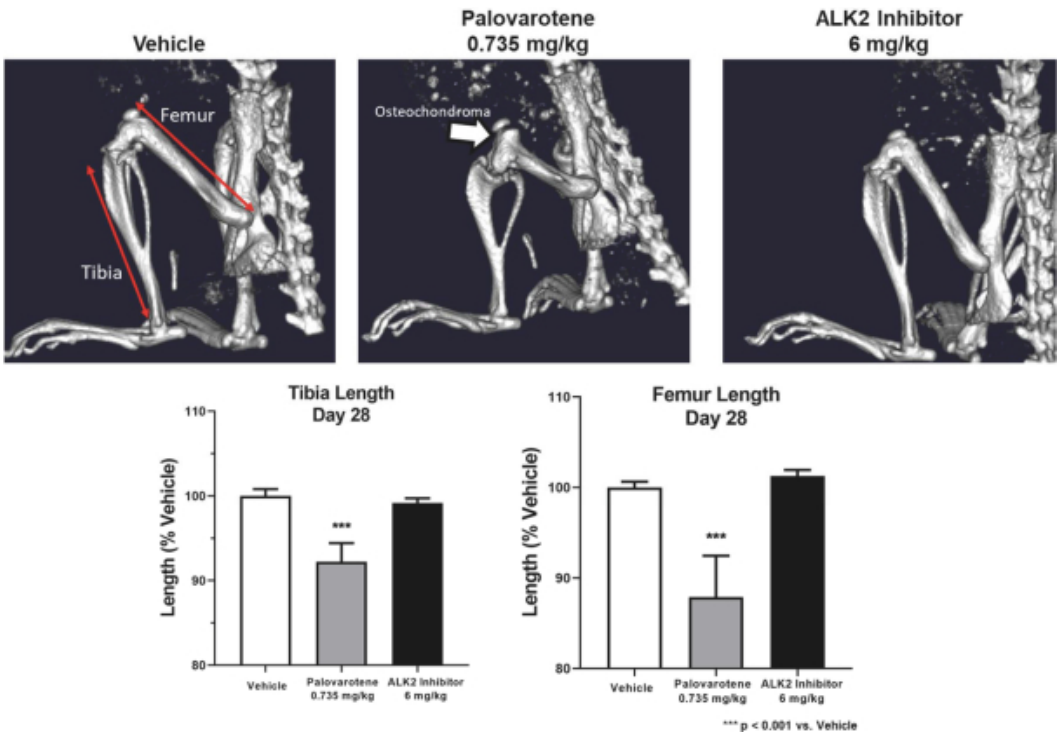


Treatment with a selective ALK2 inhibitor did not affect skeletal development in young mice

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 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 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 778,432 shares of our common stock. Additionally, we are required to pay a low 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, 24 patent applications relate to KER-050 and KER-047, and eight issued patents and ten 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 ActRII 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.

Other

We plan to seek United States and international patent protection for a variety of additional technologies. We own three pending U.S. patent applications and seven pending ex-U.S. applications that contain claims or supporting disclosure directed to ActRIIB ligand traps, 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, or FDCA, and the Public Health Service Act, or PHSA, 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.

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 trials for KER-047 and KER-050 are being 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 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 December 31, 2019:

NAME	AGE	POSITION(S)
Executive Officers		
Jasbir Seehra, Ph.D.	64	Chief Executive Officer and Director
Jennifer Lachey, Ph.D.	47	Chief Scientific Officer
Claudia Ordonez, M.D.	54	Chief Medical Officer
Non-Employee Directors		
Zafrira Avnur, Ph.D.	69	Director
Tomer Kariv	58	Director
Julius Knowles	56	Director
Alon Lazarus, Ph.D.	44	Director
Ran Nussbaum	46	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 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.

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 an M.D. in Medicine and received fellowship training at University of California, San Francisco.

Non-Employee Directors

Zafrira Avnur, Ph.D., has served as a member of our board of directors since November 2018. Dr. Avnur has served as the Chief Scientific Officer of Quark Venture Inc., a venture investment fund focused on life sciences

investments, since October 2016. From January 2009 to October 2016, Dr. Avnur served as the Global Head of Academic Innovation, Roche Partnering. Dr. Avnur currently serves as a director for Eloxx Pharmaceuticals, Inc. Dr. Avnur received a Ph.D. in Biology from the Weizmann Institute of Science in Israel. Our board of directors believes that Dr. Avnur's experience in life sciences venture capital provides her with the qualifications 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 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 and , 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 and , 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 and , 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 , representing of our 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 directors, , and . 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. will serve as the chairman of the audit committee and our board of directors has determined that 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 directors, , and , 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. 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 directors, , and . 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. 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, we intend to adopt 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.

We expect that our board of directors will adopt a director compensation policy for non-employee directors to be effective upon the completion of this offering.

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.

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 ($)	2020 BASE SALARY ($)
Jasbir Seehra, Ph.D.(1) *Chief Executive Officer and Director*	485,100	
Jennifer Lachey, Ph.D.(2) *Chief Scientific Officer*	310,000	
Claudia Ordonez, M.D(3) *Chief Medical Officer*	365,000	

(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.

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 105,000 shares to Dr. Lachey. The shares subject to the option have an exercise price per share of $0.22 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 106,535 shares to Dr. Seehra and 80,000 shares to Dr. Lachey. The shares subject to each of the options have an exercise price of $0.22 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 224,000 shares to Dr. Ordonez. The shares subject to each of the options have an exercise

price of $0.22 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.

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	7,500	7,500	0.05	4/2/2027
	3/26/2018(3)	12/18/2017	655,022	—	0.14	3/25/2028
	3/26/2018(2)	12/18/2017	60,000	30,000	0.14	3/25/2028
	6/19/2019(4)	12/1/2018	26,633	79,902	0.22	6/18/2029
Jennifer Lachey, Ph.D.	2/6/2017(4)	7/1/2016	65,625	28,125	0.05	2/5/2027
	4/3/2017(2)	1/1/2017	12,000	1,500	0.05	4/2/2027
	3/26/2018(3)	12/18/2017	327,511	—	0.14	3/25/2028
	3/26/2018(2)	12/18/2017	12,000	6,000	0.14	3/25/2028
	6/12/2019(4)	5/13/2019	—	105,000	0.22	6/11/2029
	6/19/2019(4)	12/1/2018	20,000	60,000	0.22	6/18/2029
Claudia Ordonez, M.D.	9/19/2019(4)	9/16/2019	—	224,000	0.22	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 75,000 shares. We did not make any material modifications to options held by our named executive officers in 2019.

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 governs the current terms of his employment with us. Pursuant to the agreement, Dr. Seehra was entitled to an initial annual base salary of $410,000 (most recently increased to $485,100 effective January 2019). 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. Dr. Seehra's employment is at will.

Jennifer Lachey, Ph.D. We entered into an offer letter agreement with Dr. Lachey in April 2016, which governs the current terms of her employment with us. Pursuant to the agreement, Dr. Lachey was entitled to an initial annual base salary of $230,000 (most recently increased to $310,000 in June 2019 in connection with Dr. Lachey's promotion to Chief Scientific Officer) and was eligible to receive a stock option to purchase up to 150,000 shares of our common stock, which was granted to Dr. Lachey in February 2017. 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. Dr. Lachey's employment is at will.

Claudia Ordonez, M.D. We entered into an offer letter agreement with Dr. Ordonez in August 2019, which governs the current terms of her employment with us. Pursuant to the 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 224,000 shares of our common stock, which was granted to Dr. Ordonez in September 2019. 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-solicitation covenant for a period of 12 months following her termination of employment. Dr. Ordonez's employment is at will.

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 is entitled to receive amounts earned during his or her term of service, including unpaid salary and unused vacation. Our named executive officers are not currently entitled to any severance or change in control payments under existing agreements. Each of our named executive officers' stock options 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

We expect that, prior to the effectiveness of the registration statement for this offering, our board of directors will adopt and our stockholders will approve our 2020 Equity Incentive Plan, or 2020 Plan. The 2020 Plan will become effective immediately upon 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." No awards have been granted and 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) shares of our common stock, (ii) the number of shares remaining available for issuance under our 2017 Plan when the 2020 Plan becomes effective and (iii) 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, repurchased 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 % 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 .

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 has delegated 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 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 option or stock award, cancel and re-grant any outstanding option or 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.

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 during a single calendar year to any of our non-employee directors, taken together with any cash fees paid by us to such non-employee director during the calendar year for serving on our board, will not exceed $ 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 the calendar year in which a non-employee director is first appointed or elected to our board, $.

Corporate Transactions. Our 2020 Plan provides that in the event of a specified corporate transaction, including without limitation a consolidation, merger or similar transaction involving our company, the sale or other disposition of all or substantially all of the assets of our company or the consolidated assets of our company and our subsidiaries, or a sale or disposition of more than 50% of the outstanding capital stock of our company, the administrator will determine how to treat each outstanding stock award. The administrator may:

- arrange for the assumption, continuation or substitution of a stock award by a successor corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to a successor corporation;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the corporate transaction;
- arrange for the lapse, in whole or in part, of any reacquisition or repurchase right held by us;
- cancel the stock award prior to the transaction in exchange for such cash consideration, if any, that the administrator in its discretion determines to be appropriate; or
- make a payment in a form determined by the administrator equal to the excess of the value of the property the participant would have received upon exercise of the stock award immediately prior to the transaction over the exercise price payable in connection with the stock award.

The administrator is not obligated to treat all stock awards or portions of stock awards, even those that are of the same type, in the same manner. The administrator may take different actions with respect to the vested and unvested portions of a stock award.

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 occur.

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 2019. As of December 31, 2019, there were 138,806 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 2,526,538 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 2,956,143 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

We expect that our board of directors will adopt and our stockholders will approve prior to the closing of this offering our 2020 Employee Stock Purchase Plan, or ESPP. The ESPP will become effective immediately 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 2020 ESPP will initially provide participating employees with the opportunity to purchase up to an aggregate of 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) % of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, and (ii) 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 equal to the lower 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 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) a sale of all or substantially all of our assets, (ii) the 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.

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 10,000,000 shares of our Series A preferred stock in multiple closings at a purchase price of $1.00 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)	6,000,000	$ 6,000,000
Arkin Bio Ventures Limited Partnership (2)	3,000,000	$ 3,000,000
Entities affiliated with Partners Innovation Fund (3)	1,000,000	$ 1,000,000

(1) Represents (i) 2,959,296 shares of Series A preferred stock purchased by Pontifax (Israel) IV, L.P., or Pontifax Israel, (ii) 1,440,702 shares of Series A preferred stock purchased by Pontifax (Cayman) IV, L.P., or Pontifax Cayman, and (iii) 1,600,002 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) 600,000 shares of Series A preferred stock purchased by Partners Innovation Fund, LLC, or PIF I, and (ii) 400,000 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 3,427,004 shares of our Series B-1 preferred stock at a purchase price of $3.3557 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)	894,001	$ 3,000,000
Arkin Bio Ventures Limited Partnership (2)	745,001	$ 2,500,000
Entities affiliated with Partners Innovation Fund (3)	745,001	$ 2,500,000

(1) Represents (i) 367,447 shares of Series B-1 preferred stock purchased by Pontifax Israel, (ii) 178,887 shares of Series B-1 preferred stock purchased by Pontifax Cayman, (iii) 198,667 shares of Series B-1 preferred stock purchased by Pontifax China and (iv) 149,000 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) 447,001 shares of Series B-1 preferred stock purchased by PIF I and (ii) 298,000 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 have committed to purchase shares of Series B-2 preferred stock in a separate closing. In the Series B-2 preferred stock financing, we may sell up to 3,062,891 shares of Series B-2 preferred stock at a purchase price of $3.7546 per share for an aggregate amount of approximately $11.5 million. The Series B-2 preferred stock financing will be funded upon the achievement of a specified clinical development milestone. The holders of the Series B-1 preferred stock may also elect to fund the Series B-2 preferred stock financing in their discretion in advance of us achieving the milestones.

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 and the Partners 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. Prior to the closing of this offering, we expect to adopt 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 intend to adopt 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 19,575,235 shares of common stock (which includes 75,000 shares of restricted common stock subject to repurchase) outstanding as of December 31, 2019, after giving effect to the automatic conversion of all of our outstanding shares of preferred stock into an aggregate of 14,227,004 shares of our common stock upon the closing of this offering.

The percentage ownership information shown in the table after this offering is based on shares outstanding, assuming the sale of 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)	8,525,868	43.6%	%
Arkin Bio Ventures Limited Partnership (2)	3,745,001	19.1	
Entities affiliated with Partners Innovation Fund (3)	2,245,001	11.5	
Jasbir Seehra, Ph.D. (4)	1,143,255	5.6	
Named executive officers and directors:			
Jennifer Lachey, Ph.D. (5)	508,761	2.5	
Claudia Ordonez, M.D.	—	—	
Zafrira Avnur, Ph.D.	—	—	
Tomer Kariv (1)	8,525,868	43.6	
Julius Knowles (3)	2,245,001	11.5	
Alon Lazarus, Ph.D. (6)	3,795,001	19.4	
Ran Nussbaum (1)	8,525,868	43.6	
All current executive officers and directors as a group (8 persons)(1)(2)(3)7)	16,217,886	78.0	

(1) Consists of (a)(i) 804,863 shares of common stock, (ii) 2,959,296 shares of common stock issuable upon the conversion of Series A preferred stock and (iii) 367,447 shares of common stock issuable upon the conversion of Series B-1 preferred stock held by Pontifax

(Israel) IV L.P., or Pontifax Israel, (b)(i) 391,839 shares of common stock, (ii) 1,440,702 shares of common stock issuable upon the conversion of Series A preferred stock and (iii) 178,887 shares of common stock issuable upon the conversion of Series B-1 preferred stock held by Pontifax (Cayman) IV L.P., or Pontifax Cayman, (c)(i) 435,165 shares of common stock, (ii) 1,600,002 shares of common stock issuable upon the conversion of Series A preferred stock and (iii) 198,667 shares of common stock issuable upon the conversion of Series B-1 preferred stock held by Pontifax (China) IV L.P., or Pontifax China and (d) 149,000 shares of common stock issuable upon the conversion of Series B-1 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) 3,000,000 shares of common stock issuable upon the conversion of Series A preferred stock and (b) 745,001 shares of common stock issuable upon the conversion of Series B-1 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 (a)(i) 300,000 shares of common stock, (ii) 600,000 shares of common stock issuable upon the conversion of Series A preferred stock and (iii) 447,001 shares of common stock issuable upon the conversion of Series B-1 preferred stock held by Partners Innovation Fund, LLC, or PIF I and (b)(i) 200,000 shares of common stock, (ii) 400,000 shares of common stock issuable upon the conversion of Series A preferred stock and (iii) 298,000 shares of common stock issuable upon the conversion of Series B-1 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.

(4) Consists of (a) 386,600 shares of common stock held by Dr. Seehra and (b) 756,655 shares issuable upon the exercise of options granted to Dr. Seehra that are exercisable within 60 days of December 31, 2019.

(5) Consists of (a) 60,750 shares of common stock held by Dr. Lachey and (b) 448,011 shares issuable upon the exercise of options granted to Dr. Lachey that are exercisable within 60 days of December 31, 2019.

(6) Consists of (a) 50,000 shares of common stock held by Dr. Lazarus and (b) 3,745,001 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.

(7) Consists of (a) 2,629,217 shares of common stock, (b) 10,000,000 shares of common stock issuable upon the conversion of Series A preferred stock, (c) 2,384,003 shares of common stock issuable upon the conversion of Series B-1 preferred stock and (d) 1,204,667 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 shares of common stock, $0.0001 par value per share, and shares of preferred stock, $0.001 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 of our outstanding shares of preferred stock into an aggregate of 14,227,004 shares of our common stock upon the closing of this offering, there would have been 19,575,235 shares of common stock issued and outstanding (which includes 75,000 shares of restricted common stock subject to repurchase), held of record by 28 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, there were 14,227,004 shares of preferred stock outstanding, which will convert, immediately prior to the closing of this offering, into 14,227,004 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 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 2,526,538 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 $0.16 per share. See “Executive Compensation—Equity Incentive Plans” for additional information regarding the terms of our 2017 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 investor 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 investor 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 16,358,871 registrable securities were entitled to these demand, piggyback and S-3 registration rights. Under the terms of the investor 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 a majority 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 $1.0 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. Several lawsuits have been filed in Delaware challenging the enforceability of similar choice of forum provisions and it is possible that a court determines such provisions are not enforceable.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock will be . The transfer agent's address is .

Listing

We intend to apply 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, shares of our common stock will be outstanding, or 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 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:

- shares will be eligible for immediate sale upon the closing of this offering; and
- approximately 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 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, 290,799 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 2,526,538 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 investor 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, the holders of 16,358,871 shares of our common stock, or their 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	

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 $. We have agreed to reimburse the underwriters for certain of their expenses incurred in connection with this offering in an amount not to exceed $.

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 intend to apply 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 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. Certain legal matters will be passed upon for the underwriters by Latham & Watkins LLP.

EXPERTS

The consolidated financial statements as of December 31, 2018 and for the year then ended 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

Audited Consolidated Financial Statements for the Year Ended December 31, 2018

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 sheet of Keros Therapeutics, Inc. and its subsidiary (the "Company") as of December 31, 2018, the related consolidated statements of operations, convertible preferred stock and stockholders' deficit, and cash flows, for the period ended December 31, 2018, 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 the results of its operations and its cash flows for the year 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 audit. 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 audit in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. 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 audit, 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 audit 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 audit 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 audit provides a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Boston, Massachusetts

January 21, 2020

We have served as the Company's auditor since 2019.

KEROS THERAPEUTICS, INC.

Consolidated Balance Sheet
(In thousands, except share and per share data)

	DECEMBER 31, 2018
ASSETS	
CURRENT ASSETS:	
Cash and cash equivalents	$ 23,259
Prepaid expenses and other current assets	2,272
Total current assets	25,531
Operating lease right-of-use assets	735
Property and equipment, net	645
Research and development incentive receivable	370
Restricted cash	131
TOTAL ASSETS	$ 27,412
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT	
CURRENT LIABILITIES:	
Accounts payable	$ 501
Current portion of operating lease liabilities	166
Deferred revenue	10,000
Accrued expenses and other current liabilities	802
Total current liabilities	11,469
Operating lease liabilities, net of current portion	622
Preferred stock tranche liability	2,392
Other liabilities	171
Total liabilities	14,654
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; 10,000,000 shares issued and outstanding as of December 31, 2018; liquidation and redemption value of $11,471 as of December 31, 2018	9,891
Series A-1 convertible preferred stock, par value of $0.0001 per share; 800,000 shares authorized as of December 31, 2018; 800,000 shares issued and outstanding as of December 31, 2018; liquidation and redemption value of $1,091 as of December 31, 2018	944
Series B-1 convertible preferred stock, par value of $0.0001 per share; 3,427,004 shares authorized as of December 31, 2018; 3,427,004 shares issued and outstanding as of December 31, 2018; liquidation and redemption value of $11,676 as of December 31, 2018	9,106
STOCKHOLDERS' DEFICIT:	
Common stock, par value of $0.0001 per share; 27,000,000 shares authorized as of December 31, 2018; 4,869,407 shares issued and outstanding as of December 31, 2018	1
Additional paid-in capital	130
Accumulated deficit	(7,314)
Total stockholders' deficit	(7,183)
TOTAL LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT	$ 27,412

See notes to consolidated financial statements.

KEROS THERAPEUTICS, INC.

Consolidated Statement of Operations
(In thousands, except share and per share data)

	YEAR ENDED DECEMBER 31, 2018
REVENUE:	
Research collaboration revenue	$ 10,000
Total revenue	10,000
OPERATING EXPENSES:	
Research and development	(10,111)
General and administrative	(1,580)
Total operating expenses	(11,691)
LOSS FROM OPERATIONS	(1,691)
OTHER INCOME, NET:	
Interest income, net	6
Research and development incentive income	370
Other income, net	237
Total other income, net	613
Loss before income taxes	(1,078)
Income tax provision	(257)
Net loss	$ (1,335)
Net loss attributable to common stockholders—basic and diluted (Note 12)	$ (2,346)
Net loss per share attributable to common stockholders—basic and diluted	$ (0.50)
Weighted-average common stock outstanding—basic and diluted	4,719,371

See notes to consolidated financial statements.

KEROS THERAPEUTICS, INC.

Consolidated Statement of Convertible Preferred Stock and Stockholders' Deficit
(In thousands, except share and per share data)

	CONVERTIBLE PREFERRED STOCK										
	$0.0001 PAR VALUE SERIES A		$0.0001 PAR VALUE SERIES A-1		$0.0001 PAR VALUE SERIES B-1		COMMON STOCK $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	10,000,000	$ 9,891	800,000	$ 944	—	$ —	4,532,432	$ 1	$ 41	$ (5,979)	$ (5,937)
Issuance of Series B-1 convertible preferred stock, net of issuance costs of $45 and $2,349 discount associated with preferred stock tranche rights	—	—	—	—	3,427,004	9,106	—	—	—	—	—
Exercise of common stock options	—	—	—	—	—	—	111,975	—	8	—	8
Vesting of restricted stock	—	—	—	—	—	—	225,000	—	—	—	—
Stock-based compensation	—	—	—	—	—	—	—	—	81	—	81
Net loss	—	—	—	—	—	—	—	—	—	(1,335)	(1,335)
BALANCE, December 31, 2018	10,000,000	$ 9,891	800,000	$ 944	3,427,004	$ 9,106	4,869,407	$ 1	$ 130	$ (7,314)	$ (7,183)

See notes to consolidated financial statements.

KEROS THERAPEUTICS, INC.

Consolidated Statement of Cash Flows
(In thousands)

	YEAR ENDED DECEMBER 31, 2018
CASH FLOWS FROM OPERATING ACTIVITIES:	
Net loss	$ (1,335)
Adjustments to reconcile net loss to net cash provided by operating activities:	
Depreciation expense	153
Stock-based compensation expense	81
Non-cash lease expense	151
Changes in fair value of preferred stock tranche obligation	43
Changes in operating assets and liabilities:	
Research and development incentive receivable	(370)
Prepaid expenses and other current assets	(2,210)
Accounts payable	(2)
Current portion of operating lease liabilities	19
Proceeds from Novo Nordisk A/S collaboration and license agreement	20,000
Deferred revenue	(10,000)
Accrued expenses and other current liabilities	506
Operating lease liabilities, net of current portion	(166)
Other liabilities	172
Net cash provided by operating activities	7,042
CASH FLOWS FROM INVESTING ACTIVITIES:	
Purchase of property and equipment	(217)
Net cash used in investing activities	(217)
CASH FLOWS FROM FINANCING ACTIVITIES:	
Proceeds from issuance of Series B-1 preferred stock	11,500
Payment of issuance costs	(45)
Proceeds from exercise of stock options	8
Net cash provided by financing activities	11,463
NET INCREASE IN CASH, CASH EQUIVALENTS AND RESTRICTED CASH	18,288
Cash, cash equivalents and restricted cash at beginning of year	5,102
Cash, cash equivalents and restricted cash at end of year	$ 23,390
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:	
Preferred stock tranche obligation in connection with the issuance of Series B-1 convertible preferred stock	$ 2,349

The following table provides a reconciliation of the cash, cash equivalents and restricted cash as of each of the periods shown above:

	YEAR ENDED DECEMBER 31, 2018
Cash and cash equivalents	$ 23,259
Restricted cash	131
Total cash, cash equivalents and restricted cash	$ 23,390

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 pre-clinical 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 a net loss of $1.3 million for the year ended December 31, 2018. In addition, as of December 31, 2018, the Company had an accumulated deficit of $7.3 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 January 17, 2020, the Company expects that its then existing cash and cash equivalents of $6.1 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. As of December 31, 2018, the carrying amount of cash equivalents was $18.4 million, 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 lease in Lexington, Massachusetts as of December 31, 2018.

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, 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, 2018, 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 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 cash refund is available to companies with an annual aggregate revenue of less than $20.0 million (Australian) during the reimbursable period. Under the program, 43.5% of eligible research and development expenses incurred by the Company through its subsidiary in Australia are reimbursed.

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 other income from Australian research and development incentives of $0.4 million for the year ended December 31, 2018 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, up-front 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 good 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 as 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. Up-front 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 does 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, 2018. 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 a net loss attributable to common stockholders for the year ended December 31, 2018.

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 consolidates into one ASC (ASC Topic 606, Revenue from Contracts with Customers) 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.

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 IN 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)

There have been no transfers between fair value levels during the year ended December 31, 2018. 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 sheet 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:

	NOVEMBER 9, 2018	DECEMBER 31, 2018
Stand-alone Series B-1 Preferred Stock price (spot price)	$ 3.3557	$ 3.3557
Estimated future value of Series B-2 Preferred Stock	$ 3.7546	$ 3.7546
Discount rate	17.00%	17.50%
Time to liquidity (years)	1.14	1.00
Probability of tranche closing	25%	25%

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

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, 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.

4. PREPAID EXPENSES AND OTHER CURRENT ASSETS

Prepaid expenses and other current assets as of December 31, 2018 consisted of the following (in thousands):

	DECEMBER 31, 2018
Prepaid service contracts	2,018
Prepaid professional services	126
Prepaid tax	44
Other	84
Total prepaid expenses and other current assets	$ 2,272

5. PROPERTY AND EQUIPMENT, NET

Property and equipment, net as of December 31, 2018 consisted of the following (in thousands):

	DECEMBER 31, 2018
Computer equipment and software	$ 35
Laboratory equipment	610
Office furniture	27
Leasehold improvements	219
Total	891
Less: Accumulated depreciation	(246)
Property and equipment, net	$ 645

Depreciation expense for the year ended December 31, 2018 was $0.2 million.

6. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses and other current liabilities as of December 31, 2018 consisted of the following (in thousands):

	DECEMBER 31, 2018
Accrued studies	431
Accrued compensation and benefits	41
Accrued tax	284
Other	46
Total accrued expenses and other current liabilities	$ 802

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 and reimbursed MGH approximately $0.3 million of prior patent prosecution expenses related to the licensed patents. The Company also issued MGH an aggregate of 778,432 shares of its common stock. Additionally, the Company is required to pay a low 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 and 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.

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, whose issuance is dependent on 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 3,333,333 shares of Series A Preferred Stock at $1.00 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 3,333,333 shares of Series A Preferred Stock at $1.00 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 3,333,334 shares of Series A Preferred Stock at $1.00 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 266,667 shares of Series A-1 Preferred Stock at $1.25 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 266,667 shares of Series A-1 Preferred Stock at $1.25 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 266,666 shares of Series A-1 Preferred Stock at $1.25 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 3,427,004 shares of Series B-1 Preferred Stock at $3.3557 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, who are affiliates of members of our Board. There were no material transactions with these parties other than the equity investment 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 3,062,891 shares of Series B-2 Preferred Stock at $3.7546 per share for gross proceeds of $11.5 million.

As of December 31, 2018, 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	10,000,000	$ 9,891	$ 11,471	10,000,000
Series A-1 Preferred Stock	800,000	800,000	944	1,091	800,000
Series B-1 Preferred Stock	3,427,004	3,427,004	9,106	11,676	3,427,004
Series B-2 Preferred Stock	3,062,891	—	—	—	—
	17,289,895	14,227,004	$ 19,941	$ 24,238	14,227,004

The following is a summary of the rights and privileges of the Preferred Stockholders as of December 31, 2018.

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 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 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 $0.08, $0.10, $0.268456 and $0.300368 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, 2018.

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, 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, no cash dividends have been declared or paid.

As of December 31, 2018, 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
Preferred Stock	14,227,004
Unvested restricted stock	300,000
Options to purchase common stock	1,842,708
Total	16,369,712

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. Originally, the 2017 Plan authorized up to 518,110 of shares of the Company’s common stock to be issued. On December 18, 2017, the 2017 Plan was amended to increase the number of shares of common stock authorized to be issued from 518,110 to 1,500,643. On January 2, 2018, the 2017 Plan was amended to increase the number of shares of common stock authorized to be issued from 1,500,643 to 1,942,643. 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. As of December 31, 2018, there were 67,960 shares available for future grant under the 2017 Plan.

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.

During the year ended December 31, 2018, the Company granted options to purchase 1,569,141 shares of common stock. The Company recorded stock-based compensation expense for options granted of $0.1 million during the year ended December 31, 2018. During the year ended December 31, 2018 the Company granted no shares of restricted stock. The Company recorded stock-based compensation expense for restricted stock of less than $1,000 during the year ended December 31, 2018.

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 year ended December 31, 2018 were as follows:

	YEAR ENDED DECEMBER 31, 2018
Weighted-average risk-free interest rate	2.70%
Expected term (in years)	5.49
Expected volatility	74.55%
Expected dividend yield	0.00%
Fair value of underlying common stock	$ 0.09

Stock Options

A summary of option activity under the 2017 Plan during the year ended December 31, 2018 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	420,000	$ 0.05	9.20	$ 37,800
Granted	1,569,141	0.14		
Exercised	(111,975)	0.08		
Cancelled or forfeited	(28,844)	0.14		
Expired	(5,614)	0.14		
Outstanding as of December 31, 2018	1,842,708	$ 0.12	9.10	$ 30,611
Options exercisable as of December 31, 2018	920,836	$ 0.13	9.08	$ 12,105

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 the year ended December 31, 2018 was $0.1 million. As of December 31, 2018, 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 2.3 years as of December 31, 2018.

The total fair value of options vested during the year ended December 31, 2018 was $0.1 million.

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 year ended December 31, 2018 is as follows:

	RESTRICTED STOCK	WEIGHTED-AVERAGE GRANT DATE FAIR VALUE
Unvested as of December 31, 2017	525,000	$ 0.0001
Vested or released	(225,000)	—
Unvested as of December 31, 2018	300,000	$ 0.0001

As of December 31, 2018, 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 1.2 years as of December 31, 2018.

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 year ended December 31, 2018 is as follows (in thousands):

	YEAR ENDED DECEMBER 31, 2018
Research and development	$ 30
General and administrative	51
Total stock-based compensation expense	$ 81

11. INCOME TAXES

On December 22, 2017, the United States enacted the Tax Cuts and Jobs Act (“Tax Reform Legislation”), which made significant changes to U.S. federal income tax law.

Loss before the provision for income taxes for the year ended December 31, 2018 consisted of the following (in thousands):

	YEAR ENDED DECEMBER 31, 2018
United States	$ (1,286)
Foreign	208
Loss before provision for (benefit from) income taxes	$ (1,078)

The components of income tax expense for the year ended December 31, 2018 consisted of the following (in thousands):

	YEAR ENDED DECEMBER 31, 2018
Current income tax expense:	
United States	$ 257
Total income tax expense	$ 257
Deferred income tax (benefit) expense:	
Total deferred income tax (benefit) 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 year ended December 31, 2018 was as follows:

	YEAR ENDED DECEMBER 31, 2018
Federal income tax (benefit) at statutory rate	21.0%
Permanent differences	(2.5)
Research and development credits	56.5
State income tax, net of federal benefit	28.5
Impact of foreign operations	(3.3)
Other	(0.4)
Change in valuation allowance	(123.6)
Effective tax rate	(23.8)%

Net deferred tax assets as of December 31, 2018 consisted of the following (in thousands):

	YEAR ENDED DECEMBER 31, 2018
Research and development credits	$ 541
Accrueds	227
Other	3
Deferred revenue	2,732
Intangibles	108
Total deferred tax assets	$ 3,611
Valuation allowance	(3,322)
Net deferred tax assets	$ 289
Depreciation	(289)
Net deferred tax assets (liability)	$ —

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. 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. A change in the Company's valuation allowance was recorded in 2018, in the amount of $1.3 million 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, 2018, 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, 2018, 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
Numerator:	
Net loss	$ (1,335)
Less: Accruals of dividends of Preferred Stock	(1,011)
Net loss attributable to common stockholders—basic and diluted	$ (2,346)
Denominator:	
Weighted-average common stock outstanding	4,719,371
Net loss per share attributable to common stockholders—basic and diluted	$ (0.50)

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 because including them would have had an anti-dilutive effect:

	DECEMBER 31, 2018
Preferred Stock	14,227,004
Unvested restricted stock	300,000
Options to purchase common stock	1,842,708
Total	16,369,712

13. COMMITMENTS AND CONTINGENCIES

Leases

The Company has historically entered into lease arrangements for its facilities and certain equipment. As of December 31, 2018, 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 an operating lease 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. 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, 2018, 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 Topic 842 and other information pertaining to the Company's operating leases for the year ended December 31, 2018 (in thousands):

Lease cost	
Operating lease cost	$ 215
Variable payments	—
Total lease cost	$ 215
Other information	
Operating lease payments	$ 211
Operating lease liabilities arising from obtaining ROU assets	$ 788
Remaining lease term	4 years
Discount rate	8.44%

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, 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, 2018, future discounted lease payments under all lease arrangements accounted for under ASC 842 were as follows (in thousands):

MATURITY OF LEASE LIABILITY	
2019	$ 218
2020	224
2021	231
2022	239
Total lease payments	912
Less: imputed interest	(124)
Total operating lease liabilities	$ 788
Included in the consolidated balance sheet:	
Current portion of lease liabilities	$ 166
Lease liabilities	622
Total operating lease liabilities	$ 788

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. As of December 31, 2018, 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 above lease, the Company received a loan from the landlord of $0.2 million related to its tenant improvement allowance. The Company is required to repay interest on the loan of 8.0% for the first 18 months of the lease and will then repay the full amount in installments over the remaining 3.5 year term of the lease, which expires in December 2022.

Future payments under the Company's loan obligation as of December 31, 2018, are as follows:

2019	$ 32
2020	65
2021	65
2022	65
Total payments	$ 227

Refer to Note 7, License Agreement, 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 it is responsible for as stated in 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.

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 has been recorded as current deferred revenue in the consolidated balance sheet and will be recognized according to FTE costs incurred over the remaining term of the Novo Agreement in 2019.

15. SUBSEQUENT EVENTS

The Company has completed an evaluation of all subsequent events through January 21, 2020, the date these financial statements were available to be issued. Except as described below, the Company has concluded that no additional subsequent events have occurred that require disclosure.

License Agreement

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. The agreement will continue in perpetuity unless terminated by either party. LakePharma may terminate the agreement at any time.

Lease Agreement

Effective September 1, 2019, the Company entered into an amendment to its operating lease agreement for office space in Lexington, Massachusetts. Following execution of the amendment, monthly rent under the lease, exclusive of operating expenses and real estate taxes, will be $20,000 for the 13-month period ending September 30, 2020, increasing to $21,000 for the 12-month periods ending September 30, 2021 and 2022 and increasing to $22,000 for the 3-month period ending December 31, 2022. The lease agreement expires December 31, 2022.

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	$ *
FINRA filing fee	*
Nasdaq initial listing fee	*
Blue sky fees and expenses	*
Printing and engraving	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous fees and expenses	*
Total	$ *

* To be filed by amendment.

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 778,432 shares of our common stock to one accredited investor at $0.0001 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 2,526,538 shares (net of expirations and cancellations) of our common stock to our employees, directors, and consultants, at a weighted average exercise price of $0.16 per share. From January 1, 2017 through the date of this registration statement, 368,487 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 3,427,004 shares of Series B-1 preferred stock to nine accredited investors at $3.3557 per share for aggregate consideration of approximately $11.5 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 November 9, 2018.
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 and Notice of Exercise 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.
21.1	Subsidiaries of Keros Therapeutics, Inc.
23.1*	Consent of Deloitte & Touche LLP, 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).

* To be filed by amendment.

+ 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.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Cambridge, Massachusetts, on the day of , 2020.

KEROS THERAPEUTICS, INC.

By: _____
Name: Jasbir Seehra, Ph.D.
Title: Chief Executive Officer and Director

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Jasbir Seehra, Ph.D. and , and each of them, his true and lawful agent, proxy and attorney-in-fact, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to (1) act on, sign and file with the Securities and Exchange Commission any and all amendments (including post-effective amendments) to this registration statement together with all schedules and exhibits thereto and any subsequent registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, together with all schedules and exhibits thereto, (2) act on, sign and file such certificates, instruments, agreements and other documents as may be necessary or appropriate in connection therewith, (3) act on and file any supplement to any prospectus included in this registration statement or any such amendment or any subsequent registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and (4) take any and all actions which may be necessary or appropriate to be done, as fully for all intents and purposes as he might or could do in person, hereby approving, ratifying and confirming all that such agent, proxy and attorney-in-fact or any of his substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

NAME	POSITION	DATE
Jasbir Seehra, Ph.D.	Chief Executive Officer and Director (*Principal Executive Officer*)	, 2020
	(*Principal Financial Officer and Principal Accounting Officer*)	, 2020
Zafrira Avnur, Ph.D.	Director	, 2020
Tomer Kariv	Director	, 2020
Julius Knowles	Director	, 2020
Alon Lazarus, Ph.D.	Director	, 2020
Ran Nussbaum	Director	, 2020

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 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: The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 27,000,000 shares of Common Stock, $0.0001 par value per share ("**Common Stock**") and (ii) 17,289,895 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 3,062,891 shares of authorized Preferred Stock of the Corporation are hereby designated "**Series B-2 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 B-1 and B-2 Accruing Dividends. From and after the date of the issuance of any shares of Series B-1 Preferred Stock, dividends at the rate per annum of $0.268456 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) (the "**Series B-1 Accruing Dividends**"). From and after the date of the issuance of any shares of Series B-2 Preferred Stock, dividends at the rate per annum of $0.300368 per share shall accrue on such shares of Series B-2 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) (the "**Series B-2 Accruing Dividends,**" together with the Series B-1 Accruing Dividends, the "**Series B-1/B-2 Preferred Accruing Dividends**"). Series B-1/B-2 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 1.1 or in Subsection 2.1.1, such Series B-1/B-2 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/B-2 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 B-1 Preferred Stock and the Series B-2 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 B-1 /B-2 Preferred Accruing Dividends then accrued on such share of Series B-1 Preferred Stock and Series B-2 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 and Series B-2 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 and Series B-2 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) 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 1.1 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 B-1 Original Issue Price**" shall mean $3.3557 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. The "**Series B-2 Original Issue Price**" shall mean $3.7546 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-2 Preferred Stock.

1.2 Series A and A-1 Accruing Dividends. Subject to Subsection 1.1, from and after the date of the issuance of any shares of Series A Preferred Stock, dividends at the rate per annum of $0.08 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) (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 $0.10 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 Preferred Stock) (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 1.2 or in Subsection 2.1.2 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 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 B-1/B-2 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) 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 1.2 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 $1.00 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. The "**Series A-1 Original Issue Price**" shall mean $1.25 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.

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 B-1 and B-2 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 B-1 Preferred Stock and Series B-2 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 Original Issue Price applicable to such

series of Preferred Stock, plus any Series B-1/B-2 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 and Series B-2 Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1.1, 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.

2.1.2 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 B-1 Preferred Stock and Series B-2 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 Original Issue Price applicable to such series of Preferred Stock, 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 2.1.2, 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 at least eighty percent (80%) of the outstanding shares of Preferred Stock (voting together as a single class and not as separate series, and on an as-converted basis) 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 holders of at least eighty percent (80%) of the then outstanding shares of Preferred Stock (voting together as a single class and not as separate series, and on an as-converted basis) 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 A Preferred Stock and the Series A-1 Preferred Stock shall not be redeemed unless and until the holders of Series B-1 Preferred Stock and Series B-2 Preferred Stock 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 B-1 Preferred Stock and Series B-2 Preferred Stock, the Corporation shall redeem a pro rata portion of each holder's shares of Series B-1 Preferred Stock and Series B-2 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 (B) 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), 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) Surrender of Certificates; Payment. On or before the 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 so designated by the Corporation, 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.

(d) 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.

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 five (5) 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,**" together with the Series A Directors, 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 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 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.

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 $1.00. The "**Series A-1 Conversion Price**" shall initially be equal to $1.25. The "**Series B-1 Conversion Price**" shall initially be equal to $3.3557. The "**Series B-2 Conversion Price**" shall initially be equal to $3.7546. 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 filly 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 B-1 Original Issue Date**" shall mean the date on which the first share of Series B-1 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 B-1 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 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 at least eighty percent (80%) of the then outstanding shares of Preferred Stock, (voting together as a single class and not as separate series, and on an as-converted basis) 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 B-1 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 B-1 Original Issue Date), are revised after the Series B-1 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 B-1 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 CPO; 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 Series B-1 Original Issue Date 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 Series B-1 Original Issue Date 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 B-1 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 B-1 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 holders of at least eighty percent (80%) of the then outstanding shares of Preferred Stock (voting together as a single class and not as separate series, and on an as-converted basis) (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. 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 affirmative written consent or vote of the holders of at least eighty percent (80%) of the shares of Preferred Stock then outstanding (voting together as a single class and not as separate series, and on an as-converted basis).

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 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.

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**"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this 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 8th day of November, 2018.

By: /s/ Jasbir S. Seehra
Name: Jasbir S. Seehra
Title: President and Chief Executive Officer

BYLAWS
OF
KEROS THERAPEUTICS, INC.

ARTICLE I
OFFICES

1.1 **Registered Office**. The registered office shall be in the City of Dover, County of Kent, State of Delaware.

1.2 **Offices**. The corporation 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
MEETINGS OF STOCKHOLDERS

2.1 **Location**. All meetings of the stockholders for the election of directors shall be held in the City of Dover, State of Delaware, at such place as may be fixed from time to time by the Board of Directors, or at such other place either within or without the State of Delaware as shall be designated from time to time by the Board of Directors and stated in the notice of the meeting; provided, however, that 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 authorized by Section 211 of the Delaware General Corporations Law ("DGCL"). Meetings of stockholders for any other purpose may be held at such time and place, if any, within or without the State of Delaware, as shall be stated in the notice of the meeting or in a duly executed waiver of notice thereof, or a waiver by electronic transmission by the person entitled to notice.

2.2 **Timing**. Annual meetings of stockholders, commencing with the year 2015, shall be held at such date and time as shall be designated from time to time by the Board of Directors and stated in the notice of the meeting, at which they shall elect by a plurality vote a Board of Directors, and transact such other business as may properly be brought before the meeting.

2.3 **Notice of Meeting**. Written notice of any stockholder meeting stating the place, if any, date and hour of the meeting, the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting, shall be given to each stockholder entitled to vote at such meeting not fewer than ten (10) nor more than sixty (60) days before the date of the meeting.

2.4 **Stockholders' Records**. The officer who has charge of the stock ledger 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 the meeting, arranged in alphabetical order, and showing the address (but not the electronic address or other electronic contact information) of each stockholder and the number 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 for a

period of at least 10 days prior to the meeting: (i) 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 (ii) 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. If the meeting is to be held at a place, then the list shall be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present. If the meeting is to be held solely by means of remote communication, then the list shall also be open to the examination of any stockholder during the whole time of the meeting on a reasonably accessible electronic network, and the information required to access such list shall be provided with the notice of the meeting.

2.5 **Special Meetings**. Special meetings of the stockholders, for any purpose or purposes, unless otherwise prescribed by statute or by the certificate of incorporation, may be called by the president and shall be called by the president or secretary at the request in writing of a majority of the Board of Directors, or at the request in writing of stockholders owning at least ten percent (10%) in amount of the entire capital stock of the corporation issued and outstanding and entitled to vote. Such request shall state the purpose or purposes of the proposed meeting.

2.6 **Notice of Meeting**. Written notice of a special meeting stating the place, date and hour of the meeting and the purpose or purposes for which the meeting is called, shall be given not fewer than ten (10) nor more than sixty (60) days before the date of the meeting, to each stockholder entitled to vote at such meeting. The means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting shall also be provided in the notice.

2.7 **Business Transacted at Special Meeting**. Business transacted at any special meeting of stockholders shall be limited to the purposes stated in the notice.

2.8 **Quorum; Meeting Adjournment; Presence by Remote Means**.

(a) *Quorum; Meeting Adjournment*. The holders of a majority of the stock issued and outstanding and entitled to vote thereat, present in person or represented by proxy, shall constitute a quorum at all meetings of the stockholders for the transaction of business except as otherwise provided by statute or by the certificate of incorporation. If, however, such quorum shall not be present or represented at any meeting of the stockholders, the stockholders entitled to vote thereat, present in person or represented by proxy, shall have power to adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present or represented. At such adjourned meeting at which a quorum shall be present or represented, any business may be transacted that might have been transacted at the meeting as originally notified. 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.

(b) *Presence by Remote Means*. If authorized by the Board of Directors in its sole discretion, and subject to such guidelines and procedures as the Board of Directors may adopt, stockholders and proxyholders not physically present at a meeting of stockholders may, by means of remote communication:

(1) participate in a meeting of stockholders; and

(2) be deemed present in person and vote at a meeting of stockholders whether such meeting is to be held at a designated place or solely by means of remote communication, provided that (i) the corporation shall implement reasonable measures to verify that each person deemed present and permitted to vote at the meeting by means of remote communication is a stockholder or proxyholder, (ii) the corporation shall implement reasonable measures to provide such stockholders and proxyholders a reasonable opportunity to participate in the meeting and to vote on matters submitted to the stockholders, including an opportunity to read or hear the proceedings of the meeting substantially concurrently with such proceedings, and (iii) if any stockholder or proxyholder votes or takes other action at the meeting by means of remote communication, a record of such vote or other action shall be maintained by the corporation.

2.9 **Voting Thresholds**. When a quorum is present at any meeting, the vote of the holders of a majority of the stock having voting power present in person or represented by proxy shall decide any question brought before such meeting, unless the question is one upon which by express provision of the statutes or of the certificate of incorporation, a different vote is required, in which case such express provision shall govern and control the decision of such question.

2.10 **Number of Votes Per Share**. Unless otherwise provided in the certificate of incorporation, each stockholder shall at every meeting of the stockholders be entitled to one vote by such stockholder or by proxy for each share of the capital stock having voting power held by such stockholder, but no proxy shall be voted on after three years from its date, unless the proxy provides for a longer period.

2.11 **Action by Written Consent of Stockholders; Electronic Consent; Notice of Action**.

(a) *Action by Written Consent of Stockholders*. Unless otherwise provided by the certificate of incorporation, any action required or permitted to be taken at any annual or special meeting of the stockholders may be taken without a meeting, without prior notice and without a vote, if a consent in writing setting forth the action so taken, is signed in a manner permitted by law by the holders of outstanding stock having not less than the number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. Written stockholder consents shall bear the date of signature of each stockholder who signs the consent in the manner permitted by law and shall be delivered to the corporation as provided in subsection (b) below. No written consent shall be effective to take the action set forth therein unless, within sixty (60) days of the earliest dated consent delivered to the corporation in the manner provided above, written consents signed by a sufficient number of stockholders to take the action set forth therein are delivered to the corporation in the manner provided above.

(b) *Electronic Consent.* A telegram, cablegram or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, or a person or persons authorized to act for a stockholder or proxyholder, shall be deemed to be written, signed and dated for the purposes of this section, provided that any such telegram, cablegram or other electronic transmission sets forth or is delivered with information from which the corporation can determine (1) that the telegram, cablegram or other electronic transmission was transmitted by the stockholder or proxyholder or by a person or persons authorized to act for the stockholder or proxyholder and (2) the date on which such stockholder or proxyholder or authorized person or persons transmitted such telegram, cablegram or electronic transmission. The date on which such telegram, cablegram or electronic transmission is transmitted shall be deemed to be the date on which such consent was signed. No consent given by telegram, cablegram or other electronic transmission shall be deemed to have been delivered until such consent is reproduced in paper form and until such paper form is delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to a corporation's registered office shall be made by hand or by certified or registered mail, return receipt requested. Notwithstanding the foregoing limitations on delivery, consents given by telegram, cablegram or other electronic transmission may be otherwise delivered to the principal place of business of the corporation or to an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded if, to the extent and in the manner provided by resolution of the Board of Directors of the corporation.

(c) *Notice of Action*. Prompt notice of any action taken pursuant to this Section 2.11 shall be provided to the stockholders in accordance with Section 228(e) of the DGCL.

ARTICLE III
DIRECTORS

3.1 **Authorized Directors**. The number of directors that shall constitute the whole Board of Directors shall be determined by resolution of the Board of Directors or by the stockholders at the annual meeting of the stockholders, except as provided in Section 3.2 of this Article, and each director elected shall hold office until his successor is elected and qualified. Directors need not be stockholders.

3.2 **Vacancies**. Unless otherwise provided in the corporation's certificate of incorporation, as it may be amended, vacancies and newly created directorships resulting from any increase in the authorized number of directors may be filled by a majority of the directors then in office, though less than a quorum, or by a sole remaining director, and the directors so chosen shall hold office until the next annual election and until their successors are duly elected and shall qualify, unless sooner displaced. If there are no directors in office, then an election of directors may be held in the manner provided by statute. If, at the time of filling any vacancy or any newly created directorship, the directors then in office shall constitute less than a majority of the whole Board of Directors (as constituted immediately prior to any such increase), the Court of Chancery may, upon application of any stockholder or stockholders holding at least ten percent (10%) of the total number of the shares at the time outstanding having the right to vote for such directors, summarily order an election to be held to fill any such vacancies or newly created directorships, or to replace the directors chosen by the directors then in office.

3.3 **Board Authority**. The business of the corporation shall be managed by or under the direction of its Board of Directors, which may exercise all such powers of the corporation and do all such lawful acts and things as are not by statute or by the certificate of incorporation or by these bylaws directed or required to be exercised or done by the stockholders.

3.4 **Location of Meetings**. The Board of Directors of the corporation may hold meetings, both regular and special, either within or without the State of Delaware.

3.5 **First Meeting**. The first meeting of each newly elected Board of Directors shall be held at such time and place as shall be fixed by the vote of the stockholders at the annual meeting and no notice of such meeting shall be necessary to the newly elected directors in order to legally constitute the meeting, provided a quorum shall be present. In the event of the failure of the stockholders to fix the time or place of such first meeting of the newly elected Board of Directors, or in the event such meeting is not held at the time and place so fixed by the stockholders, the meeting may be held at such time and place as shall be specified in a notice given as hereinafter provided for special meetings of the Board of Directors, or as shall be specified in a written waiver signed by all of the directors.

3.6 **Regular Meetings**. Regular meetings of the Board of Directors may be held without notice at such time and at such place as shall from time to time be determined by the Board of Directors.

3.7 **Special Meetings**. Special meetings of the Board of Directors may be called by the president upon notice to each director; special meetings shall be called by the president or secretary in like manner and on like notice on the written request of two (2) directors unless the Board of Directors consists of only one director, in which case special meetings shall be called by the president or secretary in like manner and on like notice on the written request of the sole director. Notice of any special meeting shall be given to each director at his business or residence in writing, or by telegram, facsimile transmission, telephone communication or electronic transmission (provided, with respect to electronic transmission, that the director has consented to receive the form of transmission at the address to which it is directed). If mailed, such notice shall be deemed adequately delivered when deposited in the United States mails so addressed, with postage thereon prepaid, at least five (5) days before such meeting. If by telegram, such notice shall be deemed adequately delivered when the telegram is delivered to the telegraph company at least twenty-four (24) hours before such meeting. If by facsimile transmission or other electronic transmission, such notice shall be transmitted at least twenty-four (24) hours before such meeting. If by telephone, the notice shall be given at least twelve (12) hours prior to the time set for the meeting. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the Board of Directors need be specified in the notice of such meeting, except for amendments to these Bylaws as provided under Section 8.1 of Article VIII hereof. A meeting may be held at any time without notice if all the directors are present (except as otherwise provided by law) or if those not present waive notice of the meeting in writing, either before or after such meeting.

3.8 **Quorum**. At all meetings of the Board of Directors a majority of the directors shall constitute a quorum for the transaction of business and any act of a majority of the directors present at any meeting at which there is a quorum shall be an act of the Board of Directors, except as may be otherwise specifically provided by statute or by the certificate of incorporation. If a quorum is not present at any meeting of the Board of Directors, the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

3.9 **Action Without a Meeting**. Unless otherwise restricted by the 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 the writing, writings, electronic transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee.

3.10 **Telephonic Meetings**. Unless otherwise restricted by the certificate of incorporation or these bylaws, members of the Board of Directors or any committee designated by the Board of Directors may participate in a meeting of the Board of Directors or any committee, by means of conference telephone or other means of communication by which all persons participating in the meeting can hear each other, and such participation shall constitute presence in person at the meeting.

3.11 **Committees**. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the corporation. 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.

In the absence or disqualification of a member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not he or she 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.

Any such committee, to the extent 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 the following matters: (i) approving or adopting, or recommending to the stockholders, any action or matter expressly required by the DGCL to be submitted to stockholders for approval or (ii) adopting, amending or repealing any provision of these bylaws.

3.12 **Minutes of Meetings**. Each committee shall keep regular minutes of its meetings and report the same to the Board of Directors when required.

3.13 **Compensation of Directors**. Unless otherwise restricted by the certificate of incorporation or these bylaws, the Board of Directors shall have the authority to fix the compensation of directors. The directors may be paid their expenses, if any, of attendance at each meeting of the Board of Directors and may be paid a fixed sum for attendance at each meeting of the Board of Directors or a stated salary as director. No such payment shall preclude any director from serving the corporation in any other capacity and receiving compensation therefor. Members of special or standing committees may be allowed like compensation for attending committee meetings.

3.14 **Removal of Directors**. Unless otherwise provided by the certificate of incorporation or these bylaws, any director or the entire Board of Directors may be removed, with or without cause, by the holders of a majority of shares entitled to vote at an election of directors.

ARTICLE IV
NOTICES

4.1 **Notice**. Unless otherwise provided in these bylaws, whenever, under the provisions of the statutes or of the certificate of incorporation or of these bylaws, notice is required to be given to any director or stockholder, it shall not be construed to mean personal notice, but such notice may be given in writing, by mail, addressed to such director or stockholder, at his address as it appears on the records of the corporation, with postage thereon prepaid, and such notice shall be deemed to be given at the time when the same shall be deposited in the United States mail. Notice to directors may also be given by telegram.

4.2 **Waiver of Notice**. Whenever any notice is required to be given under the provisions of the statutes or of the certificate of incorporation or of these bylaws, a waiver thereof in writing, signed by the person or persons entitled to said notice, whether before or after the time stated therein, shall be deemed equivalent thereto.

4.3 **Electronic Notice**.

(a) *Electronic Transmission*. Without limiting the manner by which notice otherwise may be given effectively to stockholders and directors, any notice to stockholders or directors given by the corporation under any provision of the DGCL, the certificate of incorporation or these bylaws shall be effective if given by a form of electronic transmission consented to by the stockholder or director to whom the notice is given. Any such consent shall be revocable by the stockholder or director by written notice to the corporation. Any such consent shall be deemed revoked if (1) the corporation is unable to deliver by electronic transmission two consecutive notices given by the corporation in accordance with such consent and (2) such inability becomes known to the secretary or an assistant secretary of the corporation or to the transfer agent, or other person responsible for the giving of notice; provided, however, the inadvertent failure to treat such inability as a revocation shall not invalidate any meeting or other action.

(b) *Effective Date of Notice*. Notice given pursuant to subsection (a) of this section shall be deemed given: (1) if by facsimile telecommunication, when directed to a number at which the stockholder or director has consented to receive notice; (2) if by electronic mail, when directed to an electronic mail address at which the stockholder or director has consented to receive notice; (3) if by a posting on an electronic network together with separate notice to the stockholder or director of such specific posting, upon the later of (i) such posting and (ii) the giving of such separate notice; and (4) if by any other form of electronic transmission, when directed to the stockholder or director. An affidavit of the secretary or an assistant secretary or of the transfer agent or other agent of the corporation that the notice has been given by a form of electronic transmission shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

(c) *Form of Electronic Transmission*. For purposes of these bylaws, "electronic transmission" means any form of communication, not directly involving the physical transmission of paper, that creates a record that may be retained, retrieved, and reviewed by a recipient thereof, and that may be directly reproduced in paper form by such a recipient through an automated process.

ARTICLE V
OFFICERS

5.1 **Required and Permitted Officers**. The officers of the corporation shall be chosen by the Board of Directors and shall be a president, treasurer and a secretary. The Board of Directors may elect from among its members a Chairman of the Board and a Vice-Chairman of the Board. The Board of Directors may also choose one or more vice-presidents, assistant secretaries and assistant treasurers. Any number of offices may be held by the same person, unless the certificate of incorporation or these bylaws otherwise provide.

5.2 **Appointment of Required Officers**. The Board of Directors at its first meeting after each annual meeting of stockholders shall choose a president, a treasurer, and a secretary and may choose vice-presidents.

5.3 **Appointment of Permitted Officers**. The Board of Directors may appoint such other officers and agents as it shall deem necessary who shall hold their offices for such terms and shall exercise such powers and perform such duties as shall be determined from time to time by the Board of Directors.

5.4 **Officer Compensation**. The salaries of all officers and agents of the corporation shall be fixed by the Board of Directors.

5.5 **Term of Office; Vacancies**. The officers of the corporation shall hold office until their successors are chosen and qualify. Any officer elected or appointed by the Board of Directors may be removed at any time by the affirmative vote of a majority of the Board of Directors. Any vacancy occurring in any office of the corporation shall be filled by the Board of Directors.

THE CHAIRMAN OF THE BOARD

5.6 **Chairman Presides**. The Chairman of the Board, if any, shall preside at all meetings of the Board of Directors and of the stockholders at which he or she shall be present. He or she shall have and may exercise such powers as are, from time to time, assigned to him by the Board of Directors and as may be provided by law.

5.7 **Absence of Chairman**. In the absence of the Chairman of the Board, the Vice-Chairman of the Board, if any, shall preside at all meetings of the Board of Directors and of the stockholders at which he or she shall be present. He or she shall have and may exercise such powers as are, from time to time, assigned to him by the Board of Directors and as may be provided by law.

THE PRESIDENT AND VICE-PRESIDENTS

5.8 **Powers of President**. The president shall be the chief executive officer of the corporation; in the absence of the Chairman and Vice-Chairman of the Board he or she shall preside at all meetings of the stockholders and the Board of Directors; he or she shall have general and active management of the business of the corporation and shall see that all orders and resolutions of the Board of Directors are carried into effect.

5.9 **President's Signature Authority**. The president shall execute bonds, mortgages and other contracts requiring a seal, under the seal of the corporation, except where required or permitted by law to be otherwise signed and executed and except where the signing and execution thereof shall be expressly delegated by the Board of Directors to some other officer or agent of the corporation.

5.10 **Absence of President**. In the absence of the president or in the event of his inability or refusal to act, the vice-president, if any, (or in the event there be more than one vice-president, the vice-presidents in the order designated by the directors, or in the absence of any designation, then in the order of their election) shall perform the duties of the president, and when so acting, shall have all the powers of and be subject to all the restrictions upon the president. The vice-presidents shall perform such other duties and have such other powers as the Board of Directors may from time to time prescribe.

THE SECRETARY AND ASSISTANT SECRETARY

5.11 **Duties of Secretary**. The secretary shall attend all meetings of the Board of Directors and all meetings of the stockholders and record all the proceedings of the meetings of the corporation and of the Board of Directors in a book to be kept for that purpose and shall perform like duties for the standing committees when required. He or she shall give, or cause to be given, notice of all meetings of the stockholders and special meetings of the Board of Directors, and shall perform such other duties as may be prescribed by the Board of Directors or president, under whose supervision he or she shall be. He or she shall have custody of the corporate seal of the corporation and he or she, or an assistant secretary, shall have authority to affix the same to any instrument requiring it and when so affixed, it may be attested by his signature or by the signature of such assistant secretary. The Board of Directors may give general authority to any other officer to affix the seal of the corporation and to attest the affixing by his signature.

5.12 **Duties of Assistant Secretary**. The assistant secretary, or if there be more than one, the assistant secretaries in the order determined by the Board of Directors (or if there be no such determination, then in the order of their election) shall, in the absence of the secretary or in the event of his inability or refusal to act, perform the duties and exercise the powers of the secretary and shall perform such other duties and have such other powers as the Board of Directors may from time to time prescribe.

THE TREASURER AND ASSISTANT TREASURERS

5.13 **Duties of Treasurer**. The treasurer shall have the custody of the corporate funds and securities and shall keep full and accurate accounts of receipts and disbursements in books belonging to the corporation and shall deposit all moneys and other valuable effects in the name and to the credit of the corporation in such depositories as may be designated by the Board of Directors.

5.14 **Disbursements and Financial Reports**. He or she shall disburse the funds of the corporation as may be ordered by the Board of Directors, taking proper vouchers for such disbursements, and shall render to the president and the Board of Directors, at its regular meetings or when the Board of Directors so requires, an account of all his transactions as treasurer and of the financial condition of the corporation.

5.15 **Treasurer's Bond**. If required by the Board of Directors, the treasurer shall give the corporation a bond (which shall be renewed every six years) in such sum and with such surety or sureties as shall be satisfactory to the Board of Directors for the faithful performance of the duties of his office and for the restoration to the corporation, in case of his death, resignation, retirement or removal from office, of all books, papers, vouchers, money and other property of whatever kind in his possession or under his control belonging to the corporation.

5.16 **Duties of Assistant Treasurer**. The assistant treasurer, or if there shall be more than one, the assistant treasurers in the order determined by the Board of Directors (or if there be no such determination, then in the order of their election) shall, in the absence of the treasurer or in the event of the treasurer's inability or refusal to act, perform the duties and exercise the powers of the treasurer and shall perform such other duties and have such other powers as the Board of Directors may from time to time prescribe.

ARTICLE VI
CERTIFICATE OF STOCK

6.1 **Stock Certificates**. Every holder of stock in the corporation shall be entitled to have a certificate, signed by or in the name of the corporation by, the Chairman or Vice-Chairman of the Board of Directors, or the president or a vice-president and the treasurer or an assistant treasurer, or the secretary or an assistant secretary of the corporation, certifying the number of shares owned by him in the corporation.

Certificates may be issued for partly paid shares and in such case upon the face or back of the certificates issued to represent any such partly paid shares, the total amount of the consideration to be paid therefor, and the amount paid thereon shall be specified.

If the corporation shall be authorized to issue more than one class of stock or more than one series of any class, the powers, designations, preferences and relative participating, optional or other special rights of each class of stock or series thereof and the qualification, limitations or restrictions of such preferences and/or rights shall be set forth in full or summarized on the face or back of the certificate which the corporation shall issue to represent such class or series of stock, provided that, except as otherwise provided in Section 202 of the DGCL, in lieu of the foregoing requirements, there may be set forth on the face or back of the certificate which the corporation shall issue to represent such class or series of stock, a statement that the corporation will furnish without charge to each stockholder who so requests the powers, designations, preferences and relative participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

6.2 **Facsimile Signatures**. Any or all of the signatures on the certificate may be facsimile. In the event that 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, the certificate may be issued by the corporation with the same effect as if such officer, transfer agent or registrar were still acting as such at the date of issue.

6.3 **Lost Certificates**. The Board of Directors may direct a new certificate or certificates to 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 to be lost, stolen or destroyed. When authorizing such issuance of a new certificate or certificates, the Board of Directors may, in its discretion and as a condition precedent to the issuance, require the owner of such lost, stolen or destroyed certificate or certificates, or his legal representative, to advertise the same in such manner as it shall require and/or to give the corporation a bond in such sum 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.

6.4 **Transfer of Stock**. Upon surrender to the corporation or the transfer agent of the corporation of a certificate for shares duly endorsed or accompanied by proper evidence of succession, assignation or authority to transfer, it shall be the duty of the corporation to issue a new certificate to the person entitled thereto, cancel the old certificate and record the transaction upon its books.

6.5 **Fixing a Record Date**. 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, or to express consent to corporate action in writing without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights, or 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 a record date which shall not be more than sixty (60) nor less than ten (10) days before the date of such meeting, nor more than sixty (60) days prior to any other action. 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.

6.6 **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, to vote as such owner, to hold liable for calls and assessments a person registered on its books as the owner of shares 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 VII
GENERAL PROVISIONS

7.1 **Dividends**. Dividends upon the capital stock of the corporation, if any, subject to the provisions of the certificate of incorporation, may be declared by the Board of Directors at any regular or special meeting, pursuant to law. Dividends may be paid in cash, in property or in shares of the capital stock, subject to the provisions of the certificate of incorporation.

7.2 **Reserve for Dividends**. 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 directors from time to time, in their sole 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 purposes as the directors think conducive to the interests of the corporation, and the directors may modify or abolish any such reserve in the manner in which it was created.

7.3 **Checks**. All checks or demands for money and notes of the corporation shall be signed by such officer or officers or such other person or persons as the Board of Directors may from time to time designate.

7.4 **Fiscal Year**. The fiscal year of the corporation shall be fixed by resolution of the Board of Directors.

7.5 **Corporate Seal**. The Board of Directors may adopt a corporate seal having inscribed thereon the name of the corporation, the year of its organization and the words “Corporate Seal, Delaware.” The seal may be used by causing it or a facsimile thereof to be impressed or affixed or otherwise reproduced.

7.6 **Indemnification**. The corporation shall, to the fullest extent authorized under the laws of the State of Delaware, as those laws may be amended and supplemented from time to time, indemnify any director made, or threatened to be made, a party to an action or proceeding, whether criminal, civil, administrative or investigative, by reason of being a director of the corporation or a predecessor corporation or a director or officer of another corporation, if such person served in such position at the request of the corporation; provided, however, that the corporation shall indemnify any such director or officer in connection with a proceeding initiated by such director or officer only if such proceeding was authorized by the Board of Directors of the corporation. The indemnification provided for in this Section 7.6 shall: (i) not be deemed exclusive of any other rights to which those indemnified may be entitled under these bylaws, agreement or vote of stockholders or disinterested directors or otherwise, both as to action in their official capacities and as to action in another capacity while holding such office, (ii) continue as to a person who has ceased to be a director, and (iii) inure to the benefit of the heirs, executors and administrators of a person who has ceased to be a director. The corporation’s obligation to provide indemnification under this Section 7.6 shall be offset to the extent of any other source of indemnification or any otherwise applicable insurance coverage under a policy maintained by the corporation or any other person.

Expenses incurred by a director of the corporation in defending a civil or criminal action, suit or proceeding by reason of the fact that **he** or **she** is or was a director of the corporation (or was serving at the corporation's request as a director or officer of another corporation) shall be paid by the corporation in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of such director to repay such amount if it shall ultimately be determined that **he** or **she** is not entitled to be indemnified by the corporation as authorized by relevant sections of the DGCL. Notwithstanding the foregoing, the corporation shall not be required to advance such expenses to an agent who is a party to an action, suit or proceeding brought by the corporation and approved by a majority of the Board of Directors of the corporation that alleges willful misappropriation of corporate assets by such agent, disclosure of confidential information in violation of such agent's fiduciary or contractual obligations to the corporation or any other willful and deliberate breach in bad faith of such agent's duty to the corporation or its stockholders.

The foregoing provisions of this Section 7.6 shall be deemed to be a contract between the corporation and each director who serves in such capacity at any time while this bylaw is in effect, and any repeal or modification thereof shall not affect any rights or obligations then existing with respect to any state of facts then or theretofore existing or any action, suit or proceeding theretofore or thereafter brought based in whole or in part upon any such state of facts.

The Board of Directors in its sole discretion shall have power on behalf of the corporation to indemnify any person, other than a director, made a party to any action, suit or proceeding by reason of the fact that **he** or **she**, his testator or intestate, is or was an officer or employee of the corporation.

To assure indemnification under this Section 7.6 of all directors, officers and employees who are determined by the corporation or otherwise to be or to have been "fiduciaries" of any employee benefit plan of the corporation that may exist from time to time, Section 145 of the DGCL shall, for the purposes of this Section 7.6, be interpreted as follows: an "other enterprise" shall be deemed to include such an employee benefit plan, including without limitation, any plan of the corporation that is governed by the Act of Congress entitled "Employee Retirement Income Security Act of 1974," as amended from time to time; the corporation shall be deemed to have requested a person to serve the corporation for purposes of Section 145 of the DGCL, as administrator of an employee benefit plan where the performance by such person of his duties to the corporation also imposes duties on, or otherwise involves services by, such person to the plan or participants or beneficiaries of the plan; excise taxes assessed on a person with respect to an employee benefit plan pursuant to such Act of Congress shall be deemed "fines."

CERTIFICATE OF INCORPORATION GOVERNS

7.7 **Conflicts with Certificate of Incorporation**. In the event of any conflict between the provisions of the corporation's certificate of incorporation and these bylaws, the provisions of the certificate of incorporation shall govern.

ARTICLE VIII
AMENDMENTS

8.1 These bylaws may be altered, amended or repealed, or new bylaws may be adopted by the stockholders or by the Board of Directors, when such power is conferred upon the Board of Directors by the certificate of incorporation at any regular meeting of the stockholders or of the Board of Directors or at any special meeting of the stockholders or of the Board of Directors if notice of such alteration, amendment, repeal or adoption of new bylaws be contained in the notice of such special meeting. If the power to adopt, amend or repeal bylaws is conferred upon the Board of Directors by the certificate of incorporation, it shall not divest or limit the power of the stockholders to adopt, amend or repeal bylaws.

ARTICLE IX
LOANS TO OFFICERS

9.1 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.

Exhibit 4.1

AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

THIS AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT (this "**Agreement**"), is made as of the 9th day of November, 2018, by and among Keros Therapeutics, Inc., a Delaware corporation (the "**Company**"), and each of the investors listed on Schedule A hereto, each of which is referred to in this Agreement as an "**Investor**".

RECITALS

WHEREAS, certain of the Investors (the "**Existing Investors**") hold shares of the Company's Series A Preferred Stock, Series A-1 Preferred Stock and/or shares of Common Stock issued upon conversion thereof and possess registration rights, information rights, rights of first offer, and other rights pursuant to an Amended and Restated Investors' Rights Agreement dated as of August 16, 2016 between the Company and such Investors (the "**Prior Agreement**");

WHEREAS, certain Existing Investors desire to amend and restate the Prior Agreement in its entirety and to accept the rights created pursuant to this Agreement in lieu of the rights granted to them under the Prior Agreement; and

WHEREAS, certain Investors are parties to that certain Series B-1/B-2 Preferred Stock Purchase Agreement of even date herewith between the Company and certain of the Investors (the "**Purchase Agreement**"), under which certain of the Company's and such Investors' obligations are conditioned upon the execution and delivery of this Agreement by such Investors, certain Existing Investors and the Company.

NOW, THEREFORE, the Existing Investors hereby agree that the Prior Agreement shall be amended and restated and replaced in its entirety by this Agreement, and the parties to this Agreement further agree as follows:

1. Definitions. For purposes of this Agreement:

1.1 "**Affiliate**" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including without limitation any general partner, managing member, officer or director of such Person or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such Person.

1.2 "**Common Stock**" means shares of the Company's common stock, par value $0.0001 per share.

1.3 "**Competitor**" means a Person engaged, directly or indirectly (including through any partnership, limited liability company, corporation, joint venture or similar arrangement (whether now existing or formed hereafter)), in the same or similar business as the Company, but shall not include any financial investment firm or collective investment vehicle that, together with its Affiliates, holds less than twenty percent (20)% of the outstanding equity of any Competitor and does not, nor do any of its Affiliates, have a right to designate any members of the Board of Directors of any Competitor.

1.4 “**Damages**” means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (a) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (b) an 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 (c) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

1.5 “**Derivative Securities**” means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly), Common Stock, including options and warrants.

1.6 **Exchange Act**” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.7 “**Excluded Registration**” means (a) a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (b) a registration relating to an SEC Rule 145 transaction; (c) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (d) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

1.8 “**Form S-1**” means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

1.9 “**Form S-3**” means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.10 “**GAAP**” means generally accepted accounting principles in the United States.

1.11 “**Holder**” means any holder of Registrable Securities who is a party to this Agreement.

1.12 “**Immediate Family Member**” means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including, adoptive relationships, of a natural person referred to herein.

1.13 “**Initiating Holders**” means, collectively,Holders who properly initiate a registration request under this Agreement.

1.14 "**IPO**" means the Company's first underwritten public offering of its Common Stock under the Securities Act.

1.15 "**Key Employee**" means any executive-level employee (including, division director and vice president-level positions) as well as any employee who, either alone or in concert with others, develops, invents, programs, or designs any Company Intellectual Property (as defined in the Purchase Agreement).

1.16 "**Major Investor**" means any Investor that, individually or together with such Investor's Affiliates, holds at least 100,000 shares of Registrable Securities (as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof).

1.17 "**New Securities**" means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options, or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such equity securities.

1.18 "**Person**" means any individual, corporation, partnership, trust, limited liability company, association or other entity.

1.19 "**Preferred Director**" means any director of the Company that the holders of record of the Series A Preferred Stock or Series B Preferred Stock are entitled to elect pursuant to the Company's Certificate of Incorporation.

1.20 "**Preferred Stock**" means, collectively, shares of Series A Preferred Stock, Series A-1 Preferred Stock, Series B-1 Preferred Stock and Series B-2 Preferred Stock.

1.21 "**Registrable Securities**" means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; (ii) any Common Stock, or any Common Stock issued or issuable (directly or indirectly) upon conversion and/or exercise of any other securities of the Company, now held or acquired by the Investors after the date hereof; and (iii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clauses (i) and (ii) above; excluding in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 6.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.13 of this Agreement.

1.22 "**Registrable Securities then outstanding**" means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

1.23 "**Restricted Securities**" means the securities of the Company required to be notated with the legend set forth in Subsection 2.12(b) hereof.

1.24 "**SEC**" means the Securities and Exchange Commission.

1.25 "**SEC Rule 144**" means Rule 144 promulgated by the SEC under the Securities Act.

1.26 "**SEC Rule 145**" means Rule 145 promulgated by the SEC under the Securities Act.

1.27 "**Securities Act**" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.28 "**Selling Expenses**" means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel borne and paid by the Company as provided in Subsection 2.6.

1.29 "**Series A Preferred Stock**" means shares of the Company's Series A Preferred Stock, par value $0.0001 per share.

1.30 "**Series A-1 Preferred Stock**" means shares of the Company's Series A-1 Preferred Stock, par value $0.0001 per share.

1.31 "**Series B-1 Preferred Stock**" means shares of the Company's Series B-1 Preferred Stock, par value $0.0001 per share.

1.32 "**Series B-2 Preferred Stock**" means shares of the Company's Series B-1 Preferred Stock, par value $0.0001 per share.

1.33 "**Voting Agreement**" means that certain Amended and Restated Voting Agreement by and between the Company and certain stockholders of the Company, dated on or about the date hereof.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of at least a majority of the Registrable Securities then outstanding that the Company file a Form S-1 registration statement with respect to the Registrable Securities then outstanding, then the Company shall (x) within ten (10) days after the date such request is given, give notice thereof (the "**Demand Notice**") to all Holders other than the Initiating Holders; and (y) as soon as practicable, and in any event within sixty (60) days after the date such request is given by the Initiating Holders, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of at least a majority of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least $1 million, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Company's Board of Directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than sixty (60) days after the request of the Initiating Holders is given; *provided, however,* that the Company may not invoke this right more than once in any twelve (12) month period; and *provided further* that the Company shall not register any securities for its own account or that of any other stockholder during such sixty (60) day period other than an Excluded Registration.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a)(i) during the period that is sixty (60) days before the Company's good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration, *provided,* that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two registrations pursuant to Subsection 2.1(a); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b) (i) during the period that is thirty (30) days before the Company's good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, *provided*, that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two registrations

pursuant to Subsection 2.1(b) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d).

2.2 Company Registration. If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its securities under the Securities Act in connection with the public offering of such securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of Subsection 2.3, cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Subsection 2.2 before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with Subsection 2.6.

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this Subsection 2.3, if the managing underwriter(s) advise(s) the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; *provided, however*, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Subsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders, To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, or (ii) the number of Registrable Securities included in the offering be reduced below thirty percent (30%) of the total number of securities included in such offering, unless such offering is the IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering. For purposes of the provision in this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any pro rata reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; *provided, however*, that such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; *provided* that the Company shall not be required to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any managing underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and the reasonable fees and disbursements of one counsel for the selling Holders ("**Selling Holder Counsel**"), shall be borne and paid by the Company; *provided*, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all selling Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be; *provided further* that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in the condition, business, or prospects of the Company from that known to the Holders at the time of their request and have withdrawn the request with reasonable promptness after learning of such information then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders pro rata on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such

expenses are incurred; *provided, however*, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration; and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; *provided, however*, that the indemnity agreement contained in this Subsection 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; and *provided further* that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Subsections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; *provided, however*, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action. The failure to give notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Subsection 2.8, to the extent that such failure materially prejudices the indemnifying party's ability to defend such action.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either: (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Subsection 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Subsection 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any party hereto for which indemnification is provided under this Subsection 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; *provided*, *however*, that, in any such case (x) no Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and *provided further* that in no event shall a Holder's liability pursuant to this Subsection 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Subsection 2.8(b), exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of willful misconduct or fraud by such Holder.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Subsection 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company; and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the holders of at least eighty percent (80%) of the shares of Common Stock issued or issuable upon conversion of the then outstanding shares of Preferred Stock held by the Investors, enter into any agreement with any holder or prospective holder of any securities of the Company that (i) would provide to such holder the right to include securities in any registration on other than either a pro rata basis with respect to the Registrable Securities or on a subordinate basis after all Holders have had the opportunity to include in the registration and offering all shares of Registrable Securities that they wish to so include; or (ii) allow such holder or prospective holder to initiate a demand for registration of any securities held by such holder or prospective holder; *provided* that this limitation shall not apply to any additional Investor who becomes a party to this Agreement in accordance with Subsection 6.9.

2.11 "Market Stand-off' Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the IPO, and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days, or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (1) the publication or other distribution of research reports and (2) analyst recommendations and opinions, including, but not limited to, the restrictions contained in FINRA Rule 2711(0(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto): (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock (whether such shares or any such securities are then owned by the Holder or are thereafter acquired) or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise.

The foregoing provisions of this Subsection 2.11 shall apply only to the IPO and shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, and shall be applicable to the Holders only if all officers and directors are subject to the same restrictions. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Subsection 2.11 or that are necessary to give further effect thereto.

2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.12(c)) be notated with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.12.

(c) The holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's

expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144; or (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; *provided* that each transferee agrees in writing to be subject to the terms of this Subsection 2.12. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144, the appropriate restrictive legend set forth in Subsection 2.12(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Subsections 2.1 or 2.2 shall terminate upon the earliest to occur of:

(a) the closing of a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation;

(b) such time as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such Holder's shares without limitation during a three-month period without registration; and

(c) the five year anniversary of the IPO.

3. Information and Observer Rights.

3.1 Delivery of Financial Statements. The Company shall deliver to each Major Investor, *provided* that the Board of Directors has not reasonably determined that such Major Investor is a Competitor of the Company:

(a) as soon as practicable, but in any event within one hundred and eighty (180) days after the end of each fiscal year of the Company, financial statements of the Company for such year including a consolidated balance sheet of the Company as of the end of such year, and statements of income and statements of cash flow of the Company for such year, setting forth in each case in comparative form the figures for the previous fiscal year, all in reasonable detail, United States dollar-denominated, prepared in accordance with GAAP, audited by one of the "big four" U.S. accounting firms, which has been approved by Holders of a majority of the Registrable Securities (the "**Accounting Firm**");

(b) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet as of the end of such fiscal quarter, all prepared in accordance with GAAP and reviewed by the Accounting Firm (except that such financial statements may (i) be subject to normal year-end audit adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(c) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Major Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(d) as soon as practicable, but in any event within ten (10) days of the end of each month, a monthly report in a form approved by the Board of Directors;

(e) as soon as practicable, but in any event thirty (30) days before the end of each fiscal year, a budget and business plan for the next fiscal year (collectively, the "**Budget**"), approved by the Board of Directors and prepared on a monthly basis, including balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company; and

(f) such other information relating to the financial condition, business, prospects, or corporate affairs of the Company as any Major Investor may from time to time reasonably request; *provided*, *however*, that the Company shall not be obligated under this Subsection 3.1 to provide information (i) that the Company reasonably determines in good faith to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in a form acceptable to the Company); or (ii) the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then in respect of such period the financial statements delivered pursuant to the foregoing Sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date thirty (30) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; *provided* that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Major Investor (*provided* that the Board of Directors has not reasonably determined that such Major Investor is a Competitor of the Company), at such Major Investor's expense, to visit and inspect the Company's properties; examine its books of account and records; and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Major Investor; *provided, however*, that the Company shall not be obligated pursuant to this Subsection 3.2 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Observer. For so long as Arkin Bio Ventures Limited Partnership ("**Arkin**"), together with its Affiliates, continue to own beneficially at least 100,000 shares of Common Stock of the Company (including shares of Common Stock issued or issuable upon conversion of Preferred Stock), Arkin shall be entitled to designate one (1) observer to the Board of Directors (the "**Observer**"), who shall be entitled to attend any meeting of the Board of Directors, but shall not be entitled to vote in such meetings; *provided, however*, that such appointment of the Observer is conditional upon the Observer entering into a confidentiality agreement with the Company in a form acceptable to Company.

The rights of the Observer shall be subject to the following:

(a) The Company shall give the Observer the same prior notice given to the members of the Board of Directors regarding any proposed meeting of the Board of Directors or of any committee of the Board of Directors, such notice in all cases to include true and complete copies of all documents furnished to any member of the Board of Directors in connection with such meeting. The Observer will be entitled to be present in person as an observer at any such meeting or, if a meeting is held by telephone conference, to participate therein for the purpose of listening thereto.

(b) The Company will deliver to each Observer copies of all papers which may be distributed from time to time to the Directors at such time as such papers are so distributed to them, including copies of any written consent.

(c) The Observer will treat and maintain such information in strict confidence, and will not disclose such information without the prior written consent of the Company.

(d) If the Board of Directors determines, in good faith, that the attendance of the person appointed as the Observer in a specific meeting (or part of the specific meeting) (i) constitutes a conflict of interests between such person (or his designator) and the Company, (ii) would adversely impact the attorney/client privilege, or (iii) would result in disclosure of trade secrets, or if such person is affiliated with a direct competitor of the Company, then the Board may exclude such person from attending such specific meeting (or relevant part thereof), accordingly, any related materials may as well be withheld from the such person, *provided* that all Board observers are afforded equivalent treatment.

3.4 Termination of Information. The covenants set forth in Subsection 3.1, Subsection 3.2 and Subsection 3.3 shall terminate and be of no further force or effect (a) immediately before the consummation of the IPO, (b) when the Company first becomes subject to the periodic reporting requirements of Section 13 or 15(d) of the Exchange Act, or (c) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

3.5 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.5 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; *provided*, *however*, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Subsection 3.5; (iii) to any Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business, *provided* that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law, *provided* that the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Investor. An Investor shall be entitled to apportion the right of first offer hereby granted to it in such proportions as it deems appropriate, among (i) itself, (ii) its Affiliates and (iii) its beneficial interest holders, such as limited partners, members or any other Person having "beneficial ownership," as such term is defined in Rule 13d-3 promulgated under the Exchange Act, of such Investor ("**Investor Beneficial Owners**"); *provided* that each such Affiliate or Investor Beneficial Owner (x) is not a Competitor of the Company, unless such party's purchase of New Securities is otherwise consented to by the Board of Directors, (y) agrees to enter into this Agreement, the Voting Agreement and the Right of First Refusal and Co-Sale Agreement of even date herewith among the Company, the Investors and the other parties named therein, as an "**Investor**" under each such agreement (*provided* that any Competitor of the Company shall not be entitled to any rights as an Investor under Subsections 3.1, 3.2, 3.3 and 4.1 hereof), and (z) agrees to purchase at least such number of New Securities as are allocable hereunder to the Investor holding the fewest number of Preferred Stock and any other Derivative Securities.

(a) The Company shall give notice (the "**Offer Notice**") to each Major Investor, stating (i) its bona fide intention to offer such New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, each Major Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Major Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Major Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and other Derivative Securities). At the expiration of such twenty (20) day period, the Company shall promptly notify each Major Investor that elects to purchase or acquire all the shares available to it (each, a "**Fully Exercising Investor**") of any other Major Investor's failure to do likewise. During the ten (10) day period commencing after the Company has given such notice, each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Major Investors were entitled to subscribe but that were not subscribed for by the Major Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur within the later of ninety (90) days of the date that the Offer Notice is given and the date of initial sale of New Securities pursuant to Subsection 4.1(c).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Subsection 4.1(b), the Company may, during the ninety (90) day period following the expiration of the periods provided in Subsection 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Major Investors in accordance with this Subsection 4.1.

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Company's Certificate of Incorporation); (ii) shares of Common Stock issued in the IPO; (iii) the issuance of shares of Series A Preferred Stock pursuant to that certain Series A Preferred Stock Purchase Agreement between the Company and the other parties thereto dated April 15, 2016; (iv) the issuance of shares of Series A-1 Preferred Stock pursuant to that certain Series A-1 Preferred Stock Purchase Agreement between the Company and the other parties thereto dated August 16, 2016; (v) the issuance of shares of Series B-1 Preferred Stock pursuant to the Purchase Agreement; and (vi) the issuance of shares of Series B-2 Preferred Stock pursuant to the Purchase Agreement.

4.2 Termination. The covenants set forth in Subsection 4.1 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

5. Additional Covenants.

5.1 Insurance. The Company shall use its commercially reasonable efforts to obtain, within ninety (90) days of the date hereof, from financially sound and reputable insurers Directors and Officers liability insurance in an amount and on terms and conditions satisfactory to the Board of Directors, and will use commercially reasonable efforts to cause such insurance policies to be maintained until such time as the Board of Directors determines that such insurance should be discontinued,

5.2 Employee Agreements. The Company will cause (i) each person now or hereafter employed by it or by any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into a nondisclosure and proprietary rights assignment agreement; and (ii) each Key Employee to enter into a one (1) year noncompetition and nonsolicitation agreement. In addition, the Company shall not amend, modify, terminate, waive, or otherwise alter, in whole or in part, any of the above-referenced agreements or any restricted stock agreement between the Company and any employee, without the consent of the Board of Directors.

5.3 Employee Stock. Unless otherwise approved by the Board of Directors, all future employees and consultants of the Company who purchase, receive options to purchase, or receive awards of shares of the Company's capital stock after the date hereof shall be required to execute restricted stock or option agreements, as applicable, providing for (i) vesting of shares over a four (4) year period, with the first twenty-five percent (25%) of such shares vesting following twelve (12) months of continued employment or service, and the remaining shares vesting in equal installments over the following thirty-six (36) months, and (ii) a market stand off provision substantially similar to that in Subsection 2.11. In addition, unless otherwise approved by the Board of Directors, the Company shall retain a "right of first refusal" on employee transfers until the Company's IPO and shall have the right to repurchase unvested shares at cost upon termination of employment of a holder of restricted stock.

5.4 Matters Requiring Investor Director Approval. So long as the holders of Preferred Stock are entitled to elect a Preferred Director, the Company hereby covenants and agrees with each of the Investors that it shall not, without approval of the Board of Directors, which approval must include the affirmative vote, if still seated, of the PIF Director, the Arkin Director, the Global Health Director, and at least one Pontifax Director (each as defined in the Voting Agreement) hire, terminate, or change the compensation of the executive officers, including approving any option grants or stock awards to executive officers.

5.5 Board Matters. Unless otherwise determined by the vote of a majority of the directors then in office, the Board of Directors shall meet at least quarterly in accordance with an agreed-upon schedule. The Company shall reimburse the nonemployee directors for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board of Directors.

5.6 Successor Indemnification. If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, its Certificate of Incorporation, or elsewhere, as the case may be.

5.7 Indemnification Matters. The Company hereby acknowledges that one (1) or more of the directors nominated to serve on the Board of Directors by the Investors (each a "**Fund Director**") may have certain rights to indemnification, advancement of expenses and/or insurance provided by one or more of the Investors and certain of their affiliates (collectively, the "**Fund Indemnitors**"). The Company hereby agrees (a) that it is the indemnitor of first resort (*i.e.*, its obligations to any such Fund Director are primary and any obligation of the Fund Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Fund Director are secondary), (b) that it shall be required to advance the full amount of expenses incurred by such Fund Director and shall be liable for the full amount of all expenses, judgments, penalties, fines and amounts paid in settlement by or on behalf of any such Fund Director to the extent legally permitted and as required by the Company's Certificate of Incorporation or Bylaws of the Company (or any agreement between the Company and such Fund Director), without regard to any rights such Fund Director may have against the Fund Indemnitors, and, (c) that 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 any such Fund Director with respect to any claim for which such Fund Director 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 such Fund Director against the Company.

5.8 Termination of Covenants. The covenants set forth in this Section 5, except for Subsections 5.6 and 5.7, shall terminate and be of no further force or effect (a) immediately before the consummation of the IPO, (b) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (c) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

6. Miscellaneous.

6.1 Successors and Assigns. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least 100,000 shares of Registrable Securities (subject to appropriate adjustment for stock splits, stock dividends, combinations, and other recapitalizations); *provided, however*, that (x) the Company is, within a reasonable time after such transfer, furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement, including the provisions of Subsection 2.11. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; *provided further* that all transferees who would not qualify individually for assignment of rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. The terms and conditions of this Agreement inure to the benefit of and are binding upon the respective successors and permitted assignees of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

6.2 Governing Law. This Agreement shall be governed by the internal law of the State of Delaware.

6.3 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 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.

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (a) personal delivery to the party to be notified; (b) when sent, if sent by electronic mail or facsimile during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) two (2) business days after the deposit with an internationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A hereto, or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address, facsimile number, or address as subsequently modified by written notice given in accordance with this Subsection 6.5. If notice is given to the Company, a copy shall also be sent to Faber Daeufer & Itrato, PC, 890 Winter Street, Suite 315, Waltham, MA 02451, Attention: Kurt L. Machemer, Esq.

6.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company and the holders of at least eighty percent (80%) of the shares of Common Stock issued or issuable upon conversion of the then outstanding shares of Preferred Stock held by the Investors; *provided* that the Company may in its sole discretion waive compliance with Subsection 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.12(c) shall be deemed to be a waiver); and *provided further* that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party. Notwithstanding the foregoing, this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction). The Company shall give prompt notice of any amendment or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, termination, or waiver. Any amendment, termination, or waiver effected in accordance with this Subsection 6.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

6.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

6.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

6.9 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of the Company's Preferred Stock after the date hereof, any purchaser of such shares of Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

6.10 Entire Agreement. This Agreement (including any Schedules and Exhibits hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled. Upon the effectiveness of this Agreement, the Prior Agreement shall be deemed amended and restated and superseded and replaced in its entirety by this Agreement, and shall be of no further force or effect.

6.11 Dispute Resolution. The parties (a) hereby irrevocably and unconditionally submit to the jurisdiction of the state courts of Delaware and to the jurisdiction of the United States District Court for the District of Delaware for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, (b) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the state courts of Delaware or the United States District Court for the District of Delaware, and (c) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

6.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

COMPANY:

By: /s/ Jasbir S. Seehra
Name: Jasbir S. Seehra
Title: Chief Executive Officer

Address:

99 Hayden Ave.
Building E, Suite 120
Lexington, MA 02421

INVESTORS:

PONTIFAX (ISRAEL) IV, L.P.

By: /s/ Tomer Kariv
Name: Tomer Kariv
Title: CEO

PONTIFAX (CAYMAN) IV, L.P.

By: /s/ Tomer Kariv
Name: Tomer Kariv
Title: CEO

PONTIFAX (CHINA) IV, L.P.

By: /s/ Tomer Kariv
Name: Tomer Kariv
Title: CEO

INVESTORS:

ARKIN BIO VENTURES LIMITED PARTNERSHIP

BY ITS GENERAL PARTNER: ARKIN BIO VENTURE PARTNERS LTD.

By: /s/ Moshe Arkin
Name: Moshe Arkin
Title: Director

INVESTORS:

PARTNERS INNOVATION FUND, LLC

By: /s/ Julius Knowles
Name: Julius Knowles
Title: Partner

PARTNERS INNOVATION FUND II, L.P.

By: Partners Innovation II, LLC
Its General Partner

By: /s/ Julius Knowles
Name: Julius Knowles
Title: Partner

INVESTORS:

MEDISON VENTURES LTD.

By: /s/ Gil Gurfinkel
Name: Gil Gurfinkel
Title: Vp CORPORATE Development

INVESTORS:

GLOBAL HEALTH SCIENCE FUND II, L.P.

Signed for and on behalf of GHS Partners Limited, acting as the general partner of GHS Partnership II L.P. being the general partner of Global Health Science Fund II, L.P.

By: /s/ Karimah Es Sabar
Name: Karimah Es Sabar
Title: Director

INVESTORS:

PONTIFAX LATE STAGE FUND L.P.

By: /s/ Shlomo Karako
Name: Shlomo Karako
Title: Managing Partner

SCHEDULE A

Investors

Pontifax (Israel) IV, L.P.

Pontifax (Cayman) IV, L.P.

Pontifax (China) IV, L.P.

Arkin Bio Ventures Limited Partnership

Partners Innovation Fund, LLC

Partners Innovation Fund II, L.P.

Medison Ventures Ltd.

Global Health Science Fund II, L.P.

Pontifax Late Stage Fund L.P.

KEROS THERAPEUTICS, INC.

2017 STOCK INCENTIVE PLAN

1. Purpose

The purpose of this 2017 Stock Incentive Plan (the "Plan") of Keros Therapeutics, Inc., a Delaware corporation (the "Company"), is to advance the interests of the Company's stockholders by enhancing the Company's ability to attract, retain and motivate persons who are expected to make important contributions to the Company and by providing such persons with equity ownership opportunities and performance-based incentives that are intended to better align the interests of such persons with those of the Company's stockholders. Except where the context otherwise requires, the term "Company" shall include any of the Company's present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Internal Revenue Code of 1986, as amended, and any regulations promulgated thereunder (the "Code") and any other business venture (including, without limitation, joint venture or limited liability company) in which the Company has a controlling interest, as determined by the Board of Directors of the Company (the "Board").

2. Eligibility

All of the Company's employees, officers, directors, consultants and advisors are eligible to be granted options, restricted stock, restricted stock units ("RSUs") and other stock-based awards (each, an "Award") under the Plan. Each person who receives an Award under the Plan is deemed a "Participant".

3. Administration and Delegation

(a) Administration by Board of Directors. The Plan will be administered by the Board. The Board shall have authority to grant Awards and to adopt, amend and repeal such administrative rules, guidelines and practices relating to the Plan as it shall deem advisable. The Board may construe and interpret the terms of the Plan and any Award agreements entered into under the Plan. The Board may correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent it shall deem expedient to carry the Plan into effect and it shall be the sole and final judge of such expediency. All decisions by the Board shall be made in the Board's sole discretion and shall be final and binding on all persons having or claiming any interest in the Plan or in any Award. No director or person acting pursuant to the authority delegated by the Board shall be liable for any action or determination relating to or under the Plan made in good faith.

(b) Appointment of Committees. To the extent permitted by applicable law, the Board may delegate any or all of its powers under the Plan to one or more committees or subcommittees of the Board (a "Committee"). All references in the Plan to the "Board" shall mean the Board or a Committee of the Board or the officers referred to in Section 3(c) to the extent that the Board's powers or authority under the Plan have been delegated to such Committee or officers.

(c) Delegation to Officers. To the extent permitted by applicable law, the Board may delegate to one or more officers of the Company the power to grant Awards (subject to any limitations under the Plan) to employees or officers of the Company or any of its present or future subsidiary corporations and to exercise such other powers under the Plan as the Board may determine, provided that the Board shall fix the terms of the Awards to be granted by such officers (including the exercise price of such Awards, which may include a formula by which the exercise price will be determined) and the maximum number of shares subject to Awards that the officers may grant; provided further, however, that no officer shall be authorized to grant Awards to any "executive officer" of the Company (as defined by Rule 3b-7 under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) or to any "officer" of the Company (as defined by Rule 16a-1 under the Exchange Act).

4. Stock Available for Awards.

(a) Number of Shares. Subject to adjustment under Section 8, Awards may be made under the Plan for up to 518,1101[1] shares of common stock, $0.0001 par value per share, of the Company (the "Common Stock"). If any Award expires or is terminated, surrendered or canceled without having been fully exercised, is forfeited in whole or in part (including as the result of shares of Common Stock subject to such Award being repurchased by the Company at the original issuance price pursuant to a contractual repurchase right), or results in any Common Stock not being issued, the unused Common Stock covered by such Award shall again be available for the grant of Awards under the Plan. Further, shares of Common Stock tendered to the Company by a Participant to exercise an Award shall be added to the number of shares of Common Stock available for the grant of Awards under the Plan. However, in the case of Incentive Stock Options (as hereinafter defined), the foregoing provisions shall be subject to any limitations under the Code. Shares issued under the Plan may consist in whole or in part of authorized but unissued shares or treasury shares. At no time while there is any Option (as defined below) outstanding and held by a Participant who was a resident of the State of California on the date of grant of such Option, shall the total number of shares of Common Stock issuable upon exercise of all outstanding options and the total number of shares provided for under any stock bonus or similar plan or agreement of the Company exceed the applicable percentage as calculated in accordance with the conditions and exclusions of Section 260.140.45 of the California Code of Regulations (the "California Regulations"), based on the shares of the Company which are outstanding at the time the calculation is made.

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1 Increased by 982,533 shares, from 518,110 shares to 1,500,643 shares, pursuant to Board action taken on December 18, 2017.

Increased by 442,000 shares, from 1,500,643 shares to 1,942,643 shares, pursuant to Board action taken on January 2, 2018.

1,424,533 share increase (inclusive of December 18, 2017 and January 2, 2018 board approved increases) ratified by stockholder consent on January 2, 2018.

Increased by 80,000 shares, from 1,942,643 to 2,022,643 shares, pursuant to Board action taken on October 9, 2018 and later stockholder ratification.

Increased by 933,500 shares, from 2,022,643 to 2,956,143 shares, pursuant to Board action taken on March 4, 2019 (subject to delivery of requisite stockholder approval).

(b) Substitute Awards. In connection with a merger or consolidation of an entity with the Company or the acquisition by the Company of property or stock of an entity, the Board may grant Awards in substitution for any options or other stock or stock-based awards granted by such entity or an affiliate thereof. Substitute Awards may be granted on such terms as the Board deems appropriate in the circumstances, notwithstanding any limitations on Awards contained in the Plan. Substitute Awards shall not count against the overall share limit set forth in Section 4(a), except as may be required by reason of Section 422 and related provisions of the Code.

5. Stock Options

(a) General. The Board may grant options to purchase Common Stock (each, an "Option") and determine the number of shares of Common Stock to be covered by each Option, the exercise price of each Option and the conditions and limitations applicable to the exercise of each Option, including conditions relating to applicable federal or state securities laws, as it considers necessary or advisable. An Option that is not intended to be an Incentive Stock Option (as hereinafter defined) shall be designated a "Nonstatutory Stock Option".

(b) Incentive Stock Options. An Option that the Board intends to be an "incentive stock option" as defined in Section 422 of the Code (an "Incentive Stock Option") shall only be granted to employees of the Company, any of the Company's present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Code, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code. The Option shall be subject to and shall be construed consistently with the requirements of Section 422 of the Code, and without limiting generality of the foregoing, the Option shall be deemed to include terms that comply with the eligibility standards described section 422(b) of the Code. Subject to the remaining provisions of this Section 5(b), if an Option intended to qualify as an Incentive Stock Option does not so qualify, the Board may, at its discretion, amend the Plan and Award with respect to such Option so that such Option qualifies as an Incentive Stock Option. 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 Participant 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 the rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Award. The Company shall have no liability to a Participant, or any other party, if an Option (or any part thereof) that is intended to be an Incentive Stock Option is not an Incentive Stock Option or for any action taken by the Board, including without limitation the conversion of an Incentive Stock Option to a Nonstatutory Stock Option.

(c) Exercise Price. The Board shall establish the exercise price of each Option and specify the exercise price in the applicable option agreement.

(d) Duration of Options. Each Option shall be exercisable at such times and subject to such terms and conditions as the Board may specify in the applicable option agreement.

(e) Exercise of Option. Options may be exercised by delivery to the Company of a written notice of exercise signed by the proper person or by any other form of notice (including electronic notice) approved by the Board together with payment in full as specified in Section 5(f) for the number of shares for which the Option is exercised. Shares of Common Stock subject to the Option will be delivered by the Company as soon as practicable following exercise.

(f) Payment Upon Exercise. Common Stock purchased upon the exercise of an Option granted under the Plan shall be paid for as follows:

(1) in cash or by check, payable to the order of the Company;

(2) when the Common Stock is registered under the Exchange Act, except as may otherwise be provided in the applicable option agreement, by (i) delivery of an irrevocable and unconditional undertaking by a creditworthy broker to deliver promptly to the Company sufficient funds to pay the exercise price and any required tax withholding or (ii) delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a creditworthy broker to deliver promptly to the Company cash or a check sufficient to pay the exercise price and any required tax withholding;

(3) when the Common Stock is registered under the Exchange Act and to the extent provided for in the applicable option agreement or approved by the Board, in its sole discretion, by delivery (either by actual delivery or attestation) of shares of Common Stock owned by the Participant valued at their fair market value as determined by (or in a manner approved by) the Board ("Fair Market Value"), provided (i) such method of payment is then permitted under applicable law, (ii) such Common Stock, if acquired directly from the Company, was owned by the Participant for such minimum period of time, if any, as may be established by the Board in its discretion and (iii) such Common Stock is not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements;

(4) to the extent permitted by applicable law and provided for in the applicable option agreement or approved by the Board, in its sole discretion, by (i) delivery of a promissory note of the Participant to the Company on terms determined by the Board, or (ii) payment of such other lawful consideration as the Board may determine; or

(5) by any combination of the above permitted forms of payment.

6. Restricted Stock; Restricted Stock Units

(a) General. The Board may grant Awards entitling recipients to acquire shares of Common Stock ("Restricted Stock"), subject to the right of the Company to repurchase all or part of such shares at their issue price or other stated or formula price (or to require forfeiture of such shares if issued at no cost) from the recipient in the event that conditions specified by the Board in the applicable Award are not satisfied prior to the end of the applicable restriction period or periods established by the Board for such Award. Instead of granting Awards for Restricted Stock, the Board may grant Awards entitling the recipient to receive shares of Common Stock or cash to be delivered at the time such Award vests ("Restricted Stock Units") (Restricted Stock and Restricted Stock Units are each referred to herein as a "Restricted Stock Award").

(b) Terms and Conditions for All Restricted Stock Awards. The Board shall determine the terms and conditions of a Restricted Stock Award, including the conditions for vesting and repurchase (or forfeiture) and the issue price, if any.

(c) Additional Provisions Relating to Restricted Stock.

(1) Dividends. Participants holding shares of Restricted Stock will be entitled to all ordinary cash dividends paid with respect to such shares, unless otherwise provided by the Board. Unless otherwise provided by the Board, if any dividends or distributions are paid in shares, or consist of a dividend or distribution to holders of Common Stock other than an ordinary cash dividend, the shares, cash or other property will be subject to the same restrictions on transferability and forfeitability as the shares of Restricted Stock with respect to which they were paid. Each dividend payment will be made no later than the end of the calendar year in which the dividends are paid to shareholders of that class of stock or, if later, the 15th day of the third month following the date the dividends are paid to shareholders of that class of stock.

(2) Stock Certificates. The Company may require that any stock certificates issued in respect of shares of Restricted Stock shall be deposited in escrow by the Participant, together with a stock power endorsed in blank, with the Company (or its designee). At the expiration of the applicable restriction periods, the Company (or such designee) shall deliver the certificates no longer subject to such restrictions to the Participant or if the Participant has died, to the beneficiary designated, in a manner determined by the Board, by a Participant to receive amounts due or exercise rights of the Participant in the event of the Participant's death (the "Designated Beneficiary"). In the absence of an effective designation by a Participant, "Designated Beneficiary" shall mean the Participant's estate.

7. Other Stock-Based Awards

Other Awards of shares of Common Stock, and other Awards that are valued in whole or in part by reference to, or are otherwise based on, shares of Common Stock or other property, may be granted hereunder to Participants ("Other Stock-Based Awards"), including without limitation stock appreciation rights ("SARs") and Awards entitling recipients to receive shares of Common Stock to be delivered in the future. Such Other Stock-Based Awards shall also be available as a form of payment in the settlement of other Awards granted under the Plan or as payment in lieu of compensation to which a Participant is otherwise entitled. Other Stock-Based Awards may be paid in shares of Common Stock or cash, as the Board shall determine. Subject to the provisions of the Plan, the Board shall determine the terms and conditions of each Other Stock-Based Award, including any purchase price applicable thereto.

8. Adjustments for Changes in Common Stock and Certain Other Events

(a) Changes in Capitalization. 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 Common Stock other than an ordinary cash dividend, (i) the number and class of securities

available under this Plan, (ii) the number and class of securities and exercise price per share of each outstanding Option, (iii) the number of shares subject to and the repurchase price per share subject to each outstanding Restricted Stock Award, and (iv) the terms of each other outstanding Award shall be equitably adjusted by the Company (or substituted Awards may be made, if applicable) in the manner determined by the Board; provided that, unless otherwise determined by the Board, such changes to the Options shall comply with section 1.424-1 of the Treasury Regulations. Without limiting the generality of the foregoing, in the event the Company effects a split of the Common Stock by means of a stock dividend and the exercise price of and the number of shares subject to an outstanding Option are adjusted as of the date of the distribution of the dividend (rather than as of the record date for such dividend), then an optionee who exercises an Option between the record date and the distribution date for such stock dividend shall be entitled to receive, on the distribution date, the stock dividend with respect to the shares of Common Stock acquired upon such Option exercise, notwithstanding the fact that such shares were not outstanding as of the close of business on the record date for such stock dividend.

(b) Reorganization Events.

(1) Definition. A "Reorganization Event" shall mean: (a) any merger or consolidation of the Company with or into another entity as a result of which all of the Common Stock of the Company is converted into or exchanged for the right to receive cash, securities or other property or is cancelled, (b) any exchange of all of the Common Stock of the Company for cash, securities or other property pursuant to a share exchange transaction or (c) any liquidation or dissolution of the Company.

(2) Consequences of a Reorganization Event on Awards Other than Restricted Stock Awards. In connection with a Reorganization Event, the Board may take any one or more of the following actions as to all or any (or any portion of) outstanding Awards other than Restricted Stock Awards on such terms as the Board determines: (i) provide that Awards shall be assumed, or substantially equivalent Awards shall be substituted, by the acquiring or succeeding corporation (or an affiliate thereof); provided that, unless otherwise determined by the Board, such assumption or substitution of the Options shall comply with section 1.424-1 of the Treasury Regulations, (ii) upon written notice to a Participant, provide that the Participant's unexercised Awards 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, (iii) provide that outstanding Awards shall become exercisable, realizable, or deliverable, or restrictions applicable to an Award shall lapse, in whole or in part prior to or upon such Reorganization Event, (iv) in the event of a Reorganization Event under the terms of which holders of Common Stock will receive upon consummation thereof a cash payment for each share surrendered in the Reorganization Event (the "Acquisition Price"), make or provide for a cash payment to a Participant equal to the excess, if any, of (A) the Acquisition Price times the number of shares of Common Stock subject to the Participant's Awards (to the extent the exercise price does not exceed the Acquisition Price) over (B) the aggregate exercise price of all such outstanding Awards and any applicable tax withholdings, in exchange for the termination of such Awards, (v) provide that, in connection with a liquidation or dissolution of the Company, Awards shall convert into the right to receive liquidation proceeds (if applicable, net of the exercise price thereof and any applicable tax withholdings) and (vi) any combination of the foregoing. In taking any of the actions permitted under this Section 8(b), the Board shall not be obligated by the Plan to treat all Awards, all Awards held by a Participant, or all Awards of the same type, identically.

For purposes of clause (i) above, an Option shall be considered assumed if, following consummation of the Reorganization Event, the Option confers the right to purchase, for each share of Common Stock subject to the Option immediately prior to the consummation of the Reorganization Event, the consideration (whether cash, securities or other property) received as a result of the Reorganization Event by holders of Common Stock for each share of Common Stock held immediately prior to the consummation of the Reorganization Event (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding shares of Common Stock); provided, however, that if the consideration received as a result of the Reorganization Event is not solely common stock of the acquiring or succeeding corporation (or an affiliate thereof), the Company may, with the consent of the acquiring or succeeding corporation, provide for the consideration to be received upon the exercise of Options to consist solely of common stock of the acquiring or succeeding corporation (or an affiliate thereof) equivalent in value (as determined by the Board) to the per share consideration received by holders of outstanding shares of Common Stock as a result of the Reorganization Event.

(3) Consequences of a Reorganization Event on Restricted Stock Awards. Upon the occurrence of a Reorganization Event other than a liquidation or dissolution of the Company, the repurchase and other rights of the Company under each outstanding Restricted Stock Award shall inure to the benefit of the Company's successor and shall, unless the Board determines otherwise, apply to the cash, securities or other property which the Common Stock was converted into or exchanged for pursuant to such Reorganization Event in the same manner and to the same extent as they applied to the Common Stock subject to such Restricted Stock Award. Upon the occurrence of a Reorganization Event involving the liquidation or dissolution of the Company, except to the extent specifically provided to the contrary in the instrument evidencing any Restricted Stock Award or any other agreement between a Participant and the Company, all restrictions and conditions on all Restricted Stock Awards then outstanding shall automatically be deemed terminated or satisfied.

9. General Provisions Applicable to Awards

(a) Transferability of Awards. Except as the Board may otherwise determine or provide in an Award, Awards shall not be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution or, other than in the case of an Incentive Stock Option, pursuant to a qualified domestic relations order, and, during the life of the Participant, shall be exercisable only by the Participant. References to a Participant, to the extent relevant in the context, shall include references to authorized transferees.

(b) Documentation. Each Award shall be evidenced in such form (written, electronic or otherwise) as the Board shall determine. Each Award may contain terms and conditions in addition to those set forth in the Plan.

(c) Board Discretion. Except as otherwise provided by the Plan, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award need not be identical, and the Board need not treat Participants uniformly.

(d) Termination of Status. The Board shall determine the effect on an Award of the disability, death, termination or other cessation of employment, authorized leave of absence or other change in the employment or other status of a Participant and the extent to which, and the period during which, the Participant, or the Participant's legal representative, conservator, guardian or Designated Beneficiary, may exercise rights under the Award.

(e) Withholding. The Company shall not be obligated to deliver certificates, release from forfeiture, otherwise recognize a Participant's unrestricted ownership in an Award or the cash or property proceeds therefrom, until the Company satisfies all applicable federal, state, and local or other income and employment tax withholding obligations. In its sole discretion, the Company may satisfy such withholding obligations by any of the following means or by a combination of such means: (i) causing the Participant to tender to the Company cash payment; (ii) withholding cash from an Award settled in cash; (iii) withholding from amounts otherwise payable by the Company to the Participant, including but not limited to additional withholding on the Participant's salary or wages, or from proceeds from the sale of Common Stock issued pursuant to an Award; (iv) delivery of shares of Common Stock, including shares retained from the Award creating the tax obligation, valued at their Fair Market Value; provided, however, except as otherwise provided by the Board, that the total tax withholding where stock is being used to satisfy such tax obligations cannot exceed the Company's minimum statutory withholding obligations (based on minimum statutory withholding rates for federal and state tax purposes, including payroll taxes, that are applicable to such supplemental taxable income), and provided, further, shares surrendered to satisfy tax withholding requirements cannot be subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements; or (v) by such other method as determined by the Board.

(f) Amendment of Award.

(1) The Board may amend, modify or terminate any outstanding Award, including but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or realization, and converting an Incentive Stock Option to a Nonstatutory Stock Option. The Participant's consent to such action shall be required unless (i) the Board determines that the action, taking into account any related action, would not materially and adversely affect the Participant's rights under the Plan, (ii) the change is permitted under Section 8 hereof, or (iii) the change is to ensure that an Option intended to qualify as an Incentive Stock Option qualifies as such.

(2) The Board may, without stockholder approval, amend any outstanding Award granted under the Plan to provide an exercise price per share that is lower than the then- current exercise price per share of such outstanding Award. The Board may also, without stockholder approval, cancel any outstanding award (whether or not granted under the Plan) and grant in substitution therefor new Awards under the Plan covering the same or a different number of shares of Common Stock and having an exercise price per share lower than the then- current exercise price per share of the cancelled award.

(g) Conditions on Delivery of Stock. The Company will not be obligated to deliver any shares of Common Stock pursuant to the Plan or to remove restrictions from shares previously delivered under the Plan until (i) all conditions of the Award have been met or removed to the satisfaction of the Company, (ii) in the opinion of the Company's counsel, all other legal matters in connection with the issuance and delivery of such shares have been satisfied, including any applicable securities laws and any applicable stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Company may consider appropriate to satisfy the requirements of any applicable laws, rules or regulations.

(h) Acceleration. The Board may at any time provide that any Award shall become immediately exercisable in full or in part, free of some or all restrictions or conditions, or otherwise realizable in full or in part, as the case may be.

10. Miscellaneous

(a) No Right To Employment or Other Status. No person shall have any claim or right to be granted an Award, and the grant of an Award shall not be construed as giving a Participant the right to continued employment or any other relationship with the Company. The Company expressly reserves the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan, except as expressly provided in the applicable Award.

(b) No Rights As Stockholder. Subject to the provisions of the applicable Award, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Award until becoming the record holder of such shares.

(c) Effective Date and Term of Plan. The Plan shall become effective on the date on which it is adopted by the Board. No Awards shall be granted under the Plan after the expiration of 10 years from the earlier of (i) the date on which the Plan was adopted by the Board or (ii) the date the Plan was approved by the Company's stockholders, but Awards previously granted may extend beyond that date.

(d) Amendment of Plan. The Board may amend, suspend or terminate the Plan or any portion thereof at any time; provided that if at any time the approval of the Company's stockholders is required as to any modification or amendment under Section 422 of the Code or any successor provision with respect to Incentive Stock Options, the Board may not effect such modification or amendment without such approval. Unless otherwise specified in the amendment, any amendment to the Plan adopted in accordance with this Section 10(d) shall apply to, and be binding on the holders of, all Awards outstanding under the Plan at the time the amendment is adopted, provided the Board determines that such amendment does not materially and adversely affect the rights of Participants under the Plan.

(e) Authorization of Sub-Plans. The Board may from time to time establish one or more sub-plans under the Plan for purposes of satisfying applicable blue sky, securities or tax laws of various jurisdictions. The Board shall establish such sub-plans by adopting supplements to this Plan containing (i) such limitations on the Board's discretion under the Plan as the Board deems necessary or desirable or (ii) such additional terms and conditions not otherwise inconsistent with the Plan as the Board shall deem necessary or desirable. All supplements adopted by the Board shall be deemed to be part of the Plan, but each supplement shall apply only to Participants within the affected jurisdiction and the Company shall not be required to provide copies of any supplement to Participants in any jurisdiction which is not the subject of such supplement.

(f) Compliance with Code Section 409A. Unless otherwise expressly provided for in an Award, the Plan and Award will be interpreted to the greatest extent possible in a manner that makes the Plan and the Awards granted hereunder exempt from Section 409A of the Code, and, to the extent not so exempt, in compliance with Section 409A of the Code. If the Board determines that any Award granted hereunder is not exempt from and is therefore subject to Section 409A of the Code, the 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 is silent on terms necessary for compliance, such terms as deemed necessary by the Board in its sole discretion are hereby incorporated by reference into the Award. Without limiting the generality of the foregoing, if shares of Common Stock are publicly traded, and if a Participant holding an Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount that is due because of a "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) will be issued or paid before the date that is six (6) months 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 of the Code, and any amounts so deferred will be paid in a lump sum on the day after such six (6) month period elapses, with the balance paid thereafter on the original schedule. The Company shall have no liability to a Participant, or any other party, if an Award that is intended to be exempt from, or compliant with, Section 409A of the Code is not so exempt or compliant or for any other action taken by the Board.

(g) Governing Law. The provisions of the Plan and all Awards made hereunder shall be governed by and interpreted in accordance with the laws of the State of Delaware, excluding choice-of-law principles of the law of such state that would require the application of the laws of a jurisdiction other than such state.

KEROS THERAPEUTICS, INC.

2017 STOCK INCENTIVE PLAN

CALIFORNIA SUPPLEMENT

Pursuant to Section 10(e) of the Plan, the Board has adopted this supplement for purposes of satisfying the requirements of Section 25102(o) of the California Law:

Any Awards granted under the Plan to a Participant who is a resident of the State of California on the date of grant (a "California Participant") shall be subject to the following additional limitations, terms and conditions:

1. Additional Limitations on Options.

(a) Minimum Vesting Rate. Except in the case of Options granted to California Participants who are officers, directors, managers, consultants or advisors of the Company or its affiliates (which Options may become exercisable at whatever rate is determined by the Board), Options granted to California Participants shall become exercisable at a rate of not less than 20% per year over five years from the date of grant; provided, that, such Options may be subject to such reasonable forfeiture conditions as the Board may choose to impose and which are not inconsistent with Section 260.140.41 of the California Regulations.

(b) Minimum Exercise Price. The exercise price of Options granted to California Participants may not be less than 85% of the Fair Market Value of the Common Stock on the date of grant in the case of a Nonstatutory Stock Option or less than 100% of the Fair Market Value of the Common Stock on the date of grant in the case of an Incentive Stock Option; provided, however, that if the California Participant is a person who owns stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or its parent or subsidiary corporations, the exercise price shall be not less than 110% of the Fair Market Value of the Common Stock on the date of grant.

(c) Maximum Duration of Options. No Options granted to California Participants shall have a term in excess of 10 years measured from the Option grant date.

(d) Minimum Exercise Period Following Termination. Unless a California Participant's employment is terminated for cause (as defined by applicable law, the terms of any contract of employment between the Company and such Participant, or in the instrument evidencing the grant of such Participant's Option), in the event of termination of employment of such Participant, such Participant shall have the right to exercise an Option, to the extent that he or she was otherwise entitled to exercise such Option on the date employment terminated, as follows: (i) at least six months from the date of termination, if termination was caused by such Participant's death or "permanent and total disability" (within the meaning of Section 22(e)(3) of the Code) and (ii) at least 30 days from the date of termination, if termination was caused other than by such Participant's death or "permanent and total disability" (within the meaning of Section 22(e)(3) of the Code).

(e) Limitation on Repurchase Rights. If an Option granted to a California Participant gives the Company the right to repurchase shares of Common Stock issued pursuant to the Plan upon termination of employment of such Participant, the terms of such repurchase right must comply with Section 260.140.41(k) of the California Regulations.

2. Additional Limitations for Restricted Stock Awards.

(a) Minimum Purchase Price. The purchase price for a Restricted Stock Award granted to a California Participant shall be not less than 85% of the Fair Market Value of the Common Stock at the time such Participant is granted the right to purchase shares under the Plan or at the time the purchase is consummated; provided, however, that if such Participant is a person who owns stock possessing more than 10% of the total combined voting power or value of all classes of stock of the Company or its parent or subsidiary corporations, the purchase price shall be not less than 100% of the Fair Market Value of the Common Stock at the time such Participant is granted the right to purchase shares under the Plan or at the time the purchase is consummated.

(b) Limitation of Repurchase Rights. If a Restricted Stock Award granted to a California Participant gives the Company the right to repurchase shares of Common Stock issued pursuant to the Plan upon termination of employment of such Participant, the terms of such repurchase right must comply with Section 260.140.42(h) of the California Regulations.

3. Additional Limitations for Other Stock-Based Awards. The terms of all Awards granted to a California Participant under Section 7 of the Plan shall comply, to the extent applicable, with Section 260.140.41 or Section 260.140.42 of the California Regulations.

4. Additional Requirement to Provide Information to California Participants. The Company shall provide to each California Participant and to each California Participant who acquires Common Stock pursuant to the Plan, not less frequently than annually, copies of annual financial statements (which need not be audited). The Company shall not be required to provide such statements to key employees whose duties in connection with the Company assure their access to equivalent information.

5. Additional Limitations on Timing of Awards. No Award granted to a California Participant shall become exercisable, vested or realizable, as applicable to such Award, unless the Plan has been approved by the holders of a majority of the Company's outstanding voting securities within 12 months before or after the date the Plan was adopted by the Board.

6. Additional Limitations Relating to Definition of Fair Market Value. For purposes of Section 1(b) and 2(a) of this supplement, "Fair Market Value" shall be determined in a manner not inconsistent with Section 260.140.50 of the California Regulations.

7. Additional Restriction Regarding Recapitalizations, Stock Splits, Etc. For purposes of Section 8 of the Plan, in the event of a stock split, reverse stock split, stock dividend, recapitalization, combination, reclassification or other distribution of the Company's securities, the number of securities allocated to each California Participant must be adjusted proportionately and without the receipt by the Company of any consideration from any California Participant.

Exhibit 10.3

KEROS THERAPEUTICS, INC.

Incentive Stock Option Agreement
Granted Under 2017 Stock Incentive Plan

1. Grant of Option.

This agreement evidences the grant by Keros Therapeutics, Inc., a Delaware corporation (the "Company") on the "Grant date" (as set forth in the Carta Electronic Notice that is delivered electronically concurrent with this agreement (the "Carta Notice")) to the Participant named in the Carta Notice, an employee, consultant or director of the Company, of an option to purchase, in whole or in part, at a per share "Exercise price" (as set forth in the Carta Notice), on the terms provided herein and in the Company's 2017 Stock Incentive Plan (the "Plan"), that number of shares (the "Shares") of common stock, $0.0001 par value per share, of the Company (the "Common Stock") as set forth on the Carta Notice. Unless earlier terminated, this option shall expire at 5:00 p.m., Eastern time, on the 10-year anniversary of the Grant date (the "Final Exercise Date").

It is intended that the option evidenced by this agreement shall be an incentive stock option as defined in Section 422 of the Internal Revenue Code of 1986, as amended, and any regulations promulgated thereunder (the "Code"). Except as otherwise indicated by the context, the term "Participant", as used in this option, shall be deemed to include any person who acquires the right to exercise this option validly under its terms.

2. Vesting Schedule.

This option will become exercisable ("vest") as provided in the Carta Notice.

The right of exercise shall be cumulative so that to the extent the option is not exercised in any period to the maximum extent permissible it shall continue to be exercisable, in whole or in part, with respect to all Shares for which it is vested until the earlier of the Final Exercise Date or the termination of this option under Section 3 hereof or the Plan.

3. Exercise of Option.

(a) Form of Exercise. Each election to exercise this option shall be accompanied by a completed Notice of Stock Option Exercise in the form attached hereto as Exhibit A, signed by the Participant, and received by the Company at its principal office, accompanied by this agreement, and payment in full in the manner provided in the Plan. The Participant may purchase less than the number of Shares covered hereby, provided that no partial exercise of this option may be for any fractional share or for fewer than ten whole shares.

(b) Continuous Relationship with the Company Required. Except as otherwise provided in this Section 3, this option may not be exercised unless the Participant, at the time he or she exercises this option, is, and has been at all times since the Grant date (as set forth in the Carta Notice), an employee or officer of, or consultant or advisor to, the Company or any parent or subsidiary of the Company as defined in Section 424(e) or (0 of the Code (an "Eligible Participant").

(c) Termination of Relationship with the Company**.** If the Participant ceases to be an Eligible Participant for any reason, then, except as provided in paragraphs (d) and (e) below, the right to exercise this option shall terminate three months after such cessation (but in no event after the Final Exercise Date), provided that this option shall be exercisable only to the extent that the Participant was entitled to exercise this option on the date of such cessation. Notwithstanding the foregoing, if the Participant, prior to the Final Exercise Date, violates the non-competition or confidentiality provisions of any employment contract, confidentiality and nondisclosure agreement or other agreement between the Participant and the Company, the right to exercise this option shall terminate immediately upon such violation.

(d) Exercise Period Upon Death or Disability. If the Participant dies or becomes disabled (within the meaning of Section 22(e)(3) of the Code) prior to the Final Exercise Date while he or she is an Eligible Participant and the Company has not terminated such relationship for "cause" as specified in paragraph (e) below, this option shall be exercisable, within the period of one year following the date of death or disability of the Participant, by the Participant (or in the case of death by an authorized transferee), provided that this option shall be exercisable only to the extent that this option was exercisable by the Participant on the date of his or her death or disability, and further provided that this option shall not be exercisable after the Final Exercise Date.

(e) Termination for Cause. If, prior to the Final Exercise Date, the Participant's employment is terminated by the Company for Cause (as defined below), the right to exercise this option shall terminate immediately upon the effective date of such termination of employment. If, prior to the Final Exercise Date, the Participant is given notice by the Company of the termination of his or her employment by the Company for Cause, and the effective date of such employment termination is subsequent to the date of delivery of such notice, the right to exercise this option shall be suspended from the time of the delivery of such notice until the earlier of (i) such time as it is determined or otherwise agreed that the Participant's employment shall not be terminated for Cause as provided in such notice or (ii) the effective date of such termination of employment (in which case the right to exercise this option shall, pursuant to the preceding sentence, terminate upon the effective date of such termination of employment). If the Participant is party to an employment or severance agreement with the Company that contains a definition of "cause" for termination of employment, "Cause" shall have the meaning ascribed to such term in such agreement. Otherwise, "Cause" shall mean willful misconduct by the Participant or willful failure by the Participant to perform his or her responsibilities to the Company (including, without limitation, breach by the Participant of any provision of any employment, consulting, advisory, nondisclosure, non-competition or other similar agreement between the Participant and the Company), as determined by the Company, which determination shall be conclusive. The Participant's employment shall be considered to have been terminated for Cause if the Company determines, within 30 days after the Participant's resignation, that termination for Cause was warranted.

4. Company Right of First Refusal.

(a) Notice of Proposed Transfer. If the Participant proposes to sell, assign, transfer, pledge, hypothecate or otherwise dispose of, by operation of law or otherwise (collectively, "transfer") any Shares acquired upon exercise of this option, then the Participant shall first give written notice of the proposed transfer (the "Transfer Notice") to the Company. The Transfer Notice shall name the proposed transferee and state the number of such Shares the Participant proposes to transfer (the "Offered Shares"), the price per share and all other material terms and conditions of the transfer.

(b) Company Right to Purchase. For 30 days following its receipt of such Transfer Notice, the Company shall have the option to purchase all or part of the Offered Shares at the price and upon the terms set forth in the Transfer Notice. In the event the Company elects to purchase all or part of the Offered Shares, it shall give written notice of such election to the Participant within such 30-day period. Within 10 days after his or her receipt of such notice, the Participant shall tender to the Company at its principal offices the certificate or certificates representing the Offered Shares to be purchased by the Company, duly endorsed in blank by the Participant or with duly endorsed stock powers attached thereto, all in a form suitable for transfer of the Offered Shares to the Company. Promptly following receipt of such certificate or certificates, the Company shall deliver or mail to the Participant a check in payment of the purchase price for such Offered Shares; provided that if the terms of payment set forth in the Transfer Notice were other than cash against delivery, the Company may pay for the Offered Shares on the same terms and conditions as were set forth in the Transfer Notice; and provided further that any delay in making such payment shall not invalidate the Company's exercise of its option to purchase the Offered Shares.

(c) Shares Not Purchased By Company. If the Company does not elect to acquire all of the Offered Shares, the Participant may, within the 30-day period following the expiration of the option granted to the Company under subsection (b) above, transfer the Offered Shares which the Company has not elected to acquire to the proposed transferee, provided that such transfer shall not be on terms and conditions more favorable to the transferee than those contained in the Transfer Notice. Notwithstanding any of the above, all Offered Shares transferred pursuant to this Section 4 shall remain subject to the right of first refusal set forth in this Section 4 and such transferee shall, as a condition to such transfer, deliver to the Company a written instrument confirming that such transferee shall be bound by all of the terms and conditions of this Section 4.

(d) Consequences of Non-Delivery. After the time at which the Offered Shares are required to be delivered to the Company for transfer to the Company pursuant to subsection (b) above, the Company shall not pay any dividend to the Participant on account of such Offered Shares or permit the Participant to exercise any of the privileges or rights of a stockholder with respect to such Offered Shares, but shall, insofar as permitted by law, treat the Company as the owner of such Offered Shares.

(e) Exempt Transactions. The following transactions shall be exempt from the provisions of this Section 4:

(1) any transfer of Shares to or for the benefit of any spouse, child or grandchild of the Participant, or to a trust for their benefit;

(2) any transfer pursuant to an effective registration statement filed by the Company under the Securities Act of 1933, as amended (the "Securities Act"); and

(3) the sale of all or substantially all of the outstanding shares of capital stock of the Company (including pursuant to a merger or consolidation);

provided, however, that in the case of a transfer pursuant to clause (1) above, such Shares shall remain subject to the right of first refusal set forth in this Section 4 and such transferee shall, as a condition to such transfer, deliver to the Company a written instrument confirming that such transferee shall be bound by all of the terms and conditions of this Section 4.

(f) Assignment of Company Right. The Company may assign its rights to purchase Offered Shares in any particular transaction under this Section 4 to one or more persons or entities.

(g) Termination. The provisions of this Section 4 shall terminate upon the earlier of the following events:

(1) the closing of the sale of shares of Common Stock in an underwritten public offering pursuant to an effective registration statement filed by the Company under the Securities Act; or

(2) the sale of all or substantially all of the outstanding shares of capital stock, assets or business of the Company, by merger, consolidation, sale of assets or otherwise (other than a merger or consolidation in which all or substantially all of the individuals and entities who were beneficial owners of the Company's voting securities immediately prior to such transaction beneficially own, directly or indirectly, more than 75% (determined on an as-converted basis) of the outstanding securities entitled to vote generally in the election of directors of the resulting, surviving or acquiring corporation in such transaction).

(h) No Obligation to Recognize Invalid Transfer. The Company shall not be required (1) to transfer on its books any of the Shares which shall have been sold or transferred in violation of any of the provisions set forth in this Section 4, or (2) to treat as owner of such Shares or to pay dividends to any transferee to whom any such Shares shall have been so sold or transferred.

(i) Legends. The certificate representing Shares shall bear a legend substantially in the following form (in addition to, or in combination with, any legend required by applicable federal and state securities laws and agreements relating to the transfer of the Company securities):

> "The shares represented by this certificate are subject to a right of first refusal in favor of the Company, as provided in a certain stock option agreement with the Company."

5. Agreement in Connection with Initial Public Offering.

The Participant agrees, in connection with the initial underwritten public offering of the Common Stock pursuant to a registration statement under the Securities Act, (0 not to (a) offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any other securities of the Company or (b) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of shares of Common Stock or other securities of the

Company, whether any transaction described in clause (a) or (b) is to be settled by delivery of securities, in cash or otherwise, during the period beginning on the date of the filing of such registration statement with the Securities and Exchange Commission and ending 180 days after the date of the final prospectus relating to the offering (plus up to an additional 34 days to the extent requested by the managing underwriters for such offering in order to address Rule 2711(f) of the National Association of Securities Dealers, Inc. or any similar successor provision), and (ii) to execute any agreement reflecting clause (i) above as may be requested by the Company or the managing underwriters at the time of such offering. The Company may impose stop-transfer instructions with respect to the shares of Common Stock or other securities subject to the foregoing restriction until the end of the "lock-up" period.

6. Other Matters.

(a) Withholding. No Shares will be issued pursuant to the exercise of this option unless and until the Company satisfies all applicable federal, state, and local or other income and employment tax withholding obligations as described in the Plan.

(b) Disqualifying Disposition. If the Participant disposes of Shares acquired upon exercise of this option within two years from the Grant date (as set forth in the Carta Notice) or one year after such Shares were acquired pursuant to exercise of this option, the Participant shall notify the Company in writing of such disposition.

(c) Electronic Delivery of Documents. The Participant agrees to accept by email all documents relating to the Company, the Plan or this option and all other documents that the Company is required to deliver to its security holders (including, without limitation, disclosures that may be required by the Securities and Exchange Commission). The Participant also agrees that the Company may deliver these documents by posting them on a website maintained by the Company or by a third party under contract with the Company. If the Company posts these documents on a website, it shall notify the Participant by email of their availability. The Participant acknowledges that he or she may incur costs in connection with electronic delivery, including the cost of accessing the internet and printing fees, and that an interruption of Internet access may interfere with his or her ability to access the documents. This consent shall remain in effect until this option expires or until the Participant gives the Company written notice that it should deliver paper documents.

7. Transfer Restrictions.

(a) This option may not be sold, assigned, transferred, pledged or otherwise encumbered by the Participant, either voluntarily or by operation of law, except by will or the laws of descent and distribution, and, during the lifetime of the Participant, this option shall be exercisable only by the Participant.

(b) The Participant agrees that he or she will not transfer any Shares issued pursuant to the exercise of this option unless the transferee, as a condition to such transfer, delivers to the Company a written instrument confirming that such transferee shall be bound by all of the terms and conditions of Section 4 and Section 5; provided that such a written confirmation shall not be required with respect to (1) Section 4 after such provision has terminated in accordance with Section 4(g) or (2) Section 5 after the completion of the lock-up period in connection with the Company's initial underwritten public offering.

8. Provisions of the Plan.

This option is subject to the provisions of the Plan (including the provisions relating to amendments to the Plan), a copy of which is furnished to the Participant with this option.

IN WITNESS WHEREOF, the Company has caused this option to be executed under its corporate seal by its duly authorized officer. This option shall take effect as a sealed instrument.

KEROS THERAPEUTICS, INC.

By: _____

Name: _____

Title: _____

PARTICIPANTS ACCEPTANCE

The undersigned hereby accepts the foregoing option and agrees to the terms and conditions thereof The undersigned hereby acknowledges receipt of a copy of the Company's 2017 Stock Incentive Plan.

PARTICIPANT:

_____

Address:

_____

_____

Exhibit A

NOTICE OF STOCK OPTION EXERCISE

Date: _____[1]

Keros Therapeutics, Inc.
[INSERT ADDRESS]
Attention: Treasurer

Dear Sir or Madam:

I am the holder of _____[2] Stock Option granted to me under the Keros Therapeutics, Inc. (the "Company") 2017 Stock Incentive Plan on _____[3] for the purchase of _____[4] shares of Common Stock of the Company at a purchase price of $_____[5] per share.

I hereby exercise my option to purchase _____[6] shares of Common Stock (the "Shares"), for which I have enclosed _____[7] in the amount of _____[8]. Please register my stock certificate as follows:

Name(s): _____[9]

Address: _____

Tax I.D. #: _____[10]

1 Enter the date of exercise.
2 Enter either "an Incentive" or "a Nonstatutory".
3 Enter the date of grant.
4 Enter the total number of shares of Common Stock for which the option was granted.
5 Enter the option exercise price per share of Common Stock.
6 Enter the number of shares of Common Stock to be purchased upon exercise of all or part of the option.
7 Enter "cash", "personal check" or if permitted by the option or Plan, "stock certificates No. XXXX and =DC".
8 Enter the dollar amount (price per share of Common Stock times the number of shares of Common Stock to be purchased), or the number of shares tendered. Fair market value of shares tendered, together with cash or check, must cover the purchase price of the shares issued upon exercise.
9 Enter name(s) to appear on stock certificate: (a) Your name only; (b) Your name and other name (i.e., John Doe and Jane Doe, Joint Tenants With Right of Survivorship); or (c) In the case of a Nonstatutory option only, a Child's name, with you as custodian (i.e., Jane Doe, Custodian for Tommy Doe). Note: There may be income and/or gift tax consequences of registering shares in a Child's name.
10 Social Security Number of Holder(s).

I represent, warrant and covenant as follows:

1. I am purchasing the Shares for my own account for investment only, and not with a view to, or for sale in connection with, any distribution of the Shares in violation of the Securities Act of 1933 (the “Securities Act”), or any rule or regulation under the Securities Act.

2. I have had such opportunity as I have deemed adequate to obtain from representatives of the Company such information as is necessary to permit me to evaluate the merits and risks of my investment in the Company.

3. I have sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

4. I can afford a complete loss of the value of the Shares and am able to bear the economic risk of holding such Shares for an indefinite period.

5. I understand that (i) the Shares have not been registered under the Securities Act and are “restricted securities” within the meaning of Rule 144 under the Securities Act, (ii) the Shares cannot be sold, transferred or otherwise disposed of unless they are subsequently registered under the Securities Act or an exemption from registration is then available; (iii) in any event, the exemption from registration under Rule 144 will not be available for at least one year and even then will not be available unless a public market then exists for the Common Stock, adequate information concerning the Company is then available to the public, and other terms and conditions of Rule 144 are complied with; and (iv) there is now no registration statement on file with the Securities and Exchange Commission with respect to any stock of the Company and the Company has no obligation or current intention to register the Shares under the Securities Act.

Very truly yours,

_____

(Signature)

Exhibit 10.7

Keros Therapeutics, Inc

December 14, 2015

Jasbir S. Seehra, Ph.D.
[***]

Dear Jasbir:

It is my pleasure to confirm the offer to you for the position of CEO at Keros Therapeutics, Inc. (the "Company"), beginning on December 15, 2015 (the "Commencement Date").

This letter and accompanying enclosures will summarize important details about your employment. Also, enclosed is information about our current benefits which are provided to the employees at Company.

Compensation: Your salary will be four hundred and ten thousand US Dollars 410,000 per year and will be payable in 24 bimonthly installments in accordance with the Company's standard payroll practices and procedures, and which will be subject to all applicable tax reporting and withholding.

Additional Benefits: You will also be entitled to vision, health and dental insurance, at rates which shall be agreed with you upon the commencement of your employment. You will also be eligible for enrollment in the 401k Plan which will be reviewed with you when you begin your employment. In the event that the Company does not have such vision, health, dental or 401K plans in place during your first month of employment, the Company will reimburse you for 100% of the cost of COBRA insurance coverage, as well as for costs of dental treatments otherwise covered by your current dental plan. You will use reasonable efforts to minimize such dental treatment costs during the first month of employment.

Vacation Time: You will be entitled to 4 weeks annual vacation plus all statutory US holidays.

Term of Employment: It is important for you to understand that you will be an employee "at will". This means that you will have the right to terminate your employment relationship with Company at any time for any reason. Similarly, Company will have the right to terminate its employment relationship with you at any time for any reason. Termination for convenience by either party will be subject to 30 days prior notice. This letter should not be construed as a guarantee of any particularly compensation, benefits or other terms or conditions of employment for any particular period of time. Your employment and this letter will be governed by the laws of Massachusetts, USA. Any modification or change in your at will employment status may only occur by way of a written amendment signed by you and the Company.

Company Agreement and Employment Eligibility: The offer of employment is contingent upon your signing Company's Employee Non-Competition, Non-Solicitation, Confidentiality and Assignment Agreement ("Non-compete Agreement") and 1-9 Employment Verification Form. The former is enclosed with this letter, and the latter will be furnished to you on your first date of employment. You will be required to submit documentation that establishes identity and employment eligibility in accordance with the US Immigration and Naturalization requirements.

In addition, by signing below, you represent that you are not bound by any employment contract, restrictive covenant or other restriction preventing or limiting you from entering into employment with or carrying out your responsibilities for the Company, or which is in any way inconsistent with the terms of this letter. You also agree that you will not disclose to anyone at the Company, or use in the course of your employment at the Company, any confidential information or trade secrets belonging to any former employer or to any other entity.

You may indicate your acceptance of this offer and the Non-Compete Agreement by signing on the appropriate space and returning signed copies to my attention at the Company by December 15, 2015.

We are excited about the opportunity of working with you. Please contact me if you have any questions or need more information.

Sincerely,

I accept the above terms of employment as stated:

/s/ Jasbir S. Seehra — 12/15/2015

Jasbir S. Seehra, Ph. — Date

Enclosures:

- Non-Competition, Non-Solicitation, Confidentiality and Assignment
- 1-9 Employment Verification Form

Exhibit 10.8

KEROS THERAPEUTICS, INC

[***]

April 20, 2016

Jennifer L. Lachey
[***]

Re: Employment by Keros Therapeutics, Inc.

Dear Jenn:

Keros Therapeutics, Inc. (the "Company") is pleased to confirm its offer to employ you as VP, Biology and Pharmacology, reporting to the CEO, Jasbir Seehra. Your effective date of hire as a regular, full-time employee (the "Start Date") will be May 9, 2016.

Your compensation for this position will be at the rate of $230,000 per year payable bi-weekly in accordance with the Company's normal pay schedule. All payments are subject to legally required tax withholdings.

Subject to the approval of the Board of Directors of the Company (the "Board"), in connection with the commencement of your employment, the Board will grant you an option to purchase 150,000 shares of the Company's common stock (the "Option"). The Option will be granted following the commencement of your employment. The exercise price of the Option will be determined by the BOD at the next meeting following your employment. The Option will be subject to the terms and conditions of the Company's then-current stock option plan and form of stock option agreement. These options will vest as follows: one quarter of the shares (37,500) will vest on the first anniversary of the Start Date, and following that, 1/16th of the shares (9,375) will vest on a quarterly basis, in arrears. Vesting is contingent on your continued full-time employment with the Company.

You will be eligible to participate in the Company's Medical and Dental Insurance Programs 401(k) Plan. You will accrue 15 paid vacation days each year for the first 5 years of service, 3 Personal days and receive 12 paid holidays annually in accordance with the company holiday schedule (remainder of 2016 schedule attached).

It is understood that you are an "at-will" employee. You are not being offered employment for a definite period of time, and either you or the Company may terminate the employment relationship at any time and for any reason, with or without cause or prior notice and without additional compensation to you.

Enclosed for your review is a “Non-Solicitation, Confidentiality and Assignment Agreement” (the “Agreement”). This offer of employment is conditioned on your willingness to sign and abide by the terms of the Agreement.

In making this offer, the Company understands, and in accepting it you represent that you are not under any obligation to any former employer or any person or entity which would prevent, limit, or impair in any way the performance by you of your duties as an employee of the Company.

The Immigration Reform and Control Act requires employers to verify the employment eligibility and identity of new employees. You will be required to complete a Form 1-9 which will be provided to you before the Start Date. Please bring the appropriate documents listed on that form with you when you report for work. We will not be able to employ you if you fail to comply with this requirement.

This letter agreement and the Agreement referenced above constitute the complete agreement between you and the Company, contain all of the terms of your employment with the Company and supersede any prior agreements, representations or understandings (whether written, oral or implied) between you and the Company. This letter agreement may not be amended or modified, except by an express written agreement signed by both you and a duly authorized officer of the Company, although your job duties, title, reporting relationship, compensation and benefits may change from time to time, at the Company’s option.

Please indicate your acceptance of this offer by signing and returning the enclosed copy of this letter no later than Tuesday April 26, 2016.

You may sign, scan, and email the letter to seehrajgverizon.net. We look forward to your joining the Company and are pleased that you will be working with us.

Very truly yours,

/s/ Jasbir S. Seehra

Jasbir S. Seehra, Ph.D.
Chief Executive Officer
Keros Therapeutics, Inc.

Accepted and Agreed:

/s/ Jennifer L. Lachey 22 Apr 2016
Jennifer L. Lachey, Ph.D.

Exhibit 10.9

99 Hayden Avenue
Bldg. E, Suite 120
Lexington MA 02421

August 20, 2019

Re: Employment by Keros Therapeutics, Inc.

Dear Claudia:

Keros Therapeutics, Inc. (the "Company") is pleased to confirm its offer to employ you as a Chief Medical Officer (CMO), reporting to Jasbir Seehra, Chief Executive Officer (CEO). Your effective date of hire as a regular, full-time employee (the "Start Date") will be September 16, 2019.

Your base salary will be at the rate of $15,208.33 per, SEMI-MONTHLY, per pay period (which equates to an annualized rate of $365,000.00), subject to tax and other withholdings as required by law. Such base salary may be adjusted from time to time in accordance with normal business practice and in the sole discretion of the Company.

You will also be paid a $30,000 signing bonus in the pay cycle following commencement of your employment. By your acceptance of this offer of employment, you agree to repay to the Company the amount of any signing bonus received by you if you voluntarily terminate your employment prior to the 2nd anniversary of the first day of your employment by the Company. Any amount which becomes repayable by you by virtue of this provision will be repayable in full, without any pro rate deduction for days spent by you in the Company's employment.

In addition, you will be eligible to be considered for an incentive bonus for each fiscal year of the Company. The bonus (if any) will be awarded based on objective or subjective criteria established by the Company's Chief Executive Officer and approved by the Company's Board of Directors. Your target bonus will be equal to 30% of your annual base salary. Any bonus for the fiscal year in which your employment begins will be prorated, based on the number of days you are employed by the Company during that fiscal year. Any bonus for a fiscal year will be paid within 2 months after the close of that fiscal year, but only if you are still employed by the Company at the time of payment. The determinations of the Company's Board of Directors with respect to your bonus will be final and binding.

In connection with the commencement of your employment, the Company will recommend that the Board of Directors grant you a stock option (the "Option") to purchase 224,000 shares of the Company's Common Stock with an exercise price equal to the fair market value on the date of the grant. The Option will be subject to the terms and conditions of the Company's then-current stock option plan and form of stock option agreement. These options will vest as follows: one quarter of the shares (56,000) will vest on the first anniversary of the Start Date, and following that, 1/16th of the shares will vest on a quarterly basis, in arrears. Vesting is contingent on your continued employment with the Company.

You will be eligible to participate in the Company's Medical and Dental Insurance Programs, including having the option to contribute into a Flexible Spending Account. Keros Therapeutics will also reimburse the first 50% of the Medical Plan deductible. In addition, you will be eligible to participate in the Keros 401(k) Plan. You will accrue 15 paid vacation days each year, 3 personal days and receive 12 paid holidays annually in accordance with the company holiday schedule.

It is understood that you are an "at-will" employee. You are not being offered employment for a definite period of time, and either you or the Company may terminate the employment relationship at any time and for any reason, with or without cause or prior notice and without additional compensation to you.

Enclosed for your review is your Invention Assignment, Non-Disclosure, and Business Protection Agreement (the "Agreement"). This offer of employment is conditioned on your willingness to sign and abide by the terms of the Agreement.

In making this offer, the Company understands, and in accepting it you represent that you are not under any obligation to any former employer or any person or entity which would prevent, limit, or impair in any way the performance by you of your duties as an employee of the Company.

The Immigration Reform and Control Act requires employers to verify the employment eligibility and identity of new employees. You will be required to complete a Form I-9 which will be provided to you before the Start Date. Please bring the appropriate documents listed on that form with you when you report for work. We will not be able to employ you if you fail to comply with this requirement.

This letter agreement and the Agreement referenced above constitute the complete agreement between you and the Company, contain all of the terms of your employment with the Company and supersede any prior agreements, representations or understandings (whether written, oral or implied) between you and the Company. This letter agreement may not be amended or modified, except by an express written agreement signed by both you and a duly authorized officer of the Company, although your job duties, title, reporting relationship, compensation and benefits may change from time to time, at the Company's option.

Please indicate your acceptance of this offer by signing and returning the enclosed copy of this letter no later than August 23rd, 2019.

You may sign, scan, and email the letter to annita@kerostx.com. We look forward to your joining the Company and are pleased that you will be working with us.

Very truly yours,

/s/ Jasbir S. Seehra
Jasbir S. Seehra, Ph.D.
Chief Executive Officer
Keros Therapeutics, Inc.

Accepted and Agreed:

/s/ Claudia Ordonez
Claudia Ordonez, M.D.

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE KEROS THERAPEUTICS, INC. HAS DETERMINED THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO KEROS THERAPEUTICS, INC. IF PUBLICLY DISCLOSED.

THE GENERAL HOSPITAL CORPORATION

EXCLUSIVE PATENT LICENSE AGREEMENT

MGH Agreement No: [***]
MGH Case Nos: [***]

This License Agreement ("Agreement") is made as of the 5th day of April, 2016 ("Effective Date"), by and between **Keros Therapeutics, Inc.**, a Delaware corporation, having a principal place of business at 3 Lincoln Terrace, Lexington, MA 02421 ("Company") and **The General Hospital Corporation**, d/b/a Massachusetts General Hospital, a not-for-profit Massachusetts corporation, with a principal place of business at 55 Fruit Street, Boston, Massachusetts 02114 ("Hospital"), each referred to herein individually as a "Party" and collectively as the "Parties".

RECITALS

Hospital, as a center for patient care, research and education, is the co- owner of certain Patent Rights (defined below) and desires to grant a license of those Patent Rights to Company in order to benefit the public by disseminating the results of its research via the commercial development, manufacture, distribution and use of Products and Processes (defined below).

Hospital has executed Inter Institutional Agreements ("IAAs) with **[***]**, **[***]**, and **[***]**, (collectively "Co-Owners"), granting Hospital sole agency to license the Patent Rights.

Company has the capability to commercially develop, manufacture, distribute and use Products and Processes for public use and benefit and desires to license such Patent Rights.

For good and valuable consideration, the sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. CERTAIN DEFINITIONS

As used in this Agreement, the following terms shall have the following meanings, unless the context requires otherwise.

1.1 "Affiliate" with respect to either Party shall mean any corporation or other legal entity other than that Party in whatever country organized, controlling, controlled by or under common control with that Party. The term "control" shall mean (i) in the case of Company, direct or indirect ownership of fifty percent (50%) or more of the voting securities having the right to elect directors, and (ii) in the case of Hospital or Company, the power, direct or indirect, to elect or appoint fifty percent (50%) or more of the directors or trustees, or to cause direction of management and policies, whether through the ownership of voting securities, by contract or otherwise.

1.2 “Change of Control” shall mean either: (a) a sale of all or substantially all of the assets of Company, in one or a series of integrated transactions not in the ordinary course of business to a Third Party; or (b) the acquisition of Company by a Third Party by means of any transaction or series of related transactions (including, any stock acquisition, merger, consolidation or other business combination); in either case, in which transaction or series of transactions the holders of outstanding voting securities of Company immediately prior to such transaction do not beneficially own, directly or indirectly, at least fifty percent (50%) of the combined outstanding voting power of the acquiring entity (or of Company if it is the surviving entity in such transaction described in subsection (b)), or its direct or indirect parent entity, immediately after such transaction or series of related transactions.

1.3 “Claim” shall mean any pending (but only if pending for less than **[***]**) or issued claim of any Patent Right that has not been abandoned, lapsed, permanently revoked, nor expired, held unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction that is unappealable or unappealed in the time allowed for appeal.

1.4 “Commercially Reasonable Efforts” means the efforts and resources reasonably used by **[***]** with respect to the research, development, manufacture, commercialization, use or other exploitation, as applicable, of its own products at a similar stage in development, taking into account all “Relevant Factors” in effect at the time such efforts are to be expended. As used herein, “Relevant Factors” shall mean all relevant factors that may affect the development, regulatory approval or commercialization of the Product, including (as applicable): actual and potential issues of safety, efficacy or stability; product profile (including product modality, category and mechanism of action); stage of development or life cycle status; actual and projected development, regulatory approval, manufacturing, and commercialization costs; any issues regarding the ability to manufacture or have manufactured the Product; the likelihood of obtaining regulatory approvals (including satisfactory price approvals); the timing of such approvals; the current guidance and requirements for regulatory approval for the Product and similar products and the current and projected regulatory status; labeling or anticipated labeling; the then-current competitive environment and the likely competitive environment at the time of projected entry into the market; past performance of the Product or similar products; present and future risk-adjusted market potential; existing or projected risk-adjusted pricing, sales, reimbursement and profitability; pricing or reimbursement changes in relevant countries; proprietary position, strength and duration of patent protection and anticipated exclusivity; and other relevant scientific, technical, operational and commercial factors.

1.5 “Control” means the Hospital’s ability to grant to Company rights to Patent Rights, without (a) violating the terms of any agreement or other arrangement with any third party, and (b) violating any law or regulation.

16 “Derived Process” shall mean any process, method or service derived from or comprising compounds and processes covered under Patent Rights, the use or performance of which, in whole or in part, and absent the rights granted under the License would infringe, and/or is covered by and/or dominated by, one or more (1) Valid Claims of the Patent Rights granted in the License and/or (2) **[***]**; provided, however that any subject matter pertaining to any process method for deriving a compound which is not within the same chemical series as the compounds claimed or covered by the Patent Rights exclusively licensed to Company herein shall not be included under the scope of this definition.

1.6 “Derived Product” shall mean any diagnostic or therapeutic article, device or composition, the manufacture, use, or sale of which, in whole or in part, is derived from or comprises compounds covered under Patent Rights, and absent the rights granted under the License would infringe, and/or is covered by and/or dominated by, one or more (1) Valid Claims of the Patent Rights granted in the License and/or (2) **[***]**; provided, however that any subject matter pertaining to any compound which is not in the same chemical series as the compounds claimed or covered by the Patent Rights exclusively licensed to Company herein shall not be included under the scope of this definition **[***]**.

1.7 “Distributor” shall mean any third party entity to whom Company, a Company Affiliate or a Sublicensee has granted, express or implied, the right to distribute any Product or Process pursuant to Section 2.1(b)(ii).

1.8 “First Commercial Sale” shall mean the initial Sale anywhere in the applicable License Territory of a Product or Process.

1.9 “Follow-On Patent Right” means any patent right that is Controlled by Hospital, individually or collectively with another institution, other than the licensed Patent Rights, to the extent such Follow-On Patent Rights directly relate to **[***]** products that **[***]**, and (2) is conceived and reduced to practice by personnel directly under the supervision of **[***]** (or any designated successor laboratory as may be mutually agreed in writing between the Parties in the event of the departure of **[***]** from his current role with Hospital) during the period commencing on the Effective Date hereof and ending on the **[***]** anniversary thereof, unless extended by the mutual written agreement of the Parties.

1.10 “License Field” shall mean all use(s) of Products and Processes for the treatment, diagnosis (the development, manufacture, use, and/or sale of a kit for use in in-vitro diagnostic (IVD) testing), palliation or prevention of diseases and disorders in humans and animals, including, without limitation, **[***]**. The first sub-field expected to be developed is the sub-field of **[***]**. Additional sub-fields for the prevention or treatment of diseases and disorders in humans may include **[***]**.

For clarity, the license grant in the diagnostic field of use shall be non-exclusive for any implementation of Laboratory Developed Test, performed in a medical and/or clinical laboratory that is operating in compliance with the Clinical Laboratory Improvement Amendments of 1988 (“CLIA”), or its foreign equivalent, said test being performed on clinical specimens for the diagnosis, treatment and/or prevention of disease.

1.11 “License Territory” shall mean worldwide.

1.12 “Net Sales” shall be calculated as set forth in this Section 1.12.

(a) Subject to the conditions set forth below, “Net Sales” shall mean:

(i) the gross amount billed or invoiced, or if no such bill or invoice is issued the amount received, whichever is greatest, by Company and its Affiliates and Sublicensees for or on account of Sales of Products and Processes;

(ii) less the following amounts:

(A) **[***]**:

1. **[***]**;
2. **[***]**;
3. **[***]**; and
4. **[***]**.

(B) **[***]**.

(b) **[***]**.

(c) **[***]**.

(d) **[***]**.

(e) **[***]**.

(f) **[***]**:

(i) **[***]**.

(ii) **[***]**.

(iii) **[***]**.

1.13 "Patent Rights" shall mean Hospital and Co-Owners' rights in the U.S. Patent Applications and patents, as described in the **Appendix A** and/or the equivalent of such application including any division, continuation (including continuation-in-parts, to the extent that the claims are entitled to the priority date of the respective parent applications) and/or any foreign patent application and/or Letters Patent, and/or the equivalent thereof issuing thereon, and/or reissue, reexamination and/or extension thereof.

1.14 Phase I Clinical Trial" means a human clinical trial in any country that is intended to initially evaluate the safety and/or effectiveness of a Licensed Product in subjects or that would otherwise satisfy requirements of 21 CFR 312.21(a), or its foreign equivalent.

1.15 "Phase II Clinical Trial" means a human clinical trial in any country that is intended to initially evaluate the effectiveness of a Licensed Product for a particular indication or indications in patients with the disease or indication under study or that would otherwise satisfy requirements of 21 CFR 312.21(b), or its foreign equivalent.

1.16 "Phase III Clinical Trial" means a pivotal human clinical trial in any country the results of which could be used to establish safety and effectiveness of a Licensed Product as a basis for a NDA (or a BLA, as applicable) or that would otherwise satisfy requirements of 21 CFR 312.21(c), or its foreign equivalent.

1.17 "Process" shall mean any process, method or service the use or performance of which, in whole or in part:

(a) absent the license granted hereunder would infringe, or is covered by, one or more Claims of Patent Rights; or

(b) employs, is based upon or is derived from Technological Information.

1.18 "Product" shall mean any article, device or composition, the manufacture, use, or sale of which, in whole or in part:

(a) absent the license granted hereunder would infringe, or is covered by, one or more Claims of Patent Rights; or

(b) employs, is based upon or is derived from Technological Information.

1.19 "Reporting Period" shall mean each three month period ending March 31, June 30, September 30 and December 31.

1.20 "Sell" (and "Sale" and "Sold" as the case may be) shall mean to sell or have sold, to lease or have leased, to import or have imported or otherwise to transfer or have transferred a Product or Process for valuable consideration (in the form of cash or otherwise), and further in the case of a Process to use or perform such Process for the benefit of a third party.

1.21 "Non-Royalty Income/Sublicense Income" shall mean consideration in any form received by Company and/or Company's Affiliate(s) in connection with or otherwise attributable to a grant of an option or sublicense or any other right, license, privilege or immunity (regardless of whether such grantee is a "Sublicensee" as defined in this Agreement) to make, have made, use, have used, Sell or have Sold Products or Processes, but excluding consideration included within Net Sales. Sublicense Income shall include **[***]**.

For clarity, non-royalty income shall exclude: **[***]**.

To the extent that other patent rights, other intellectual property rights or other rights or obligations other than Patent Rights are licensed, sublicensed or granted by Company together with the rights granted under this Agreement, that portion of the consideration received by Company and subject to this clause shall be equitably apportioned by Company between the Patent Rights and those other rights and obligations, and such apportionment shall be reasonable and in accordance with customary standards in the industry. Such apportionment shall be determined by **[***]**.

1.22 "Sublicensee" shall mean any sublicensee of rights granted in accordance with Section 2.1(a)(ii). For purpose of this Agreement, a Distributor of a Product or Process shall not be included in the definition of Sublicensee unless such Distributor (i) is granted any right to make, have made, use or have used Products or Processes in accordance with Section 2.1(a)(ii), or (ii) has agreed to pay to Company or its Affiliate(s) royalties on such Distributor's sales of Products or Processes, in which case such Distributor shall be a Sublicensee for all purposes of this Agreement.

1.23 "Technological Information" shall mean **[***]**, as further described in **Appendix B.** Company and Hospital each hereby agree to treat each other's Technological Information in accordance with the provisions of **Appendix E**.

2. LICENSE

2.1 Grant of License.

(a) Subject to the terms of this Agreement **[***]**, Hospital hereby grants to Company in the License Field in the License Territory:

(i) an exclusive, royalty-bearing license under its rights in Patent Rights to make, have made, use, have used, Sell and have Sold Products and Processes;

(ii) the right to grant sublicenses under the rights granted in Section 2.1(a)(i) to Sublicensees, provided that in each case Company shall be responsible for the performance of any obligations of Sublicensees relevant to this Agreement as if such performance were carried out by Company itself, including, without limitation, the payment of any royalties or other payments provided for hereunder, regardless of whether the terms of any sublicense provide for such amounts to be paid by the Sublicensee directly to Hospital; and

(iii) the nonexclusive right and license to use Technological Information disclosed by Hospital to Company hereunder in accordance with this Agreement.

(b) The license granted in Section 2.1(a) above includes:

(i) the right to grant to the final purchaser, user or consumer of Products the right to use such purchased Products in a method coming within the scope of Patent Rights within the License Field and License Territory; and

(ii) the right to grant a Distributor the right to Sell (but not to make, have made, use or have used) such Products and/or Processes for or on behalf of Company, its Affiliates and Sublicensees in a manner consistent with this Agreement.

(c) The foregoing license grant shall include the grant of such license to any Affiliate of Company, provided that such Affiliate shall assume the same obligations as those of Company and be subject to the same terms and conditions hereunder; and further provided that Company shall be responsible for the performance of all of such obligations and for compliance with all of such terms and conditions by Affiliate. Company shall provide to Hospital a fully signed, non-redacted copy of each agreement with each Affiliate that assumes the aforesaid obligations, including all exhibits, attachments and related documents and any amendments, within **[***]** of request by Hospital.

2.2 Sublicenses. Each sublicense granted hereunder shall be in writing, consistent with and comply with all terms of this Agreement, shall incorporate terms and conditions sufficient to enable Company to comply with this Agreement, shall prohibit any further sublicense or assignment by a Sublicensee without prior written notice to Hospital and the opportunity for review by Hospital solely to confirm compliance with the terms and conditions applicable to all sublicenses hereunder, and shall provide that Hospital is a third party beneficiary thereof. Company will timely notify Hospital of a contemplated sublicense and Hospital will provide comments and input within **[***]** of such notice. Company will provide Hospital with a fully signed non-redacted copy of all sublicense agreements and amendments thereto, including all exhibits, attachments and related documents, within **[***]** of executing the same. Upon termination of this Agreement or any license granted hereunder for any reason, any sublicenses shall be addressed in accordance with Section 10.7. Any sublicense which is not in accordance with the forgoing provisions shall be null and void.

2.3 Retained Rights: Requirements. Any and all licenses granted hereunder are subject to:

(a) the right of Hospital and Hospital's Affiliates academic, government and not-for-profit institutions, to make and to use Patent Rights solely for their own internal academic and educational research purposes and not for any use with or for the benefit of any for-profit or commercial third party or for any use in the context of any commercially-sponsored research. Any compounds claimed in Patent Rights provided by Hospital to third parties shall be subject to a Materials Transfer Agreement with terms including, but not limited to the following and that will require that the material: (a) shall not be used in humans, (b) shall be subject to an agreed statement of work, (c) be used only for non-commercial purposes, (c), shall be subject to invention reporting requirements, and (d) have a defined term.

(b) 2.3(b) for Patent Rights co-owned or funded by the federal government~~supported by federal funding~~, the rights, conditions and limitations imposed by U.S. law (*see* 35 U.S.C. § 202 et seq. and regulations pertaining thereto) and by the Hospital-NIH IIA, as applicable, including without limitation:

(i) the NIH's right to receive Company's confidential information to ensure compliance with the teens of the Hospital-NIH IIA Agreement;

(ii) the royalty-free nonexclusive license rights as required to be retained by ~~granted to~~ the U.S. government; and;

(i) the requirement that any Products (in final, finished form) used or sold in the United States shall be manufactured substantially in the United States.

2.4 No Additional Rights. It is understood that nothing in this Agreement shall be construed to grant Company or any of its Affiliates a license, express or implied, under any patent owned solely or jointly by Hospital other than the Patent Rights expressly licensed hereunder. Hospital shall have the right to license any Patent Rights to any other party for any purpose outside of the License Field or the License Territory.

2.5 Disclosure of Technological Information. At Company's request prior to execution of this Agreement, Hospital (through **[***]**) shall use reasonable efforts to disclose in confidence within **[***]** after execution of this Agreement, the Technological Information licensed hereunder. **[***]**.

3. DUE DILIGENCE OBLIGATIONS

3.1 Diligence Requirements. Company shall use, and shall cause its Affiliates and Sublicensees, as applicable, to use, its Commercially Reasonable Efforts to develop and make available to the public Products and Processes throughout the License Territory in the License Field. Such efforts shall be deemed fully satisfied by achieving or substantially achieving the following objectives within the time periods designated below following the Effective Date, subject to any mutually agreed-upon adjustments to the timing requirements stated below in view of all Relevant Factors as described in Section 3.2 below:

(a) Pre-Sales Requirements.

1. Within **[***]** (of the Effective Date) and **[***]** thereafter, submit a commercial development plan to Hospital (the "Development Plan") including plans as shown in Appendix F, for making/raising investment and hiring management;
2. Within **[***]** of the Effective Date, **[***]**.
3. Within **[***]**, conduct **[***]**
4. Within **[***]**, **[***]**
5. Within **[***]**, Company will **[***]**;
6. Within **[***]**, Company will **[***]**;
7. Within **[***]**, Company will **[***]**;
8. Within **[***]**, Company will **[***]**; and
9. Within **[***]**, Company will **[***]**.

(b) Post-Sales Requirements.

(i) Following the First Commercial Sale in any country in the License Territory, Company shall itself or through its Distributors, Affiliates and/or Sublicensees make continuing Sales in such country without any elapsed time period of **[***]** or more in which such Sales do not occur.

(ii) Company shall itself or through an Affiliate, Distributor or Sublicensee make such First Commercial Sale within the following countries and regions in the License Territory within **[***]** after the Effective Date of this Agreement: **[***]**

Achievement of all or substantially all of the foregoing objectives shall be deemed to fully satisfy Company's obligations to use Commercially Reasonable Efforts under this Section 3.1.

3.2 Diligence Failures. **[***]**.

3.3 Diligence Reports. Company shall provide all reports with respect to its obligations under Section 3.1 as set forth in Section 5.

4. PAYMENTS AND ROYALTIES

4.1 License Issue Fee. Company shall pay Hospital a non-refundable license issue fee in the amount of One Hundred Thousand U.S. Dollars ($100,000) within **[***]** of the Effective Date of this Agreement.

4.2 Patent Cost Reimbursement. Company shall reimburse Hospital for all reasonable and documented costs associated with the preparation, filing, prosecution and maintenance of all Patent Rights ("Patent Costs"). As of the Effective Date, Hospital has incurred approximately two hundred and eighty thousand dollars ($280,000.00) U.S. dollars in Patent Costs, which amount Company shall pay to Hospital in three semi-annual installments, with the first payment due within **[***]** of the Effective Date of this Agreement. Company shall pay to Hospital, or at Hospital's request directly to patent counsel, all other Patent Costs within **[***]** of Company's receipt of an invoice for such Patent Costs either from Hospital or Hospital's patent counsel. Company agrees to indemnify, defend and hold Hospital harmless from and against any and all liabilities, damages, costs and expenses arising from the failure of Company to timely pay such invoices and Patent Costs. Hospital shall instruct patent counsel to provide copies to Hospital for Hospital's administrative files of all invoices detailing Patent Costs which are sent directly to Company. If Company pays any Patent Costs directly, Company shall advise patent counsel that Hospital is and shall remain patent counsel's client.

4.3 Annual License Fee; Annual Minimum Royalty.

(a) Before First Commercial Sale. Prior to the First Commercial Sale, Company shall pay to Hospital the following non-refundable amounts as an annual license fee within **[***]** after each of the following anniversaries of the Effective Date of the License: The annual license fees shall be credited in full against any royalties subsequently due on Net Sales during the same calendar year:

(i) **[***]**;

(ii) **[***]**.

(b) After First Commercial Sale. Following the First Commercial Sale, Company shall pay Hospital a non-refundable minimum annual royalty in the amount of **[***]** per year within **[***]** after each annual anniversary of the Effective Date occurring after the First Commercial Sale. The annual minimum royalty shall be credited in full against royalties subsequently due on Net Sales made during the same calendar year.

4.4 Milestone Payments. In addition to the payments set forth in Sections 4.1 through 4.3 above, Company shall pay Hospital milestone payments within **[***]** of the occurrence of the Milestone, as follows:

For each of the first three indications or Products, which shall each be payable a maximum of three times in total under the Agreement regardless of the total number of Products or indications progressed. For clarity, in the event Company **[***]**:

(a) **[***]**

(b) **[***]**

(c) **[***]**

(d) **[***]**

(e) **[***]**

(f) **[***]**

(g) **[***]**

(h) **[***]**

(i) **[***]**

(j) **[***]**.

The Company shall be entitled to offset the milestone payments actually paid to Hospital against any amounts that the Company is required to pay to Hospital on account of non-royalty income that is paid to the Company for achievement of the exact same development milestone for the same Product.

4.5 Royalties and Sublicense Income.

(A) Beginning with the First Commercial Sale by Company, its Affiliates and Sublicensees in the applicable country in the License Territory, Company shall pay Hospital:

(i) During the term of any license granted under Section 2.1(a)(i), a royalty on the Net Sales of all Products and Processes the manufacture, use or sale of which is claimed or covered by a Valid Claim within the Patent Rights licensed to Company under Section 2.1(a)(i) for as long as such Valid Claim exists at the time of sale and in the applicable country of sale, as per the scale below:

Sales of up to **[***]**

Sales above **[***]**

Sales above **[***]**

And

(ii) On a product-by-product and country-by-country basis, in the absence of a Valid Claim existing within the licensed Patent Rights under Section 2.1(a)(i) which claims or covers the manufacture, use or sale of the Product or Process at the relevant time and in the applicable country of manufacture, use or sale as described in subpart A(i) above, then, in lieu of the royalty described in subpart A(i) above, and in accordance with Section 2.1(a)(iii) and Section 10.1, running for a period not to exceed ten (10) years from the date of the First Commercial Sale in the applicable country, a royalty of **[***]** of the Net Sales of all such Products and Processes which employ Technological Information; provided, however that such royalty on Technological Information will only be payable if such Technological Information is directed specifically to the composition of matter or the applicable method of synthesis or use of a lead compound for which an IND was filed by Company.

(B) Royalties on annual Net Sales by Company, its Affiliates, and Sublicensees of Derived Products and/or Derived Processes will be payable at **[***]** of the rate payable for Products and Processes as applicable under subpart (A)(i) above. For clarity, the royalty rate shall range from **[***]** to **[***]** based on sales volume as in Section 4.5(A)(i).

(C) On a product-by product and country-by-country basis, Company shall be entitled to reduce the royalty rates otherwise applicable under subpart A or B above on account of generic competition from which Company can demonstrate is of comparable quality and performance and have **[***]**, provided that the applicable royalty rate for generic competition will not be reduced by more than **[***]** of the royalty due, in any reporting period.

(D) The royalty rate may be reduced by up to 50% for any royalty paid by Company to third parties for their patent rights wherein Company is required to obtain a license from such third party in order to manufacture, use or sell any Product or Process in any country of the License Territory to avoid infringing or misappropriating the intellectual property rights of such third party.

(E) For the avoidance of doubt, in no event, shall the royalty rate, when aggregated with any other offsets and credits allowed under this Agreement, be reduced to less than **[***]** of the royalty otherwise due under Part (A)(i) (A)(ii), C, or D, under this section 4.5, in any reporting period.

(F) The obligation to pay royalties under this Agreement will be imposed only once with respect to the same unit of product sold by Company, its Affiliates, or Sublicensees, provided, however, that the highest applicable royalty rate for such product shall apply.

(E) Company shall pay Hospital a percentage of Sublicense Income as follows, depending upon the stage of development of the relevant Product or Process when the Sublicense is granted:

(i) **[***]**;

(ii) **[***]**; or

(iii) **[***]**.

(F) All payments due to Hospital under this Section 4.5 shall be due and payable by Company within **[***]** after the end of each Reporting Period, and shall be accompanied by a report as set forth in Sections 5.3 and 5.4.

4.6 Equity. As partial consideration for the rights granted in this Agreement, upon Hospital's execution and delivery to Company of a fully-executed copy of a Stock Issuance Agreement in the form prescribed by Company (a "Issuance Agreement"), Company shall issue to Hospital (a) within **[***]** of the Effective Date, that number shares of its common stock that equal **[***]** of Company's fully-diluted shares on the Effective Date (the "Shares"), and (b) **[***]**.

[***].

4.7 Board Seat and Co-Investment.

(a) For so long as Hospital holds shares of Company stock and The Partners Innovation Fund (PIF) is not represented on Company's Board of Directors, Company shall invite a representative of Hospital to attend all meetings of its Board of Directors in a nonvoting observer capacity; provided, however, that Hospital shall cause such representative to, and prior to the exercise of the rights contained in this Section 4.7 such representative shall enter into a written agreement with Company providing that such representative will, hold in confidence and trust and to act in a fiduciary manner with respect to all information so provided; and provided further, that the Company reserves the right to withhold any information and to exclude such representative from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between Company and its counsel or result in disclosure of trade secrets or a conflict of interest. **[***]** and one or more of his collaborators shall be invited to serve as members on Company's Scientific Advisory Board. The terms and conditions of such membership shall be set forth in a definitive written agreement in the form prescribed by Company.

(b) **[***]**.

4.8 Form of Payment. All payments due under this Agreement shall be drawn on a United States bank and shall be payable in United States dollars. Each payment shall reference this Agreement and its Agreement Number and identify the obligation under this Agreement that the payment satisfies. Conversion of foreign currency to U.S. dollars shall be made at the conversion rate existing in the United States, as reported in The Wall Street Journal, on the last working day of the applicable Reporting Period. Such payments shall be without deduction of exchange, collection or other charges, and, specifically, without deduction of withholding or similar taxes or other government imposed fees or taxes, except as permitted in the definition of Net Sales.

Checks for all payments due to the Hospital under this Agreement shall be made payable to the Hospital and addressed as set forth below:

Massachusetts General Hospital
BOA-Lockbox Services
PCSR Lockbox #**[***]**
MA5-527-02-07
2 Morrissey Blvd
Dorchester, MA 02125
Reference Agreement #: **[***]**

Payments via wire transfer should be made as follows:

ACH Credit: ABA # **[***]**
Federal Reserve Wire: **[***]**
SWIFT Code: **[***]**
Account #**[***]**
Massachusetts General Hospital
Bank of America
100 Federal Street
Boston, MA 02110

Reference Agreement #: **[***]**

4.9 Overdue Payments. The payments due under this Agreement shall, if overdue, bear interest beginning on the first day following the Reporting Period to which such payment was incurred and until payment thereof at a per annum rate equal to **[***]** above the prime rate in effect on the due date as reported by The Wall Street Journal, **[***]**, not to exceed the maximum permitted by law. Any such overdue payments when made shall be accompanied by all interest so accrued. Said interest and the payment and acceptance thereof shall not preclude Hospital from exercising any other rights it may have as a consequence of the lateness of any payment.

5. REPORTS AND RECORDS

5.1 Diligence Reports. Within **[***]** after the end of each calendar year, Company shall report in writing to Hospital on progress made toward the objectives set forth in Section 3.1 during such preceding 12 month period, including, without limitation, progress on research and development, status of applications for regulatory approvals, manufacturing, sublicensing and the number of sublicenses entered into and marketing.

5.2 Milestone Achievement Notification. Company shall report to Hospital the dates on which it achieves the milestones set forth in Section 4.4 within **[***]** of each such occurrence.

5.3 Sales Reports. Company shall report to Hospital the date of the First Commercial Sale in each country of the License Territory within **[***]** of each such occurrence. Following the First Commercial Sale, Company shall deliver reports to Hospital within **[***]** after the end of each Reporting Period. Each report under this Section 5.4 shall have substantially the format outlined in **Appendix C**, shall be certified as correct by an officer of Company and shall contain at least the following information as may be pertinent to a royalty accounting hereunder for the immediately preceding Reporting Period:

(a) the number of Products and Processes Sold by Company, its Affiliates and Sublicensees in each country;

(b) the amounts billed, invoiced and received by Company, its Affiliates and Sublicensees for each Product and Process, in each country, and total billings or payments due or made for all Products and Processes;

(c) calculation of Net Sales for the applicable Reporting Period in each country, including an itemized listing of permitted offsets and deductions;

(d) total royalties payable on Net Sales in U.S. dollars, together with the exchange rates used for conversion; and

(e) any other payments due to Hospital under this Agreement.

If no amounts are due to Hospital for any Reporting Period, the report shall so state.

5.4 Sublicense Income Reports. Company shall, along with delivering payment as set forth in Section 4.6, report to Hospital within **[***]** of receipt the amount of all Sublicense Income received by Company, and Company's calculation of the amount due and paid to Hospital from such income, including an itemized listing of the source of income comprising such consideration, and the name and address of each entity making such payments in substantially the format outlined in **Appendix D**.

5.5 Audit Rights. Company shall maintain, and shall cause each of its Affiliates and Sublicensees to maintain, complete and accurate records relating to the rights and obligations under this Agreement and any amounts payable to Hospital in relation to this Agreement, which records shall contain sufficient information to permit Hospital and its representatives to confirm the accuracy of any payments and reports delivered to Hospital and compliance in all other respects with this Agreement. Company shall retain and make available, and shall cause each of its Affiliates and Sublicensees to retain and make available, such records for at least **[***]** following the end of the calendar year to which they pertain, to Hospital and/or its representatives and upon at least **[***]** advance written notice, for inspection during normal business hours, to verify any reports and payments made and/or compliance in other respects under this Agreement. If any examination conducted by Hospital or its representatives pursuant to the provisions of this Section show an underreporting or underpayment of **[***]** or more in any payment due to Hospital hereunder, Company shall bear the full cost of such audit and shall remit any amounts due to Hospital (including interest due in accordance with Section 4.7) within **[***]** of receiving notice thereof from Hospital.

6. PATENT PROSECUTION AND MAINTENANCE

6.1 Prosecution. Hospital shall be responsible for the preparation, filing, prosecution and maintenance of all patent applications and patents included in Patent Rights through patent counsel reasonably acceptable Company. Company shall reimburse Hospital for Patent Costs incurred by Hospital prior to the Effective Date relating thereto in accordance with Section 4.2.

6.2 Copies of Documents. With respect to any Patent Right licensed hereunder, Hospital shall instruct the patent counsel prosecuting such Patent Right to (i) copy Company on patent prosecution documents that are received from or filed with the United States Patent and Trademark Office and foreign equivalent, as applicable; (ii) provide Company with copies of draft submissions to the USPTO and foreign equivalent, as applicable, prior to filing; and (iii) give consideration to the comments and requests of Company or its patent counsel.

6.3 Hospital's Election Not to Proceed. Hospital, will not, without prior written notice Company, abandon any patent application or patent with the Patent Rights. In the event Hospital, in its sole discretion, determines not to prepare, file, prosecute or maintain any patent application or patent within the Licensed Patents in any country in the Territory, Hospital will promptly notify Company thereof, and Company will have the right, at its own expense to prepare, file, prosecute and maintain any patent application or patent in such country in the name of Hospital. If Company fails to assume control of preparation, filing, prosecution and maintenance of such patent application or patent in Patent Rights or if Company otherwise elects to surrender any patent application or patent in Patent Rights in any country upon **[***]** prior written notice to Hospital, Hospital shall be relieved of its obligations regarding such surrendered patent application or patent under Section 6.2 below and Company shall be relieved of the obligation to reimburse Hospital for future patent expenses with respect to such surrendered patent application or patent; provided, that, Company shall continue to have the obligation to reimburse Hospital for patent expenses incurred in connection with that patent application or patent prior to the expiration of the **[***]** notice. For purposes of clarity, in the event Company elects to surrender or abandon any patent application or patent in Patent Rights, such application or patent will be excluded from the definition of Rights Hospital shall be free to license its rights to that particular U.S. or foreign patent application or patent to any other party on any terms.

6.4 Confidentiality of Prosecution and Maintenance Information. Company and Hospital each hereby agrees to treat all information received from the other related to prosecution and maintenance of Patent Rights as Confidential Information in accordance with the provisions of **Appendix E**.

7. THIRD PARTY INFRINGEMENT AND LEGAL ACTIONS

7.1 Company Right to Prosecute. Company will have the first right, but not the obligation, to protect the Patent Rights from infringement and prosecute infringers when, in its sole judgment, such action may be reasonably necessary, proper and justified. If Company shall have supplied Hospital with written evidence demonstrating to Hospital's reasonable satisfaction prima facie infringement of a claim of a Patent Right in the License Field in the License Territory by a third party which poses a material threat to Company's rights under this Agreement, Company may by notice request Hospital to cooperate with Company to take steps to protect such Patent Right.

7.2 Hospital Right to Prosecute. In the event Company notifies Hospital that Company does not intend to prosecute infringement identified under Section 7.1, Hospital may, upon notice to Company, initiate legal proceedings against the infringer at Hospital's expense with respect to a claim of a Patent Right in the License Field in the License Territory. Before commencing such action, Hospital and, as applicable, any Affiliate, shall consult with Company , concerning, among other things, Hospital's standing to bring suit, the advisability of bringing suit, the selection of counsel and the jurisdiction for such action (provided Hospital must have Company's prior written consent with respect to selection of jurisdiction for any action in which Company may be joined as a party-plaintiff) and shall use reasonable efforts to accommodate the views of Company regarding the proposed action, including without limitation with respect to potential effects on the public interest. Hospital shall be responsible for all costs, expenses and liabilities in connection with any such action and shall indemnify and hold Company harmless therefrom, regardless of whether Company is a party-plaintiff, except for the expense of any independent counsel retained by Company in accordance with Section 7.5 below.

7.3 Company Joined as Party-Plaintiff. If Hospital elects to commence an action as described in Section 7.2 above, Company shall have, in its sole discretion, the option to join such action as a party-plaintiff. If Company is required by law to join such action as a party-plaintiff, Company may either, in its sole discretion, permit itself to be joined as a party-plaintiff at the sole expense of Company.

7.4 Notice of Actions; Settlement. Each Party shall promptly inform the other Party of any action or suit relating to Patent Rights and shall not enter into any settlement, consent judgment or other voluntary final disposition of any action relating to Patent Rights, including but not limited to appeals, without the prior written consent of Company.

7.5 Cooperation. Each Party agrees to cooperate reasonably in any action under Section 7 which is controlled by the other Party, provided that the controlling party reimburses the cooperating party for any costs and expenses incurred by the cooperating party in connection with providing such assistance, except for the expense of any independent counsel retained by the cooperating party in accordance with this Section 7.5.Such controlling party shall keep the cooperating party informed of the progress of such proceedings and shall make its counsel available to the cooperating party. The cooperating party shall also be entitled to independent counsel in such proceedings but at its own expense, said expense to be offset against any damages received by the Party bringing suit in accordance with Section 7.6.

7.6 Recovery. Any award paid by third parties as the result of such proceedings (whether by way of settlement or otherwise) shall first be applied to reimbursement of any legal fees and expenses incurred by either Party and then the remainder shall be divided between the Parties as follows:

(a) (i) **[***]**; and

(ii) **[***]**; and

(b) **[***]**.

7.7 Additional IP. **[***]**.

[***].

8. INDEMNIFICATION AND INSURANCE

8.1 Indemnification.

(a) Company shall indemnify, defend and hold harmless Hospital and its Affiliates and their respective trustees, directors, officers, medical and professional staff, employees, and agents and their respective successors, heirs and assigns (the "Indemnitees"), against any liability, damage, loss or expense (including reasonable attorney's fees and expenses of litigation) incurred by or imposed upon the Indemnitees or any one of them in connection with any claims, suits, actions, demands or judgments arising out of any theory of product liability (including, but not limited to, actions in the farm of contract, tort, warranty, or strict liability) concerning any Product, Process made, used, or sold or performed pursuant to any right or license granted to Company under this Agreement, except to the extent that such liability, damage, loss or expense result from the gross negligence, wilful misconduct or breach of any of the provisions of this Agreement on the part of any of the Indemnities.

(b) Company agrees, at its own expense, to provide attorneys reasonably acceptable to the Hospital to defend against any actions brought or filed against any party indemnified hereunder with respect to the subject of indemnity contained herein; provided, however, that any Indemnitee shall have the right to retain its own counsel, at the expense of Company, if representation of such Indemnitee by counsel retained by Company would be inappropriate because of conflict of interests of such Indemnitee and any other party represented by such counsel. Company agrees to keep Hospital informed of the progress in the defense and disposition of such claim and to consult with Hospital prior to any proposed settlement.

(c) This section 8.1 shall survive expiration or termination of this Agreement.

8.2 Insurance.

(a) Beginning at such time as any such Product or Process is being commercially distributed, sold, leased or otherwise transferred, or performed or used (other than for the purpose of obtaining regulatory approvals), by Company, an Affiliate or Sublicensee, Company shall, at its sole cost and expense, procure and maintain commercial general liability insurance in amounts not less than $**[***]** per incident and $**[***]** annual aggregate and naming the Indemnitees as additional insureds. Such commercial general liability insurance shall provide (i) product liability coverage and (ii) broad form contractual liability coverage for

Company's indemnification under Section 8.1 of this Agreement. If Company elects to self-insure all or part of the limits described above (including deductibles or retentions which are in excess of $**[***]** annual aggregate) such self-insurance program must be acceptable to the Hospital and the Risk Management Foundation. The minimum amounts of insurance coverage required under this Section 8.2 shall not be construed to create a limit of Company's liability with respect to its indemnification under Section 8.1 of this Agreement.

(b) Company shall provide Hospital with written evidence of such insurance upon request of Hospital. Company shall provide Hospital with written notice at least **[***]** prior to the cancellation, non-renewal or material change in such insurance; if Company does not obtain replacement insurance providing comparable coverage prior to the expiration of such **[***]** period, Hospital shall have the right to terminate this Agreement effective at the end of such **[***]** period without notice or any additional waiting periods.

(c) Company shall maintain such commercial general liability insurance beyond the expiration or termination of this Agreement during (i) the period that any such Product or Process is being commercially distributed, sold, leased or otherwise transferred, or performed or used (other than for the purpose of obtaining regulatory approvals), by Company or by a licensee, affiliate or agent of Company and (ii) a reasonable period after the period referred to in (c) (i) above which in no event shall be less than **[***]**.

(d) This section 8.2 shall survive expiration or termination of this Agreement.

9. DISCLAIMER OF WARRANTIES; LIMITATION OF LIABILITY

9.1 Title to Patent Rights. Hospital is an owner by assignment from **[***]** of the Patent Rights and has the sole authority to enter this Agreement, and to license the Patent Rights to Company hereunder. Hospital hereby represents and warrants to Company that, as between Hospital and the Co-Owners, pursuant to the terms and conditions of the IAAs, Hospital has exclusive agency to license the Patent Rights and all Co-Owners have agreed that Hospital has the sole legal right and authority to grant licenses under the ownership interests of the Co-Owners in the Patent Rights on behalf of all Co-Owners, and that no Co-Owner (other than Hospital) is permitted to grant to any third party any license under its rights in the Patent Rights, and that, to the best of Hospital's knowledge as of the Effective Date, there is no encumbrance, lien or restriction or retained or reserved rights of any Co-Owners (other than the reserved academic rights as set forth in Section 2.3 of this Agreement) or of any third party that would conflict or interfere with the exclusive license rights granted to Company hereunder.

To the best of Hospital's Innovation Office's knowledge as of the Effective Date, (a) Hospital has not received written notice from a third party of any pending or threatened legal action or proceeding asserting that the use of the Patent Rights as contemplated by the License to be granted hereunder does or would infringe or misappropriate the intellectual property rights of any third party; (b) Hospital has not granted a license in, to or under, or any option or other right to Patent Rights that would conflict or interfere with the rights granted to Company under the License, and (c) the execution, delivery and performance of the License does not conflict with, or constitute a breach of, any order, judgment or agreement to which Hospital is a party.

9.2 No Warranties. EXCEPT AS EXPRESSLY SET FORTH IN SECTION 9.1, HOSPITAL MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE PATENT RIGHTS AND THE RIGHTS GRANTED HEREUNDER, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, VALIDITY OF PATENT RIGHTS CLAIMS, WHETHER ISSUED OR PENDING, AND THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE, AND HEREBY DISCLAIMS THE SAME. SPECIFICALLY, AND NOT TO LIMIT THE FOREGOING, HOSPITAL MAKES NO WARRANTY OR REPRESENTATION (i) REGARDING THE VALIDITY OR SCOPE OF ANY OF THE CLAIM(S), WHETHER ISSUED OR PENDING, OF ANY OF THE PATENT RIGHTS, AND (ii) THAT THE EXPLOITATION OF THE PATENT RIGHTS OR ANY PRODUCT WILL NOT INFRINGE ANY PATENTS OR OTHER INTELLECTUAL PROPERTY RIGHTS OF HOSPITAL OR OF ANY THIRD PARTY.

9.3 Limitation of Liability. IN NO EVENT SHALL HOSPITAL OR ANY OF ITS AFFILIATES OR ANY OF THEIR RESPECTIVE TRUSTEES, DIRECTORS, OFFICERS, MEDICAL OR PROFESSIONAL STAFF, EMPLOYEES AND AGENTS BE LIABLE TO LICENSEE OR ANY OF ITS AFFILIATES, SUBLICENSEES OR DISTRIBUTORS FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING IN ANY WAY OUT OF THIS AGREEMENT OR THE LICENSE OR RIGHTS GRANTED HEREUNDER, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, INCLUDING WITHOUT LIMITATION ECONOMIC DAMAGES OR INJURY TO PROPERTY OR LOST PROFITS, REGARDLESS OF WHETHER HOSPITAL SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF THE FOREGOING.

10. TERM AND TERMINATION

10.1 Term. The term of this Agreement shall commence on the Effective Date and shall remain in effect until the later of:

(a) the date on which all issued patents and filed patent applications within the Patent Rights with any Valid Claim covering the Product or Process have expired or been abandoned, and

(b) ten (10) years after the First Commercial Sale of the last Product or Process for which a royalty is due under Section 4.5(A)(ii);

unless this Agreement is terminated earlier in accordance with any of the other provisions of Section 10.

10.2 Termination for Failure to Pay. If Company fails to make any payment due hereunder, Hospital shall have the right to terminate this Agreement upon **[***]** written notice, unless Company makes such payments plus any interest due, as set forth in Section 4.7, within said **[***]** notice period. If payments are not made, Hospital may immediately terminate this Agreement at the end of said **[***]** period. Company shall be entitled to only one such cure period in a calendar year; for a second failure to make payment on time, Hospital shall have the right to terminate this Agreement immediately upon written notice.

10.3 Termination for Insurance and Insolvency.

(a) Insurance. Hospital shall have the right to terminate this Agreement in accordance with Section 8.2(b) if Company fails to maintain the insurance required by Section 8.2.

(b) Insolvency and other Bankruptcy Related Events. Hospital shall have the right to terminate this Agreement immediately upon written notice to Company with no further notice obligation or opportunity to cure if: (i) Company passes a resolution for voluntary winding up, or a dissolution, winding-up or liquidation proceeding is initiated against it and not set aside within **[***]**; (ii) a receiver or liquidator is appointed for the Company and has not been removed within **[***]**; or (iii) Company makes an assignment for the benefit of creditors.

10.4 Termination for Non-Financial Default. If Company, any of its Affiliates or any Sublicensee shall default in the performance of any of its other material obligations under this Agreement not otherwise covered by the provisions of Section 10.2 and 10.3, and if such default has not been cured within **[***]** after notice by Hospital in writing of such default, or to provide a reasonably acceptable plan to cure such breach, Hospital may immediately terminate this Agreement, and/or any license granted hereunder with respect to the country or countries in which such default has occurred, at the end of said **[***]** cure period. Hospital shall also have the right to terminate this Agreement and/or any such license immediately, upon written notice, in the event of repeated defaults, even if cured within such **[***]** periods. Hospital shall have no further obligations hereunder.

10.5 Challenging Validity. During the term of this Agreement, Company shall not challenge, and shall restrict Company Affiliates and Sublicensees from challenging, the validity of the Patent Rights and in the event of any breach of this provision Hospital shall have the right to terminate this Agreement and any license granted hereunder immediately.

10.6 Termination by Company. Company shall have the right to terminate this Agreement for any reason or merely for convenience by giving **[***]** advance written notice to Hospital and upon such termination shall immediately cease all use and Sales of Products and Processes, except as otherwise expressly set forth under Section 10.8 or 10.9.

10.7 Effect of Termination on Sublicenses. If this Agreement is terminated for any reason, all outstanding sublicenses not in default will be assigned by Company to Hospital. The assigned sublicenses will remain in full force and effect with the Hospital as the licensor or sublicensor instead of Company; provided, however, that the duties of the Hospital under the assigned sublicenses will not be greater than the duties of the Hospital under this Agreement, and the rights of the Hospital under the assigned sublicenses will not be less than the rights of the Hospital under this Agreement, including all rights to receive financial consideration and other rights of the Hospital.

10.8 Effects of Termination of Agreement. Upon termination of this Agreement or any of the licenses hereunder for any reason, (i) final reports in accordance with Section 5 shall be submitted to Hospital and (ii) all royalties and other payments, including without limitation any unreimbursed Patent Costs, accrued or due to Hospital as of the termination or expiration date shall become immediately due and payable and (iii) all obligations of the parties shall cease, except those that expressly survive termination or expiration of the License. Company shall cease, and shall cause its Affiliates and Sublicensees to cease under any sublicense granted by Company, all Sales and uses of Products and Processes upon such termination, subject to Section 10.9. The termination or expiration of this Agreement or any license granted hereunder shall not relieve Company, its Affiliates or Sublicensees of obligations arising before such termination or expiration.
[***].

10.9 Inventory. Upon early termination of this Agreement other than for Company default, Company, Company Affiliates and Sublicensees may complete and sell any work-in-progress and inventory of Products that exist as of the effective date of termination provided that (i) Company pays Hospital the applicable running royalty or other amounts due on such Net Sales in accordance with the terms and conditions of this Agreement, and (ii) Company, Company Affiliates and Sublicensees shall complete and sell all work-in-progress and inventory of Products within six (6) months after the effective date of termination. Upon expiration of this Agreement, Company shall pay to Hospital the royalties set forth in Section 4.5(a) for Sales of any Product that was in inventory or was a work-in-progress on the date of expiration of the Agreement.

11. COMPLIANCE WITH LAW

11.1 Compliance. Company shall have the sole obligation for compliance with, and shall ensure that any Affiliates and Sublicensees comply with, all government statutes and regulations that relate to Products and Processes, including, but not limited to, those of the Food and Drug Administration and the Export Administration, as amended, and any applicable laws and regulations of any other country in the License Territory. Company agrees that it shall be solely responsible for obtaining any necessary licenses to export, re-export, or import Products or Processes covered by Patent Rights and/or Confidential Information. Company shall indemnify and hold harmless Hospital for any breach of Company's obligations under this Section 11.1.

11.2 Patent Numbers. Company shall cause all Products sold in the United States to be marked with all applicable U.S. Patent Numbers, to the full extent required by United States law. Company shall similarly cause all Products shipped to or sold in any other country to be marked in such a manner as to conform with the patent laws and legal requirements of such country.

12. MISCELLANEOUS

12.1 Entire Agreement. This Agreement constitutes the entire understanding between the Parties with respect to the subject matter hereof.

12.2 Notices. Any notices, reports, waivers, correspondences or other communications required under or pertaining to this Agreement shall be in writing and shall be delivered by hand, or sent by a reputable overnight mail service (e.g., Federal Express), or by first class mail (certified or registered), or by facsimile confirmed by one of the foregoing methods, to the other party. Notices will be deemed effective (a) three (3) working days after deposit, postage prepaid, if mailed, (b) the next day if sent by overnight mail, or (c) the same day if sent by facsimile and confirmed as set forth above or delivered by hand. Unless changed in writing in accordance with this Section, the notice address for Hospital shall be as follows:

Director, Innovation
The General Hospital Corporation
101 Huntington Avenue, 4th Floor
Boston, MA 02199

Fax No. **[***]**

12.3 Amendment; Waiver. This Agreement may be amended and any of its terms or conditions may be waived only by a written instrument executed by an authorized signatory of the Parties or, in the case of a waiver, by the Party waiving compliance. The failure of either Party at any time or times to require performance of any provision hereof shall in no manner affect its rights at a later time to enforce the same. No waiver by either Party of any condition or term shall be deemed as a further or continuing waiver of such condition or term or of any other condition or term.

12.4 Binding Effect. This Agreement shall be binding upon and inure to the benefit of and be enforceable by the Parties hereto and their respective permitted successors and assigns.

12.5 Assignment. Company shall not assign this Agreement or any of its rights or obligations under this Agreement without the prior written consent of Hospital; provided, however, that if Company has fulfilled its diligence obligations as set forth in Section 3, no such consent will be required to assign this Agreement to an Affiliate of Company or to a successor of the Company's business or assets to which this Agreement pertains or to a purchaser of substantially all of the Company's assets related to this Agreement, so long as such successor or purchaser shall agree in writing to be bound by all of the terms and conditions hereof prior to such assignment. Company shall notify Hospital in writing of any such assignment and provide a copy of all assignment documents and related agreements to Hospital within **[***]** of such assignment. Failure of an assignee to agree to be bound by the terms hereof or failure of Company to notify Hospital and provide copies of assignment documentation shall be grounds for termination of this Agreement for default. Further, neither any rights granted under this Agreement, nor any sublicense, may be assigned by any Sublicensee without the prior written consent of Hospital, such consent not to be unreasonably withheld by Hospital.

12.6 Force Majeure. Neither Party shall be responsible for delays resulting from causes beyond the reasonable control of such Party, including without limitation fire, explosion, flood, war, sabotage, strike or riot, provided that the nonperforming Party uses commercially reasonable efforts to avoid or remove such causes of nonperformance and continues performance under this Agreement with reasonable dispatch whenever such causes are removed.

12.7 Use of Name. Unless required by law, applicable regulation or court order, neither Party shall use the name of the other Party or of any trustee, director, officer, staff member, employee, student or agent of the other Party or any adaptation thereof in any advertising, promotional or sales literature, publicity or in any document employed to obtain funds or financing without the prior written approval of the Party or individual whose name is to be used. For Hospital, such approval shall be obtained from Hospital's VP of Public Affairs.

12.8 Governing Law. This Agreement shall be governed by and construed and interpreted in accordance with the laws of a United States jurisdiction, to be determined by the mutual agreement of the Parties as may be appropriate given the contacts with the relevant jurisdictions and the involvement of any rights of other Co-Owners, excluding with respect to conflict of laws, except that questions affecting the construction and effect of any patent shall be determined by the law of the country in which the patent shall have been granted.

12.9 Hospital Policies. Company acknowledges that Hospital's employees and medical and professional staff members and the employees and staff members of Hospital's Affiliates are subject to the applicable policies of Hospital and such Affiliates, including, without limitation, policies regarding conflicts of interest, intellectual property and other matters. Company shall provide Hospital with any agreement it proposes to enter into with any employee or staff member of Hospital or any of Hospital's Affiliates for Hospital's prior review and shall not enter into any oral or written agreement with such employee or staff member which conflicts with any such policy. Hospital shall provide Company, at Company's request, with copies of any such policies applicable to any such employee or staff member.

12.10 Severability. If any provision(s) of this Agreement are or become invalid, are ruled illegal by any court of competent jurisdiction or are deemed unenforceable under then current applicable law from time to time in effect during the term hereof, it is the intention of the parties that the remainder of this Agreement shall not be effected thereby. It is further the intention of the parties that in lieu of each such provision which is invalid, illegal or unenforceable, there be substituted or added as part of this Agreement a provision which shall be as similar as possible in economic and business objectives as intended by the parties to such invalid, illegal or enforceable provision, but shall be valid, legal and enforceable.

12.11 Survival. In addition to any specific survival references in this Agreement, Sections 1, 2.4, 4.2, 4.6, 4.7, 5.3, 5.4, 5.5, 6.4, 8.1, 8.2, 9.2, 9.3, 10.7, 10.8, 10.9, 12.1, 12.2, 12.3, 12.4, 12.7, 12.8, 12.9, 12.10, 12.11, 12.12 and 12.13 shall survive termination or expiration of this Agreement. Any other rights, responsibilities, obligations, covenants and warranties which by their nature should survive this Agreement shall similarly survive and remain in effect.

12.12 Interpretation. The parties hereto are sophisticated, have had the opportunity to consult legal counsel with respect to this transaction and hereby waive any presumptions of any statutory or common law rule relating to the interpretation of contracts against the drafter.

12.13 Headings. All headings are for convenience only and shall not affect the meaning of any provision of this Agreement.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date first written above.

KEROS THERAPEUTICS, INC.

BY: */s/ Jasbir Seehra* *Ran Nussbaum*
Name: Jasbir Seehra Ran Nussbaum
TITLE: CEO Director
DATE: April 5th, 2016

MASSACHUSETTS GENERAL HOSPITAL

BY: */s/* **[***]**
Name: **[***]**
TITLE: Director, Innovation
DATE: April 5th, 2016

Appendix A

DESCRIPTION OF PATENT RIGHTS

[***]

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Appendix B

DESCRIPTION OF TECHNOLOGICAL INFORMATION

Appendix C
SALES REPORTS

AGREEMENT INCOME REPORT **Royalty Income**

MGH Agreement # - _____

Licensee - _____

Sub-Licensee - _____

Separate reports must be filed for:

1. ***Each Product sold.***
2. ***Each country of sale, if different deductions or royalty rates apply.***

Product Name: _____

Report Time Period:

From *mm/dd/yyyy* _____

To *mm/dd/yyyy* _____

Country of Sale	_____	_____	_____
Quantity Sold	_____	_____	_____
Gross Sales (USD)	$_____	$_____	$_____
Exchange Rate	_____	_____	_____

Deductions (Itemize)

Please list each deduction separately. Use same definition as appears in Agreement and include the contract paragraph as a reference (Std Section 1.17(a)(ii) line item deductions listed below).

A1.	_____	_____	_____
A2.	_____	_____	_____
A3.	_____	_____	_____
A4.	_____	_____	_____
B.	_____	_____	_____
Total Deductions	(_____)	(_____)	(_____)
Net Sales	_____	_____	_____
Royalty Percentage	_____	_____	_____
Credits (itemize)	(_____)	(_____)	(_____)
Royalties Due	$_____	$_____	$_____

PLEASE ATTACH DETAIL SALES REPORTS AS REQUIRED

Appendix D

AGREEMENT INCOME REPORT **Sublicense Income**

MGH Agreement # - _____

Licensee - _____

Sub-Licensee - _____

Separate reports must be filed for Payments associated with each Product:

Product Name: _____

Report Time Period:

From *mm/dd/yyyy* _____

To *mm/dd/yyyy* _____

	Detailed Explanation of Payment Required for "Other Payment"
Annual Fees/Minimum Royalties	$_____ _____
Milestone Payments	$_____ _____
Sublicense Fees and Royalties	$_____ _____
Other Payment	$_____ _____
Other Payment	$_____ _____
Other Payment	$_____ _____
TOTAL	$_____ _____

PLEASE ATTACH DETAIL AS REQUIRED

Appendix E

CONFIDENTIALITY TERMS AND CONDITIONS

1. Definition of Confidential Information. “Confidential Information” shall mean any information, including but not limited to data, techniques, protocols or results, or business, financial, commercial or technical information, disclosed by one Party (each a “Discloser” as applicable) to the other Party (each a “Recipient” as applicable) in connection with the terms of that certain Exclusive License Agreement dated _____ (the “License Agreement”) and identified as confidential at the time of disclosure (the “Purpose”). Hospital’s Confidential Information shall also include all information disclosed by Hospital to Company in connection with the Patent Rights. Capitalized terms used in this Appendix that are not otherwise defined herein have the meanings ascribed in the License Agreement to which this Appendix is attached and made a part thereof

2. Exclusions. “Confidential Information” under this Agreement shall not include any information that (i) is or becomes publicly available through no wrongful act of Recipient; (ii) was known by Recipient prior to disclosure by Discloser, as evidenced by tangible records; (iii) becomes known to Recipient after disclosure from a third party having an apparent bona fide right to disclose it; (iv) is independently developed or discovered by Recipient without use of Discloser’s Confidential Information, as evidenced by tangible records; or (v) is disclosed to another party by Discloser without restriction on further disclosure. The obligations of confidentiality and non-use set forth in this Agreement shall not apply with respect to any information that Recipient is required to disclose or produce pursuant to applicable law, court order or other valid legal process provided that Recipient promptly notifies Discloser prior to such required disclosure, discloses such information only to the extent so required and cooperates reasonably with Discloser’s efforts to contest or limit the scope of such disclosure.

3. Permitted Purpose. Recipient shall have the right to, and agrees that it will, use Discloser’s Confidential Information solely for the Purpose as described in the License Agreement, except as may be otherwise specified in a separate definitive written agreement negotiated and executed between the parties.

4. Restrictions. For the term of the License Agreement and a period of seven (7) years thereafter (and indefinitely with respect to any individually identifiable health information disclosed by Hospital to Company, if any), each Recipient agrees that: (i) it will not use such Confidential Information for any purpose other than as specified herein, including without limitation for its own benefit or the benefit of any other person or entity; and (ii) it will use reasonable efforts (but no less than the efforts used to protect its own confidential and/or proprietary information of a similar nature) not to disclose such Confidential Information to any other person or entity except as expressly permitted hereunder. Recipient may, however, disclose Discloser’s Confidential Information only on a need-to-know basis to its and its Affiliates employees, staff members and agents (“Receiving Individuals”) who are directly participating in the Purpose and who are informed of the confidential nature of such information, provided Recipient shall be responsible for compliance by Receiving Individuals with the terms

of this Agreement and any breach thereof. Each party further agrees not to use the name of the other party or any of its Affiliates or any of their respective trustees, directors, officers, staff members, employees, students or agents in any advertising, promotional or sales literature, publicity or in any document employed to obtain funds or financing without the prior written approval of the party or individual whose name is to be used, in the case of Hospital such approval to be given by the Public Affairs Department. This Section 4 shall survive termination or expiration of this Agreement.

5. Right to Disclose. Discloser represents that to the best of its knowledge it has the right to disclose to each Recipient all of Discloser's Confidential Information that will be disclosed hereunder.

6. Ownership. All Confidential Information disclosed pursuant to this Agreement, including without limitation all written and tangible forms thereof, shall be and remain the property of the Discloser. Upon termination of this Agreement, if requested by Discloser, Recipient shall return or destroy at Discloser's discretion all of Discloser's Confidential Information, provided that Recipient shall be entitled to keep one copy of such Confidential Information in a secure location solely for the purpose of determining Recipient's legal obligations hereunder.

7. No License. Nothing in this Agreement shall be construed as granting or conferring, expressly or impliedly, any rights by license or otherwise, under any patent, copyright, or other intellectual property rights owned or controlled by Discloser relating to Confidential Information, except as specifically set forth in the License Agreement.

8. Remedies. Each party acknowledges that any breach of this Agreement by it may cause irreparable harm to the other party and that each party is entitled to seek injunctive relief and any other remedy available at law or in equity.

9. General. These Confidentiality Terms and Conditions, along with the License Agreement, contain the entire understanding of the parties with respect to the subject matter hereof, and supersede any prior oral or written understandings between the parties relating to confidential treatment of information. Sections 1, 2, 4, 6, 8 and 9 of these Confidentiality Terms and Conditions shall survive any expiration or termination of the License Agreement.

Appendix F

Brief Financing and Commercial Development Plans

[***]

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CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE KEROS THERAPEUTICS, INC. HAS DETERMINED THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO KEROS THERAPEUTICS, INC. IF PUBLICLY DISCLOSED.

AMENDMENT #1

This Amendment ("Amendment #1") is entered into as May 12, 2017 (the "Amendment #1 Effective Date") by and between **Keros Therapeutics, Inc.**, a Delaware corporation, having a principal place of business at 3 Lincoln Te1rnce, Lexington, MA 02421 ("Company"), and **The Brigham and Women's Hospital, Inc.**, a not-for-profit Massachusetts corporation, located at 75 Francis Street, Boston, MA 02115 ("Hospital"), each referred to herein individually as a "Party" and collectively as the "Parties".

RECITALS

WHEREAS, Company and Hospital are parties to that certain Amended and Restated Exclusive Patent License Agreement, effective as of April 6, 2016, as amended by that Consent and Amendment entered into as of May 12, 2017 (such agreement as so amended, the "Agreement #1");

WHEREAS, in accordance with Section 12.3 of the Agreement, the Parties with to clarify the list of Patent Rights;

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the Parties agree as follows:

AGREEMENT

1. All capitalized terms used, but not defined, in this Amendment shall have the meaning set forth in the Agreement.

2. Appendix A to the Agreement is hereby replaced with Appendix A attached to this Amendment.

3. Except as amended by this Amendment, the Agreement shall remain in full force and effect. After the Amendment Effective Date, every reference in the Agreement to the "Agreement #1" shall mean the Agreement as amended by this Amendment.

4. This Amendment may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Signatures provided by facsimile transmission or in Adobe™ Portable Document Format (PDF) sent by electronic mail shall be deemed to be original signatures.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties have caused this Amendment to be executed by their duly authorized representatives as of the Amendment Effective Date first written above.

THE BRIGHAM AND WOMEN'S HOSPITAL, INC.	KEROS THERAPEUTICS, INC.
By: /S/ **[***]**	By: /S/ Jasbir. S. Seehra
Title: Associate Director	Title: CEO
Name: [***]	Name: Jasbir S. Seehra

Appendix A

DESCRIPTION OF PATENT RIGHTS

[***]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE KEROS THERAPEUTICS, INC. HAS DETERMINED THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO KEROS THERAPEUTICS, INC. IF PUBLICLY DISCLOSED.

AMENDMENT #2
MGH Agreement No: [***]

This Amendment ("Amendment #2") is entered into as of February 23, 2018 (the "Amendment #2 Effective Date") by and between **Keros Therapeutics, Inc.**, a Delaware corporation, having a principal place of business at 99 Hayden Avenue, Suite 120, Building E,. Lexington, MA 02421 ("Company"), and **The General Hospital Corporation, d/b/a Massachusetts General Hospital**, a not-for-profit Massachusetts corporation, having a principal place of business at 55 Fruit St., Boston, MA 02114 ("Hospital"), each referred to herein individually as a "Party" and collectively as the "Parties".

RECITALS

WHEREAS, Company and Hospital are Parties to that certain Amended and Restated Exclusive Patent License Agreement, .effective as of April 6, 2016, as amended by that Consent and Amendment (Amendment #1) entered into as of May 12, 2017 (such agreement as so amended, the "Agreement");

WHEREAS, in accordance with Section 12.3 of the Agreement, the Parties wish to clarify the list of Patent Rights;

WHEREAS, in accordance with Section 6.3 of the Agreement, Company elected to surrender a subset of patent applications or patents ("Abandoned Patent Rights" in Appendix B) and such patent applications or patents shall no longer be included as part of the Patent Rights under Amendment #2 effective as of February 23, 2018, provided, that, Company shall continue to have the obligation to reimburse Hospital for patent expenses incurred in connection with Abandoned Patent Rights prior to the expiration of the sixty (60) day notice, effective up to April 24, 2018.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the Parties agree as follows:

AGREEMENT

1. All capitalized terms used, but not defined, in this Amendment #2 shall have the meaning set forth in the Agreement.
2. Appendix A to the Agreement is hereby replaced with Appendix A attached to this Amendment #2.
3. Except as amended by this Amendment #2, the Agreement shall remain in full force and effect. After the Amendment #2 Effective date, every reference in the Agreement shall mean the Agreement as amended by this Amendment.
4. This Amendment may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Signatures provided by facsimile transmission or in Adobe™ Portable Document Format (PDF) sent by electronic mail shall be deemed to be original signatures.
5. IN WITNESS WHEREOF, the Parties have caused this Amendment #2 to be executed by their duly authorized representatives as of the Amendment #2 Effective Date.

THE GENERAL HOSPITAL CORPORATION, INC.

By: /s/ **[***]**
Name: [***]
Title: Director
Date: June 13, 2018

KEROS THERAPEUTICS, INC.

By: /s/ Jasbir. S. Seehra
Name: Jasbir S. Seehra, Ph.D.
Title: President and CEO
Date: June 6, 2018

Appendix A
Description of Patent Rights

[***]

[***]

Appendix B
Description of Abandoned Patent Rights

[***]

Exhibit 10.11

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE KEROS THERAPEUTICS, INC. HAS DETERMINED THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO KEROS THERAPEUTICS, INC. IF PUBLICLY DISCLOSED.

EXECUTION VERSION

RESEARCH COLLABORATION AND EXCLUSIVE LICENSE AGREEMENT

BETWEEN

KEROS THERAPEUTICS, INC.

AND

NOVO NORDISK A/S

Exhibits

Exhibit A	Existing Ligand Traps
Exhibit B	Keros Background Patents
Exhibit C	Research Plan
Exhibit D	New Ligand Traps Information Package
Exhibit E	Novo Nordisk Policy for Use of Animals
Exhibit F	Novo Nordisk A/S' Invoicing Instructions

RESEARCH COLLABORATION AND EXCLUSIVE LICENSE AGREEMENT

This Research Collaboration and Exclusive License Agreement ("**Agreement**") is made and entered into, effective as of December 14, 2017 ("**Effective Date**"), by and between Keros Therapeutics, Inc., a Delaware corporation, having a principal place of business at Suite 120, Building E, 99 Hayden Avenue, Lexington, MA 02421, USA ("**Keros**") and Novo Nordisk A/S, a company organized and existing under the laws of Denmark, having a principal place of business at Novo Allé, DK-2880 Bagsværd, Denmark ("**Novo Nordisk**"). Keros and Novo Nordisk are each referred to herein individually as a "**Party**" and collectively as the "**Parties**".

Recitals

A. Keros is a biotechnology company founded in 2016 employing its proprietary Ligand Trap platform, a discovery platform which enables the identification of Ligand Traps.

B. Novo Nordisk is a leading global healthcare company engaged in the research, development and commercialization of pharmaceutical products within diabetes and obesity and possesses extensive know-how within these fields.

C. The Parties desire to establish a Research Collaboration which shall generally cover development of Ligand Traps in order to facilitate that Novo Nordisk can exploit and commercialize certain Ligand Traps within the Novo Nordisk Field in pharmaceutical products on the terms and conditions set forth in this Agreement. The Research Collaboration will include (i) an Existing Ligand Trap of Keros and (ii) certain New Ligand Traps which Keros will use its Ligand Trap platform to identify.

Agreement

Now, therefore, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Novo Nordisk and Keros agree as follows:

ARTICLE 1
Definitions

Capitalized terms used in this Agreement shall have the meanings set forth below.

1.1 "**Affiliate**" means any Person which controls, is controlled by, or is under common control with a Party, as the case may be. For the purpose of this definition, "control" of an entity means the ownership, directly or indirectly, of more than fifty percent (50%) of the outstanding voting securities or capital stock of such entity, or the legal power to direct or cause the direction of the general management and policies of the entity in question. For purposes of this definition, Novo Holdings A/S and its affiliates (other than Novo Nordisk and its subsidiaries) are not considered Affiliates of Novo Nordisk.

1.2 "**Alliance Managers**" is defined in Section 2.9.

1.3 "**Bankruptcy Code**" is defined in Section 5.4.

1.4 "**Business Day**" means a day, other than a Saturday, Sunday or day on which commercial banks located in Boston, Massachusetts or Copenhagen, Denmark are generally closed.

1.5 "**Cardiovascular Indication**" or "**CVD Indication**" means, with respect to any pharmaceutical product, an indication for which Regulatory Approval has been granted, or is intended to be sought, for the treatment or prevention of any cardiovascular disease or condition that are not associated with diabetes or obesity.

1.6 "**Chronic Kidney Disease Indication**" or "**CKD Indication**" means, with respect to any pharmaceutical product, an indication for which Regulatory Approval has been granted, or is intended to be sought, for the treatment or prevention of any disease, condition or complication (including anemia and bone loss) arising from or associated with chronic kidney disease or the gradual loss or deterioration of kidney function, other than CKD associated with diabetes or obesity.

1.7 "**Collaboration Invention**" means any invention, discovery, creation, materials, Know-How or other intellectual property, whether or not patentable, that (a) is first generated or developed by a Party or its Affiliates or Third Party contractors, (b) is not either Keros New Ligand Trap Inventions or Novo Nordisk Inventions, and (c) is directly related to and arising from the Research Collaboration during the Collaboration Term, whether generated or developed solely or jointly by employees of Keros and/or Novo Nordisk or their respective Affiliates or Third Party contractors.

1.8 "**Collaboration IP**" means Collaboration Inventions and Collaboration Patents.

1.9 "**Collaboration Patent**" means a Patent that Covers a Collaboration Invention.

1.10 "**Collaboration Term**" is defined in Section 2.5.

1.11 "**Collaboration Year**" means a one-year period during the Collaboration Term commencing on the Effective Date or an anniversary of the Effective Date and continuing thereafter until the next anniversary of the Effective Date or the end of the Collaboration Term.

1.12 "**Commercialization**" or "**Commercialize**" means any activities directed to manufacturing, marketing, distributing, offering for sale, selling, using, importing or exporting a product.

1.13 "**Commercially Reasonable Efforts**" means such application of effort and resources by the applicable Party as would be consistent with [***] in respect of a molecule controlled by such Party, which is at a similar stage in its development, taking into account, without limitation, with respect to a product, issues of safety and efficacy, product profile, the proprietary position of the product, the then current competitive environment for the product and the likely timing of the product's entry into the market, the regulatory environment of the product, and other relevant scientific, technical and commercial factors, [***]. [***].

1.14 "**Confidential Information**" means, with respect to a Party, any and all confidential or proprietary information disclosed or otherwise made available by such Party to the other Party in any form under this Agreement or the Existing CDA, including but not limited to, technical processes, specifications, instrumentation, formulae, assays, manufacturing techniques, biological, chemical or physical samples and materials, research and development plans and efforts, business plans, finances, and competitive position. The terms and conditions of this Agreement shall be Confidential Information of both Parties. Subject to Article 6, Confidential or proprietary information arising from the Research Collaboration or the Research Plan shall be treated as Confidential Information of both Parties for so long as both Parties retain rights to the applicable Ligand Trap pursuant to this Agreement or such Ligand Trap remains subject to the exclusivity provisions set forth in Section 2.7 (i.e., excluding Declined Ligand Traps), and thereafter such information shall be the Confidential Information of only the Disclosing Party.

1.15 "**Conserved Carrier**" means any part of the Ligand Trap excluding the Ligand Binder and/or Novo Nordisk Proprietary Molecule.

1.16 "**Controlled by**" or "**Control,**" or the like, means the possession by a Party of, (a) with respect to any particular item, materials or information, the right (other than solely pursuant to a license granted under this Agreement) to physical possession of those items, with the right to provide them to the other Party as provided for in this Agreement, or (b) with respect to intellectual property rights, the right (other than solely pursuant to a license granted under this Agreement) to grant the other Party a license, sublicense or other right to exploit as provided for in this Agreement, in the case of either (a) or (b), without violating the terms of any agreement or other arrangement with a Third Party.

1.17 "**Covered by**" or "**Covers**" means, with respect to a Patent, that the research, development, sale, offer for sale, manufacture, having manufactured, use, export, or import of a composition of matter or other material or practice of a claimed method would, but for ownership of, or a license granted in this Agreement under, the relevant Patent, infringe an issued Valid Claim, or a pending Valid Claim if a Patent containing such pending Valid Claim were to issue, of such Patent.

1.18 "**CVD/CKD License**" is defined in Section 2.7(c).

1.19 "**Declined Ligand Trap**" means any Ligand Trap which is not a Selected Ligand Trap and is further defined in Section 2.3(a).

1.20 "**Declined Ligand Traps-Specific Patents**" is defined in Section 6.2(a)(i).

1.21 "**Development**" or "**Develop**" means research, discovery and preclinical and clinical drug development activities, including without limitation test method development and stability testing, toxicology, formulation, quality assurance/quality control development, statistical analysis, clinical studies, regulatory affairs, product approval and registration.

1.22 "**Disclosing Party**" is defined in Section 8.1.

1.23 "**Dispute**" or the like, means any controversy, claim or legal proceeding arising out of or relating to this Agreement, or the breach, termination or invalidity thereof.

1.24 "**Effective Date**" is defined in the Preamble.

1.25 "**EMA**" means the European Medicines Authority, or any successor entity thereto performing similar functions.

1.26 "**Executive**" means, with respect to a Party, an executive officer of such Party having greater seniority than such Party's JSC representatives, which executive officer such Party designates for the escalation of deadlocked JSC decisions pursuant to Section 2.8(e) and Disputes pursuant to Section 13.1. For the avoidance of doubt, the Chief Executive Officer of Keros (or his or her designee) may serve both as a JSC representative and as the designated Executive for Keros, provided the Chief Executive Officer of Keros was not part of the deadlocked JSC decision.

1.27 "**Existing CDA**" means the Confidentiality Agreement effective as of April 20, 2017 by and between Novo Nordisk and Keros.

1.28 "**Existing Ligand Traps**" means Ligand Traps set forth in Exhibit A.

1.29 "**FDA**" means the United States Food and Drug Administration, or any successor entity thereto performing similar functions.

1.30 "**First Commercial Sale**" means with respect to a Licensed Product in any country, on a Licensed Product-by-Licensed Product and country-by-country basis, the first commercial transfer or disposition for value of such Licensed Product for end use in such country to a Third Party (not being a sublicensee for the relevant Licensed Product) by Novo Nordisk or any of its Affiliates or sublicensees after such Licensed Product has been granted Regulatory Approval by a Regulatory Authority having jurisdiction for such country. The following sales shall not constitute a "First Commercial Sale": (i) sales for clinical studies, [***] as well as (ii) sales between Novo Nordisk and/or its Affiliates and/or sublicensees which do not constitute a commercial launch of a Licensed Product in the market.

1.31 "**FTE**" shall mean the equivalent of a full-time employee or consultant at Keros.

1.32 "**Indication**" means a separate and distinct disease, disorder or medical condition, in humans, including the diagnosis and symptoms thereof, that a Licensed Product is intended to treat, prevent and/or ameliorate. For the avoidance of doubt, the treatment of [***] shall be deemed to be the same Indication.

1.33 "**Infringement**" is defined in Section 7.1.

1.34 "**Joint Steering Committee**" or "**JSC**" is defined in Section 2.8(a).

1.35 "**JSC Co-Chair**" is defined in Section 2.8(b).

1.36 "**Keros Background IP**" means Keros Background Patents and Keros Background Know-How.

1.37 "**Keros Background Know-How**" means Know-How Controlled by Keros as of the Effective Date specifically relating to Ligand Traps.

1.38 "**Keros Background Patents**" means Patents Controlled by Keros as of the Effective Date that Cover Ligand Traps. The Keros Background Patents in existence as of the Effective Date are set forth on Exhibit B.

1.39 "**Keros New Ligand Trap Invention**" means any invention, discovery, creation, materials, Know-How or other intellectual property, whether or not patentable, that is first generated or developed by a Party or its Affiliates or Third Party contractors, which is specifically related to Ligand Traps and directly related to and arising from the Research Collaboration during the Collaboration Term, whether generated or developed solely or jointly by employees of Keros and/or Novo Nordisk or their respective Affiliates or Third Party contractors. For the avoidance of doubt, no Conserved Carrier will be included in the Keros New Ligand Trap Invention.

1.40 "**Keros New Ligand Trap IP**" means Keros New Ligand Trap Inventions and Keros New Ligand Trap Patents.

1.41 "**Keros New Ligand Trap Patent**" means a Patent that Covers Keros New Ligand Trap Inventions, whether such Patent names, as inventor(s), employee(s) of Keros and/or Novo Nordisk or their respective Affiliates or Third Party contractor. For the avoidance of doubt, no Conserved Carrier other than those Conserved Carriers as set forth in Keros Background Patents will be included in the Keros New Ligand Trap Patent.

1.42 "**Keros Patents**" means Keros Background Patents and Keros New Ligand Trap Patents.

1.43 "**Know-How**" means all information, ideas, concepts, discoveries, technology, inventions, improvements, practices, formula, trade secrets, techniques, methods, procedures, knowledge, results, test data (including pharmacological, toxicological, pharmacokinetic and pre-clinical and clinical information and test data, related reports, structure-activity relationship data and statistical analysis), analytical and quality control data, protocols, processes, specifications, models, designs, and other information regarding discovery, development, regulatory approval, marketing, pricing, distribution, cost, sales and manufacturing and other similar information, in any tangible or intangible form whatsoever, that is not in the public domain or otherwise publicly known. Know-How shall not include any Patents.

1.44 "**Licensed Combination Product**" means any pharmaceutical product for human use in the Territory within the Novo Nordisk Field which contains a Novo Nordisk Proprietary Molecule fused to a Selected Ligand Trap into a single molecule or a co-formulation of a Novo Nordisk Proprietary Molecule and a Selected Ligand Trap.

1.45 "**Licensed Product**" means any pharmaceutical product for human use in the Territory within the Novo Nordisk Field which contains a Selected Ligand Trap whether alone or as a Licensed Combination Product.

1.46 "**Ligand Binder**" means the extracellular portion of the [***].

1.47 "**Ligand Trap**" means a fusion molecule consisting of a Ligand Binder present as part of a larger molecule having additional domains (defined as Conserved Carrier) excluding a Licensed Combination Product. The Ligand Trap consists of a Ligand Binder fused to a Conserved Carrier.

1.48 "[***] **Approval**" means the development stage in Novo Nordisk's [***].

1.49 "**Net Sales**" shall [***]:

(a) [***];

(b) [***];

(c) [***];

(d) [***]; and

(e) [***].

[***].

[***].

[***].

1.50 "**New Ligand Traps Information Package**" is defined in Section 2.2(a).

1.51 "**New Ligand Traps**" means the Ligand Traps having Ligand Binder [***] which differ from Existing Ligand Traps and are developed during the Collaboration Term.

1.52 "**No-Shop Period**" is defined in Section 2.7(c).

1.53 "**Novo Nordisk Field**" means: (a) any and all uses of any Licensed Product for the treatment of diabetes (including diabetes-related complications of cardiovascular disease (CVD) and chronic kidney disease (CKD)), obesity (including obesity-related complications of cardiovascular disease (CVD), chronic kidney disease (CKD) and sarcopenic obesity), nonalcoholic steatohepatitis (NASH) and cachexia; and (b) solely with respect to Licensed Combination Products, any and all uses in Cardiovascular Indications or CKD Indications. For clarity, the Novo Nordisk Field does not include use of a Licensed Product that is not a Licensed Combination Product for use in the treatment of Cardiovascular Indications or CKD Indications.

1.54 "**Novo Nordisk Invention**" means any invention, discovery, creation, materials, Know-How or other intellectual property, whether or not patentable, that (a) is first generated or developed by a Party or its Affiliates or Third Party contractors directly related to and arising from the Research Collaboration during the term of this Agreement, and (b) which is specifically related to (i) a Novo Nordisk Proprietary Molecule, (ii) a Conserved Carrier and/or (iii) a Licensed Product to the extent not solely a Keros New Ligand Trap Invention, whether generated or developed solely or jointly by employees of Keros and/or Novo Nordisk or their respective Affiliates or Third Party contractors. For the avoidance of doubt, any formulation intellectual property, including any Know-How related to methods or processes for making formulations or for optimizing pharmacokinetic properties of Ligand Traps (by optimizing Conserved Carrier), Conserved Carriers or a Licensed Combination Product, as well as all data and results from clinical trials related to the Selected Ligand Traps or a Licensed Combination Product shall be deemed to be Novo Nordisk Inventions.

1.55 "**Novo Nordisk Background IP**" means those Patents and Know-How (to the extent such Know-How is actually disclosed to Keros) Controlled by Novo Nordisk as of the Effective Date that are necessary for the Development or Commercialization of Licensed Products.

1.56 "**Novo Nordisk IP**" means Novo Nordisk Inventions and Novo Nordisk Patents.

1.57 "**Novo Nordisk Patent**" means a Patent that Covers a Novo Nordisk Invention, whether such Patent names, as inventor(s), employee(s) of Keros and/or Novo Nordisk or their respective Affiliates or Third Party contractors. For the avoidance of doubt, subject to Keros' ownership of Keros New Ligand Trap Patents, a Patent that Covers the combination of (i) Selected Ligand Traps(s) and (ii) Novo Nordisk Invention(s) shall be a Novo Nordisk Patent and not a Keros New Ligand Trap Patent.

1.58 "**Novo Nordisk Proprietary Molecule**" means a molecule owned or controlled (other than solely pursuant to a license granted under this Agreement) by Novo Nordisk.

1.59 "**Patents**" means all patents, provisional and non-provisional patent applications, invention certificates, in any country, including any reissues, extensions, patent term extensions, supplementary protection certificates, registrations, divisionals, continuations, continuations-in-part, reexaminations, substitutions or renewals thereof including any and all foreign counterparts thereof. The singular term "**Patent**" has the same meaning.

1.60 "**Person**" means any person or entity, including any individual, trustee, corporation, partnership, trust, unincorporated organization, company, business association, firm, joint venture or governmental agency or authority.

1.61 "**Phase I Clinical Trial**" means a study in humans, conducted by or on behalf of Novo Nordisk or its Affiliates or sublicensees, the principal purpose of which is a preliminary determination of the safety and/or pharmacokinetics of a pharmaceutical product in healthy individuals or patients, as further described in 21 CFR § 312.21(a) (as may be amended), or a similar human clinical study in a country other than the United States.

1.62 "**Phase 2 Clinical Trial**" means any human clinical trial of a product that would satisfy the requirements of 21 CFR § 312.21(b) or its non-United States equivalents.

1.63 "**Phase 3 Clinical Trial**" means any human clinical trial of a product that would satisfy the requirements of 21 CFR § 312.21(c) or its non-United States equivalents.

1.64 "**Prosecution and Maintenance**" or "**Prosecute and Maintain**" means, with regard to a given Patent, the preparation, filing, prosecution and maintenance of such Patent, as well as re-examinations, post grant reviews, reissues, inter partes reviews, applications for patent term extensions and the like with respect to such Patent, together with the conduct of interferences and derivation proceedings, the defense of oppositions and other similar proceedings with respect to such Patent.

1.65 "**R&D Collaboration Budget Funding**" is defined in Section 3.2(a).

1.66 "**Regulatory Approval**" means the approvals, licenses, registrations or authorizations of the applicable Regulatory Authority necessary for the Commercialization of a product in a country or territory.

1.67 "**Research Collaboration**" is defined in Section 2.1(a).

1.68 "**Research Plan**" means the written research and development plan attached as Exhibit C as may be adopted and updated from time-to-time in accordance with Section 2.6.

1.69 "**Receiving Party**" is defined in Section 8.1.

1.70 "**Regulatory Authority**" means (a) the FDA; (b) the EMA; or (c) any regulatory body performing similar functions in any jurisdiction other than the United States and the European Union.

1.71 "**Selected Existing Ligand Trap**" means an Existing Ligand Trap which is selected by Novo Nordisk prior to or as of the Effective Date. [***].

1.72 "**Selected Ligand Trap**" means a Selected Existing Ligand Trap and/or Selected New Ligand Trap(s). [***].

1.73 "**Selected Ligand Traps-Specific Patents**" is defined in Section 6.2(a)(i).

1.74 "**Selected New Ligand Trap(s)**" means one (1) or two (2) New Ligand Traps which are selected by Novo Nordisk during the Collaboration Term. For the avoidance of doubt, the unique Ligand Binder of a Selected New Ligand Trap coupled with various Conserved Carriers shall be deemed a "Selected New Ligand Trap".

1.75 "**Technology Transfer**" is defined in Section 2.12.

1.76 "**Territory**" means all countries of the world.

1.77 "**Third Party**" means any Person other than a Party or an Affiliate of a Party.

1.78 "**Third Party R&D Rights**" means intellectual property rights to Selected Ligand Traps that are held by Third Parties.

1.79 "**Valid Claim**" means a claim of a Patent that is (a) issued and not expired or lapsed, which claim has not been (i) cancelled, withdrawn, abandoned, dedicated to the public, admitted to be invalid or unenforceable or (ii) formally revoked or held invalid, unpatentable or unenforceable by a patent office, tribunal, court or other governmental agency of competent jurisdiction in a final and non-appealable judgment (or judgment from which no appeal was taken within the allowable time period) or (b) in a pending patent application, which application (i) has not been pending for more than [***] and (ii) has not been (A) rejected, cancelled, withdrawn, or abandoned, without the possibility of continued prosecution or (B) finally determined to be unallowable in a decision from which an appeal has not and can no longer be taken.

ARTICLE 2
Research Collaboration

2.1 Research Collaboration Overview; Diligence.

(a) The Parties shall conduct a research collaboration (the "**Research Collaboration**") under which they will work together during the Collaboration Term for the discovery and development of Ligand Traps pursuant to the Research Plan. The primary goal of the Research Collaboration is for Keros to generate New Ligand Traps and for Novo Nordisk to further develop certain New Ligand Traps that it selects as Selected Ligand Traps. If Keros during this Research Collaboration successfully identifies and optimises one or more New Ligand Trap(s) in accordance with the Research Plan, Novo Nordisk has the right in its discretion to select such New Ligand Trap(s) pursuant to Section 2.2(b) and be responsible for the further development of such Selected New Ligand Trap(s) and Commercialization of Licensed Products.

(b) On a Ligand Trap-by-Ligand Trap basis, during the Collaboration Term, each Party shall use Commercially Reasonable Efforts to conduct research and development of New Ligand Traps in accordance with the Research Plan.

2.2 New Ligand Traps.

(a) During the Collaboration Term, Keros shall present to the JSC New Ligand Traps and all scientific data supporting New Ligand Traps as set forth in Exhibit D prior to Keros' commencement of validation activities (each, a "**New Ligand Traps Information Package**").

(b) Novo Nordisk shall have the right to select [***] New Ligand Traps (based on the applicable New Ligand Traps Information Package) proposed by Keros to the JSC and include the Selected New Ligand Traps under the license set forth in Section 5.1 by notifying Keros of such election within [***] after (i) Keros provides the applicable New Ligand Traps Information Package to the JSC; or (ii) the end of the Collaboration Term. [***].

(c) Novo Nordisk shall have the right to modify any part of the Conserved Carrier of any Selected New Ligand Trap(s) but may not modify the Ligand Binder of the Selected New Ligand Trap(s).

2.3 Declined Ligand Traps.

(a) As of the Effective Date, the Existing Ligand Trap not selected by Novo Nordisk, is deemed a "**Declined Ligand Trap**". Furthermore, any New Ligand Trap(s) proposed by Keros to the JSC which are not selected by Novo Nordisk under Section 2.2(b) as Selected New Ligand Trap(s) are also deemed a "**Declined Ligand Trap**".

(b) For the avoidance of doubt, Novo Nordisk shall have the right to propose to the JSC that any New Ligand Traps for which a New Ligand Traps Information Package has not been completed and/or which have not been already been presented to the JSC per 2.2(b) be given a low priority with regard to ongoing Research Collaboration research efforts (e.g., FTE allocation and utilization of funds), and such priority proposal shall not be construed as Novo Nordisk declining such New Ligand Traps (i.e., such Ligand Trap shall not as a consequence of such prioritization proposal be designated a Declined Ligand Trap).

(c) Declined Ligand Traps shall be excluded from the Research Collaboration and, subject to Keros' exclusivity obligations as described in Section 2.7 with respect to any Declined Ligand Traps, Keros shall have the right to license to a Third Party or otherwise transfer the rights to Declined Ligand Traps. If Keros licenses or otherwise transfers any such Declined Ligand Traps to a Third Party, then such Third Party terms may not conflict with or limit Novo Nordisk's rights under this Agreement. Any license granted to a Third Party in connection with such license or transfer to a Third Party of a Declined Ligand Trap may not include a license or access to Keros Background IP and Keros New Ligand Trap IP beyond that reasonably related to the applicable Declined Ligand Traps.

(d) If Keros expends Keros resources to research and/or develop a Declined Ligand Trap after the date on which such Ligand Trap became a Declined Ligand Trap pursuant to Section 2.3(a), Keros' fully burdened costs, including overhead costs and Third Party license payments, expended to research and/or develop such Declined Ligand Traps after such time shall be borne by Keros. For the avoidance of doubt, after the designation of a Ligand Trap as a Declined Ligand Trap, payments made by Novo Nordisk as set forth in Section 3.2 shall only be used for the Research Collaboration and not for work on Declined Ligand Traps and the personnel costs attributable to efforts spent by Keros personnel on Declined Ligand Traps shall not be allocated against the R&D Collaboration Budget Funding.

2.4 Third Party R&D Rights. During the Collaboration Term, Keros shall notify the JSC if Keros believes a license to any Third Party R&D Rights would be useful to advance research and development activities under this Agreement, and Keros shall submit to the JSC a written proposal detailing the value and potential license terms for such Third Party R&D Rights.

Thereafter, the JSC shall evaluate Keros' proposal and, if the JSC unanimously approves such proposal, Keros may license or otherwise acquire Control of such Third Party R&D Rights on the terms and conditions specified in Keros' written proposal to the JSC within [***] after JSC's approval thereof; provided that, Novo Nordisk shall have the right to approve Third Parties performing *in vivo* animal studies in order to ensure compliance with Novo Nordisk Principles for the Use of Animals set forth in Exhibit E. Novo Nordisk shall require that its JSC representatives not unreasonably withhold, delay or condition their approval of any such proposal, provided that Novo Nordisk's JSC representatives shall have the right to decline a license to any Third Party R&D Rights based on the financial obligations that would be owned to a Third Party by Novo Nordisk. [***] responsible for payment of any license fees, royalties and other expenses owing for exploitation of such Third Party R&D Rights.

2.5 Collaboration Term. The term of the Research Collaboration (the "**Collaboration Term**") shall commence on the Effective Date and continue until (a) the second anniversary of the Effective Date or, if Novo Nordisk elects to extend the term of the Research Collaboration to a third Collaboration Year as set forth in this Section 2.5, the third anniversary of the Effective Date, or (b) such earlier time as this Agreement is terminated pursuant to Article 10. Novo Nordisk shall have the right to extend the Collaboration Term to a third Collaboration Year on the same terms and conditions applicable for the two (2) first Collaboration Years, subject to mutual written agreement of the Parties on research scope and research funding for such third Collaboration Year, if the Collaboration Term has not otherwise terminated and Novo Nordisk provides written notice to Keros at least [***] prior to the end of the second Collaboration Year that Novo Nordisk elects to extend the Collaboration Term to a third Collaboration Year.

2.6 Research Plan.

(a) Research Plan for Ligand Traps. The purpose of this Agreement is for the Parties to perform the activities as described in the Research Plan attached hereto as Exhibit C, as such Research Plan may be amended as set forth in Sections 2.6(b) and 2.8(c)(iii). Unless otherwise agreed by the Parties, the Research Plan shall allocate responsibilities between the Parties as described in Section 2.1. As part of the Research Collaboration, Novo Nordisk would produce New Ligand Traps reasonably needed for further testing as agreed under the Research Collaboration. The Parties agree that failure to produce such New Ligand Traps shall not be deemed to be a material breach of Novo Nordisk. Keros would evaluate New Ligand Traps –including providing a mechanism for selection of New Ligand Traps. The characterization of New Ligand Traps will be set forth in the Research Plan.

(b) Review and Updating of Research Plan. The JSC shall review and update the Research Plan on regular basis in accordance with Section 2.8. In furtherance of the JSC's efforts to review and update the Research Plan during the Collaboration Term, Keros shall keep the JSC informed and updated regarding research and development activities for each New Ligand Trap.

(c) Responsibilities; Conduct. The evaluation and characterization of each New Ligand Trap will be carried out by the Parties in accordance with the Research Plan. Each Party will be responsible for conducting the activities allocated to such Party under the Research Plan. Each Party shall use Commercially Reasonable Efforts to perform its responsibilities under the Research Plan. Each Party's performance of such responsibilities shall, subject to Section 3.2, be at such Party's own cost and expense. All work conducted for each New Ligand Trap shall be documented in a format capable of tangible reproduction sufficient to enable such documented work to be offered as evidence, such as in a laboratory notebook, signed and dated, or other acceptable form.

2.7 Exclusivity.

(a) Keros and its Affiliates shall not, during the term of this Agreement, save for the Research Collaboration activities contemplated to be performed under the Agreement, research, Develop, Commercialize or enter into any license, sublicense, sale, assignment or collaboration with, or otherwise grant rights or other form of transfer to or assist, any Third Party with respect to the Development or Commercialization of any Ligand Traps or Ligand Binders for use within the Novo Nordisk Field; provided, however, that nothing, save for Section 2.7(c), in this Section 2.7 shall restrict Keros and its Affiliates, directly or in collaboration with Third Parties, from engaging in Development or Commercialization of Declined Ligand Traps in the Cardiovascular Indications and CKD Indications. Furthermore, Keros shall not, during the term of this Agreement, save for the Research Collaboration activities contemplated to be performed under the Agreement, Develop, Commercialize or enter into any license, sublicense, sale, assignment or collaboration with, or otherwise grant rights or other form of transfer to or assist, any Third Party with respect to the Development or Commercialization of any Selected Ligand Traps for uses outside the Novo Nordisk Field. For clarity, notwithstanding the foregoing, a Keros Affiliate may, directly or through its Affiliates (other than Keros), Develop and Commercialize in all fields—without the use or reference to Keros Background IP, Collaboration IP or Keros New Ligand Trap IP—those Ligand Traps or Ligand Binders that were being Developed by a Third Party as of the date such Third Party becomes a Keros Affiliate—as the Third Party and/or Keros can by written documentation demonstrate—pursuant to Section 14.3(b).

(b) The restrictions set forth in Section 2.7(a) shall not restrict or limit Keros from engaging Third Parties to perform tasks in furtherance of the Research Collaboration; provided that, Novo Nordisk shall have the right to approve Third Parties performing *in vivo* animal studies in order to ensure compliance with Novo Nordisk Principles for the Use of Animals set forth in Exhibit E and *provided* that, Keros enters into a written agreement with such Third Parties ensuring they are bound by confidentiality obligations that are consistent with those set forth in the Agreement and are obligated to assign to Keros any Patents and Know-How developed by the Third Party in its performance of tasks in furtherance of the Research Collaboration.

(c) [***].

2.8 Joint Steering Committee.

(a) Establishment of the JSC. Promptly following the Effective Date, the Parties shall establish a joint steering committee ("**Joint Steering Committee**" or "**JSC**"), which shall be responsible for the management and conduct of the Research Collaboration, including (i) overseeing progress in and prioritization amongst New Ligand Traps and the allocation of resources thereto, and (ii) resolving disputes between the Parties with respect to the conduct of the Research Collaboration. The JSC shall consist of [***] representatives of each Party. A Party may replace any or all of its representatives at any time upon prior written notice (including by email) to the other Party. The representatives shall be appropriate (in terms of their seniority, availability, function in their respective organizations, training and experience) to oversee the activities under the Research Collaboration that will be performed and make decisions as to such activities.

(b) JSC Co-Chairs. Each Party shall designate one of its representatives as co-chairman of the JSC meetings (such Party's "**JSC Co-Chair**"). The chairmanship of JSC meetings shall alternate between each Party's JSC Co-Chair. A Party may replace its designated JSC Co-Chair at any time upon prior written notice (including by email) to the other Party. Either JSC Co-Chair may call an emergency JSC meeting for good cause by written request to the other Party.

(c) Responsibilities of the JSC. The Joint Steering Committee shall be responsible for performing the following functions:

(i) exchange information concerning the overall strategy and timelines for the New Ligand Traps including prioritization and coordination of New Ligand Traps;

(ii) evaluating and managing potential Ligand Traps for designation as, and designating, New Ligand Traps;

(iii) adopting, reviewing and amending the Research Plan and documenting the same;

(iv) evaluating New Ligand Traps;

(v) discussing issues identified in the preliminary freedom-to-operate assessments specified in Exhibit D as well as freedom-to-operate issues subsequently identified by the Parties relating to New Ligand Traps;

(vi) evaluating the progress of the Research Collaboration, as compared with the objectives set forth in this Agreement and the Research Plan;

(vii) coordinating, as the primary conduit for, the transfer of information and materials, including the Technology Transfer, between the Parties during the Collaboration Term;

(viii) performing such other functions referred to the JSC in the Research Plan as appropriate to further the purposes of the Research Collaboration by mutual agreement of the Parties, or as otherwise specified in this Agreement or agreed to by the Parties; and

(ix) serving as a forum for informal dispute resolution of issues that may arise in relation to operational or technical activities engaged in pursuant to this Agreement.

(d) Areas Outside the JSC's Authority. The JSC shall have no authority other than that expressly set forth in this Agreement and, specifically, shall have no authority: (a) to amend, or interpret any ambiguous provision of, this Agreement, (b) to require either Party to perform any activities other than as specified in the then current Research Plan, (c) to determine whether or not a Party has met its diligence or other obligations under the Agreement, (d) to determine whether or not a breach of this Agreement has occurred, (e) to waive compliance with any provisions of this Agreement, (f) subject to Section 2.12, to make any decision with respect to the Selected Existing Ligand Trap, or (g) to make any decision that is expressly stated by this Agreement to require the approval of one or the other Party or the approval of both Parties.

(e) Decision Making Authority. With respect to the responsibilities of the Joint Steering Committee, each Party shall have one (1) collective vote in all decisions, and the Parties shall attempt to make decisions by unanimous vote. If the JSC cannot reach agreement within [***] of an issue being brought to a vote, then the matter will be referred to the Executives of the Parties. The Executives will use reasonable efforts to resolve matters referred to them.

(f) Meetings; Attendees. Once established, the Joint Steering Committee shall meet at least once each calendar quarter during the Collaboration Term unless otherwise agreed by the Parties. The first meeting of the JSC shall be held as soon as practicable after the Effective Date. The JSC may meet in person at a mutually agreed location or via teleconference, video conference or the like, *provided* that, unless otherwise agreed by the Parties, [***]. Each Party shall bear the expense of its respective representatives' participation in JSC meetings. The JSC forms a quorum when [***] are present. If any of a Party's representatives is unable to attend a given meeting, such Party may designate a knowledgeable alternate to attend such meeting and perform the functions of such representative, provided that notice hereof is given in writing to the other Party in advance of the meeting. Each Alliance Manager may attend JSC meetings as a non-voting observer. Each Party may invite a reasonable number of non-voting employees, consultants or scientific advisors to attend JSC meetings as deemed necessary or desirable by such Party, subject to the prior consent of the other Party, not to be unreasonably withheld, and *provided* that such invitees are bound in writing by confidentiality obligations that are consistent with those set forth in the Agreement.

(g) Minutes; Other Documentation of Decisions. The Joint Steering Committee shall keep minutes of its meetings that record in writing all decisions made, action items assigned and completed and other appropriate matters. Novo Nordisk's Alliance Manager shall be responsible for drafting meeting minutes and such draft minutes shall be sent to Keros

promptly after a meeting for review, comment and approval by both Parties. A decision that may be made at a JSC meeting may also be made without a meeting if such decision is agreed to in writing (including by email) by each Party's JSC Co-Chair (or its designee), *provided* that each Party's JSC Co-Chair's (or its designee's) written communication clearly indicates that such decision is a formal decision on behalf of such Party's JSC representatives. Any modifications to the Research Plan that are approved by the JSC shall constitute an amendment to the Research Plan.

(h) Control of Intellectual Property. The Joint Steering Committee shall have the right to propose that any New Ligand Trap be given a low priority with regard to ongoing Research Collaboration research efforts (e.g., personnel allocation and utilization of funds), if Keros does not Control the Know-How and Patents with respect to such New Ligand Trap.

(i) Term of JSC Operation. The Joint Steering Committee shall meet during the Collaboration Term. Thereafter, the JSC shall cease operations and perform no further functions under this Agreement.

2.9 Alliance Manager. Promptly following the Effective Date, each Party shall appoint a representative of such Party as the primary contact for matters related to this Agreement, unless another contact is expressly specified in the Agreement or designated by the JSC for a particular purpose (the "**Alliance Managers**"). During the Collaboration Term, both Alliance Managers shall jointly be responsible for and shall collaborate in scheduling Joint Steering Committee meetings and setting meeting agendas after consulting the JSC Co-Chairs. The Alliance Managers shall facilitate open and transparent communication and collaboration between the Parties and shall seek to facilitate resolution of potential and pending issues and potential disputes to enable the JSC to reach consensus and avert escalation of such issues or potential disputes. Either Party may replace its Alliance Manager at any time upon prior written notification (including by email) to the other Party.

2.10 Records and Reports.

(a) Records. Each Party shall use commercially reasonable efforts to maintain complete, current and accurate records of all research and development activities conducted by it in the conduct of the Research Collaboration, and all data and other Know-How resulting from such activities.

(b) Reports. At least once quarterly during the Collaboration Term, each Party shall provide to the JSC a written summary of its Research Collaboration research and Development and results, remaining activities and updates on new Know-How and Patents relating to New Ligand Traps (excluding Declined Ligand Traps). Novo Nordisk shall incorporate the information provided by both Parties into a consolidated quarterly summary that reflects both Parties' Research Collaboration research and development and results, which Novo Nordisk shall provide to the JSC. Within [***] after the expiration or earlier termination of the Collaboration Term, Keros shall provide to Novo Nordisk a final written report directed to any additional data and results generated by Keros subsequent to the last quarterly summary during

the Collaboration Term as well as listing all New Ligand Traps and Keros New Ligand Trap IP (excluding any Keros New Ligand Trap IP specifically related to Declined Ligand Traps) and any inventions developed or conceived during the Collaboration Term that specifically related to Selected Ligand Traps on which patents have not yet been filed.

(c) Prioritization and Resource Allocation Planning. [***] following the first JSC meeting and at least every [***] thereafter, Keros will present to the JSC for approval a proposed project prioritization for the next [***] period, including a suggested allocation of R&D Collaboration Budget Funding to each New Ligand Trap and to activities directed to identifying potential New Ligand Traps. Keros shall provide to Novo Nordisk a draft of the above project prioritization at least [***] in advance of the JSC meeting at which such project prioritization is to be discussed.

2.11 Resource Allocation.

(a) During the Collaboration Term, Keros agrees that it will assign to the New Ligand Traps, and to activities directed to identifying potential New Ligand Traps, appropriate personnel resources comprising skills and levels of experience consistent with such R&D Collaboration Budget Funding. [***], provided that resources expended by Keros on the Declined Ligand Traps after such Ligand Traps have been declined shall not be included. [***].

2.12 Technology Transfer.

(a) Promptly following the Effective Date, the Parties shall agree on a plan to transfer to Novo Nordisk all material data and any other information Controlled by Keros as of the Effective Date, including Keros Background Know-How, with respect to the Selected Existing Ligand Trap (the "**Technology Transfer**"), which transfer shall proceed in accordance with the Research Plan and subject to JSC oversight. Keros shall provide Novo Nordisk with reasonable assistance to enable Novo Nordisk to implement the Keros Background Know-How for [***] following the Effective Date.

(b) If Novo Nordisk selects Selected New Ligand Traps under Section 2.2(b), then the Parties shall agree on a plan to promptly transfer to Novo Nordisk all material data and any other information Controlled by Keros as of such transfer date, including Keros Background Know-How, Keros New Ligand Trap IP and Keros' interest in the Collaboration IP, with respect to such Selected New Ligand Trap (this transfer shall be deemed part of the "**Technology Transfer**"), which transfer shall proceed in accordance with the Research Plan and subject to JSC oversight. Keros shall provide Novo Nordisk with reasonable assistance to enable Novo Nordisk to implement the Keros Background Know-How, Keros New Ligand Trap IP and Keros' interest in the Collaboration IP for [***] days following such transfer date.

ARTICLE 3
Payments

3.1 Upfront Payment. In consideration for Keros entering into this Agreement and conducting the Research Collaboration activities assigned to Keros hereunder and under the Research Plan, Keros shall invoice Novo Nordisk on the Effective Date for an upfront payment of Sixteen Million U.S. Dollars (US$16,000,000). Novo Nordisk shall make such payment to Keros within [***] of the date of Keros' invoice.

3.2 Research Collaboration Budget Funding Payments.

(a) In consideration for Keros entering into this Agreement and conducting the Research Collaboration activities assigned to Keros hereunder and under the Research Plan, Novo Nordisk shall provide Keros with funding of US$2,000,000 per Collaboration Year (i.e., US$4,000,000 in total for the two Collaboration Years) (the "**R&D Collaboration Budget Funding**"). The R&D Collaboration Budget Funding amount shall constitute non-refundable [***].

(b) Keros shall invoice Novo Nordisk on the Effective Date for the R&D Collaboration Budget Funding payment (i.e. US$4,000,000) in accordance with the Novo Nordisk Invoicing Instructions set forth in Exhibit F. Novo Nordisk shall make such payment to Keros within [***] of the date of Keros' invoice.

(c) Within [***] of the end of each Collaboration Year, Keros shall prepare and deliver to Novo Nordisk a calculation of the costs and expenses, including direct costs and expenses, including for FTEs, incurred in the performance of the Research Collaboration activities as well as reasonable general and administrative and CAPEX/outsourcing costs and expenses allocated to the Research Collaboration activities, and reasonable supporting documentation.

3.3 Development Milestone Payments for the First Licensed Product.

(a) Novo Nordisk shall make each of the following milestone payments within [***] after the achievement of each of the following respective milestone events with respect to the first Licensed Product by Novo Nordisk, its Affiliates or its sublicensees:

Development Milestone Event	Milestone Payment (US Dollars)
(i) [***]	US$ [***]
(i) [***]	US$ [***]
(ii) [***]	US$ [***]
(iii) [***]	US$ [***]
(iv) [***]	US$ [***]
(v) [***]	US$ [***]
Total Milestones	**US$ 96,000,000**

(b) The development milestone payments payable under Sections 3.3(a)(i) and 3.3(a)(ii) shall only be payable one time (i.e., for the first event by the first Licensed Product regardless of the repeated achievement of the milestone event by the same Licensed Product or other Licensed Product(s)), irrespective of how many Indications for which the first Licensed Product is Developed or Commercialized by Novo Nordisk, its Affiliates or its sublicensees. Any second or third Indication with the same first Licensed Product shall trigger fifty (50) % of the development milestones under Sections 3.3(a)(iii), (iv), (v) and (vi) as they occur for such second or third Indication of the first Licensed Product (i.e. no retriggering of development milestones (i) and (ii)). Any fourth Indication for the same first Licensed Product shall have no milestone payments.

(c) Subject to Section 3.3(b), the achievement of any milestone event set forth in this Section 3.3 shall cause all milestone payments associated with all earlier listed milestone events that have not yet become due and payable to become due and payable as of the date of achievement of such milestone event; provided, however, that achievement of the milestone event "[***]" shall not cause the milestone payment associated with the milestone event "[***]" to become due and payable, and vice versa.

3.4 Development Milestone Payments for the Second or Third Licensed Product.

(a) Novo Nordisk shall make each of the following milestone payments within [***] after the achievement of each of the following respective milestone events with respect to a second or third Licensed Product by Novo Nordisk, its Affiliates or its sublicensees:

Development Milestone Event	Milestone Payment (US Dollars)
(i) [***]	US$ [***]
(ii) [***]	US$ [***]
(iii) [***]	US$ [***]
(iv) [***]	US$ [***]
(v) [***]	US$ [***]
(vi) [***]	US$ [***]
Total Milestones	**US$ 80,000,000**

(b) The development milestone payments payable under Sections 3.4 (a)(i) and 3.4 (a)(ii) shall only be payable one time (i.e., for the first event by the second or third Licensed Product regardless of the repeated achievement of the milestone event by the same second or third Licensed Product or other Licensed Product(s)), irrespective of how many Indications for which a second or third Licensed Product is Developed or Commercialized by Novo Nordisk, its Affiliates or its sublicensees. Any second or third Indication with the same second or third Licensed Product shall trigger fifty (50) % of the development milestones under Sections 3.43.3(iii), (iv), (v) and (vi) as they occur for such second or third Indication of the second or third Licensed Product (i.e. no retriggering of development milestones (i) and (ii)). Any fourth Indication for the same second or third Licensed Product shall have no milestone payments.

(c) If a second or third Licensed Product is Developed for same Indication for which a development milestone already has been paid for the first Licensed Product under Section 3.3(a) for which the Development has subsequently been terminated with such first Licensed Product for such same Indication, then such already paid development milestone shall not be triggered/paid for under Section 3.4.

(d) Subject to Sections 3.4 (b)-(c), the achievement of any milestone event set forth in this Section 3.4 shall cause all milestone payments associated with all earlier listed milestone events that have not yet become due and payable to become due and payable as of the date of achievement of such milestone event; provided, however, that achievement of the milestone event "[***]" shall not cause the milestone payment associated with the milestone event "[***]" to become due and payable, and vice versa.

3.5 Sales Milestone Payments.

(a) Novo Nordisk shall provide Keros with written notice of the anticipated first occurrence of each of the events set forth below with respect to Licensed Product at least [***] prior to such occurrence, and shall provide Keros with written notice of the actual first occurrence of each sales milestone set forth below with respect to Licensed Product within [***]s after such occurrence. Within [***] of the first occurrence of each of the events set forth below with respect to Licensed Product whether by Novo Nordisk, its Affiliate or any of their respective sublicensees, Novo Nordisk shall pay to Keros the applicable payment set forth below:

Sales Milestone Event	Milestone Payment (US Dollars)
[***]	US$ [***]
[***]	US$ [***]
Total Milestones	**US$ 70,000,000**

(b) The sales milestone payments set forth in Section 3.5 shall be triggered by the achievement of the specified sales for all Licensed Product (including, for purposes of this calculation, aggregate worldwide Net Sales of all Licensed Product for any and all Indications, and including all formulations, generations and/or refinements thereof) in an annual period, and shall be payable only once despite potential repeated achievement of the specified sales by the same Licensed Product or other Licensed Products. For purposes of clarity, more than one of the foregoing sales milestone payments may be earned and become payable with respect to Licensed Product in the same annual period based on aggregate worldwide Net Sales of Licensed Product during such annual period. All payments made to Keros pursuant to Section 3.5 are non-refundable and may not be credited against any other payments payable by Novo Nordisk to Keros under this Agreement.

3.6 Royalties.

(a) Patent Royalties. During the Royalty Term (as defined in Section 3.6(c)), Novo Nordisk shall pay to Keros a patent royalty of [***] on a country-by-country and Licensed Product-by-Licensed Product basis in the Territory of annual Net Sales of Licensed Products Covered by a Valid Claim of a Keros Patent, a Novo Nordisk Patent (provided an employee of Keros or an Affiliate or Third Party contractor thereof is a joint inventor or the sole inventor named on such Novo Nordisk Patent) or a Collaboration Patent.

(b) Know-How Royalties. In the event that prior to the expiration of the Royalty Term a Licensed Product is not Covered by a Valid Claim of a Keros Patent, a Novo Nordisk Patent (provided an employee of Keros or an Affiliate or Third Party contractor thereof is a joint inventor or the sole inventor named on such Novo Nordisk Patent) or a Collaboration Patent, then Novo Nordisk shall pay Keros a Know-How royalty of [***] on a country-by-country and Licensed Product-by-Licensed Product basis in the Territory of annual Net Sales of Licensed Products.

(c) Royalty Term. Novo Nordisk's royalty obligations under Section 3.6 shall commence on a country-by-country basis and Licensed Product-by-Licensed Product basis on the date of First Commercial Sale of Licensed Product by Novo Nordisk, its Affiliates or sublicensees in the relevant country, and shall expire on a country-by-country basis upon the later of (i) expiration of the last to expire Valid Claim of a Keros Patent, a Novo Nordisk Patent (provided an employee of Keros or an Affiliate or Third Party contractor thereof is a joint inventor or the sole inventor named on such Novo Nordisk Patent) or a Collaboration Patent Covering the manufacture or sale of the Licensed Product in such country, or (ii) [***] years following First Commercial Sale of Licensed Product after Regulatory Approval in such country (the "**Royalty Term**").

(d) Royalty Reduction. In the event that a Third Party Controls a Patent that Covers the Ligand Binder that in the reasonable written opinion of a Novo Nordisk patent counsel will be infringed by the Commercialization of Licensed Product, then Novo Nordisk shall have the right (but not the obligation) to obtain a license to such Third Party Patent. The [***] which Novo Nordisk actually pays to such Third Party for a license to such Patent in a country during a calendar quarter may be credited against up to [***] of royalties otherwise payable by Novo Nordisk to Keros for such Licensed Product in such country in such calendar quarter; provided, however, that in no event shall the foregoing deduction reduce the amount of royalties payable hereunder with respect to Net Sales of such Licensed Product in such country in a calendar quarter by more than [***] of the amounts that would otherwise be due hereunder with respect to Net Sales of such Licensed Product in such country in such calendar quarter. Novo Nordisk shall promptly inform Keros if it has executed a license agreement to such Third Party Patent.

(e) Royalty Reports; Payments. After the First Commercial Sale of the first Licensed Product and until expiration of the last Royalty Term, Novo Nordisk shall prepare and deliver to Keros royalty reports of the sale of Licensed Products for each calendar quarter within [***] of the end of each such calendar quarter specifying, [***]: (a) total gross invoiced amounts for Licensed Products sold; (b) amounts deducted by category in accordance with Section 1.49 ("**Net Sales**") from gross invoiced amounts to calculate Net Sales; (c) Net Sales; and (d) royalties payable. Novo Nordisk shall accompany such report with payment to Keros of all amounts payable to Keros under Section 3.6 on Net Sales of Licensed Products for such calendar quarter.

(f) Records and Audits. Novo Nordisk will keep complete and accurate records relating to the calculations of Net Sales generated in the then current calendar year and payments required under this Agreement, and during the preceding [***]. Keros will have the right during the term of this Agreement and for a period of three years thereafter, once annually at its own expense, to have an internationally recognized, independent, certified public accounting firm, currently one of the following: PWC, E&Y, KPMG or Deloitte (the "**Auditor**"), selected by it, review any such records of Novo Nordisk and its Affiliates and sublicensees (the "**Audited Party**") in the location(s) where such records are maintained by the Audited Party subject to the following terms:

(i) Keros shall give Novo Nordisk at least [***] prior written notice of when its Auditor shall visit the Audited Party;

(ii) At least [***] prior to inspecting any records, the Auditor must enter into a confidentiality agreement with the Audited Party that is reasonably satisfactory to the Audited Party;

(iii) Novo Nordisk shall make their books and records available for review by the Auditor solely to verify the accuracy of its Net Sales report and payments under this Agreement;

(iv) Novo Nordisk shall give access to the Auditor during regular business hours at the place or places where the books and records are usually kept. While inspecting such accounts and records, the Auditor must abide by all of Novo Nordisk's standard rules and regulations;

(v) The Auditor shall prepare and deliver to each Party a report setting out its findings no later than [***] after the audit has been completed. [***];

(vi) Any report by the Auditor under this Section (f) shall be deemed Confidential Information of Novo Nordisk and Keros shall keep such report and any other information received or learnt in connection with the audit confidential;

(vii) No calendar year will be subject to audit under this Section (f) more than once; and

(viii) Should such inspection lead to the discovery of a discrepancy to Keros's detriment, Novo Nordisk will, within [***] after receipt of such report from the accounting firm, pay any undisputed amount of the discrepancy. Keros will pay the full cost of the review unless the underpayment of amounts due to Keros is greater than [***] of the amount due for the entire period being examined, in which case Novo Nordisk will pay the cost charged by such accounting firm for such review. Should the audit lead to the discovery of a discrepancy to Novo Nordisk's detriment, Novo Nordisk may credit the amount of the discrepancy against future payments payable to Keros under this Agreement, and if there are no such payments payable, then Keros shall pay to Novo Nordisk the amount of the discrepancy within [***] of Keros' receipt of the report. Any such payments made in connection with such discrepancy shall be subject to Section 4.3.

ARTICLE 4
Payment-Related Provisions

4.1 Mode of Payment. All payments under this Agreement shall be made in immediately available funds by wire transfer to a United States based account to be identified by Keros.

4.2 Currency of Payments. All payments under this Agreement shall be made in United States dollars, unless otherwise expressly provided in this Agreement.

4.3 Late Payments. To the extent that any payments under this Agreement are not paid within the specified time period, such outstanding payments shall accrue interest from the date due, at the one year USD LIBOR rate on the last Business Day of the applicable calendar quarter prior to the date on which such payment was due, plus [***], calculated on the basis of a 360-day year, or, if lower, the maximum rate permitted by law.

4.4 Novo Nordisk Invoicing Instructions. Any payment payable by Novo Nordisk under this Agreement, including payments under Sections 2.2(b), 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 and 6.2(a)(iii), is subject to receipt by Novo Nordisk of an invoice herefore prepared in accordance with the Novo Nordisk Invoicing Instructions set forth in Exhibit F.

4.5 Taxes. [***].

ARTICLE 5
License Grants

5.1 License Grants.

(a) Keros hereby grants to Novo Nordisk and its Affiliates an exclusive (even as to Keros), worldwide, royalty-bearing license, with the right to grant sublicenses, (with Keros retaining the right to perform its activities under the Research Collaboration) under the Keros Background IP, the Keros New Ligand Trap IP and Keros' interest in the Collaboration IP, solely to Develop and Commercialize Licensed Products, in all cases in the Novo Nordisk Field and in the Territory. Such license excludes any rights to modify the Ligand Binder, but includes the right to modify any part of the Conserved Carrier of a Selected Ligand Trap. Such license shall not grant Novo Nordisk any right or license with respect to Declined Ligand Traps, nor to Develop or Commercialize Licensed Products that are not Licensed Combination Products for Cardiovascular Indications or CVD Indications.

(b) Novo Nordisk hereby grants to Keros a nonexclusive, worldwide license under the Novo Nordisk Background IP, Novo Nordisk IP and Novo Nordisk's interest in the Collaboration IP, solely for Keros to perform its activities under the Research Collaboration. For the avoidance of doubt, said license does not apply with respect to Declined Ligand Traps.

5.2 Sublicenses. Subject to the terms and conditions herein, Novo Nordisk shall have the right to sublicense the rights granted to Novo Nordisk by Keros under Section 5.1, provided, however, that: (i) each sublicense shall contain obligations of the sublicensee equivalent or similar to the obligations of Novo Nordisk hereunder; and (ii) Novo Nordisk shall provide to Keros a redacted copy of each sublicense agreement (and any future amendments or terminations thereof) within [***] after the execution thereof.

5.3 No Implied Licenses. Except as otherwise expressly provided, this Agreement does not grant any right or license to either Party under any of the other Party's intellectual property rights, and no other right or license is to be implied or inferred from any provision of this Agreement or by the conduct of the Parties.

5.4 Section 365(n) of the Bankruptcy Code. All rights and licenses granted pursuant to any Section of this Agreement are, and shall be deemed to be, rights and licenses to "intellectual property" (as defined in Section 101(35A) of title 11 of the United States Code and of any similar provisions of applicable Laws under any other jurisdiction (the "**Bankruptcy Code**")). Each Party agrees that the other Party, as a licensee of rights and licenses under this Agreement, shall retain and may fully exercise all of its rights and elections under the Bankruptcy Code.

ARTICLE 6
Intellectual Property

6.1 Ownership of IP.

(a) Keros Background IP. Subject to the licenses granted under Section 5.1, as between the Parties, Keros shall solely own all right, title and interest in and to the Keros Background IP.

(b) Novo Nordisk Background IP. Subject to the licenses granted under Section 5.1, as between the Parties, Novo Nordisk shall solely own all right, title and interest in and to the Novo Nordisk Background IP. It is not the Parties' intent that Novo Nordisk discloses to Keros any Novo Nordisk Background IP.

(c) Keros New Ligand Trap IP. Subject to the licenses granted under Section 5.1, as between the Parties, Keros shall own all right, title and interest in Keros New Ligand Trap IP.

(d) Novo Nordisk IP. Subject to the licenses granted under Section 5.1, as between the Parties, Novo Nordisk shall own all right, title and interest in Novo Nordisk IP.

(e) Collaboration IP. Subject to the licenses granted under Section 5.1, as between the Parties, all right, title and interest in Collaboration shall be owned jointly by the Parties. It is not the Parties' intent that Collaboration IP will be generated.

(f) Further Assurances. The Parties shall reasonably cooperate with each other, and shall cause any employees, agents or consultants of the Party, to effectuate ownership of any intellectual property rights as set forth in this Agreement, including, but not limited to, by executing and recording assignment documents. On a jurisdiction by jurisdiction basis, the Parties shall also reasonably cooperate with each other and negotiate in good faith any necessary transfer of rights, such as with an assignment of a Patent, should the law in such jurisdiction require such transfer in order to obtain patentability or maintain validity and/or enforce of such Patent.

6.2 Patent Prosecution and Maintenance.

(a) Keros Background IP and Keros New Ligand Trap Patents.

(i) The Parties acknowledge that Keros Background Patents that exist as of the Effective Date Cover both Declined Ligand Traps as well as Selected Ligand Traps, and that the Declined Ligand Traps are not subject to Novo Nordisk's license set forth in Section 5.1(a). Furthermore, the Parties acknowledge that Keros New Ligand Trap Patents potentially will Cover both Declined Ligand Traps as well as Selected Ligand Traps, and that the Declined Ligand Traps are not subject to Novo Nordisk's license set forth in Section 5.1(a).The Parties further acknowledge that it is their intent, where reasonably practicable, to file divisional and/or continuation patent applications (including, if appropriate, continuation-in-part patent applications) claiming priority to such Keros Background Patents, and/or new patent applications, such as one or more Keros New Ligand Trap Patents, that solely Cover the composition, manufacture or use of the Selected Ligand Traps (such patent applications and any patents issuing therefrom, defined as the "**Selected Ligand Traps-Specific Patents**") without claiming any subject matter related to the Declined Ligand Traps (such patent applications and any patents issuing therefrom, defined as the "**Declined Ligand Traps-Specific Patents**").

(ii) To coordinate the efficient Prosecution and Maintenance of the Selected Ligand Traps-Specific Patents and Declined Ligand Traps-Specific Patents in accordance with the foregoing principles, the Parties shall appoint one senior patent counsel representing each Party to oversee the Prosecution and Maintenance of the Selected Ligand Traps-Specific Patents and Declined Ligand Traps-Specific Patents pursuant to this Section 6.2. The patent counsels shall meet by telephone or videoconference at least twice per year, and more frequently as its members may agree. Keros' patent counsel shall provide an update to Novo Nordisk's patent counsel with respect to Prosecution and Maintenance of the Keros Background Patents at least [***] prior to a JSC meeting.

(iii) As between the Parties, Keros shall have the sole right, at its sole discretion, to Prosecute and Maintain and determine the strategy of prosecution of the (A) Keros Background Patents and (B) Keros New Ligand Trap Patents including those Covering Selected Ligand Traps and Declined Ligand Traps. As of the Effective Date, Novo Nordisk shall be responsible for all reasonable prosecution costs of Keros Background Patents (other than Declined Ligand Traps-Specific Patents) and Keros New Ligand Trap Patents (other than Declined Ligand Traps-Specific Patents), and shall reimburse Keros for such expenses within [***] after invoice thereof from Keros.

(iv) Keros shall, at least [***] and at minimum intervals of [***], during the term of this Agreement, provide Novo Nordisk with a list of Keros Background Patents (other than Declined Ligand Traps-Specific Patents) and Keros New Ligand Trap Patents (other than Declined Ligand Traps-Specific Patents), providing relevant filing and status information, beginning on the date that is [***] following the Effective Date.

(v) Keros shall provide Novo Nordisk with timely notification regarding any information it discovers during the term of this Agreement that Keros reasonably considers to materially affect the enforceability or adversely affect the term of any Keros Background Patent Covering Selected Ligand Traps or Keros New Ligand Trap Patents Covering Selected Ligand Traps.

(vi) If requested by Novo Nordisk, Keros shall timely provide Novo Nordisk with copies of all material correspondence from any patent authority regarding Keros Background Patents and Keros New Ligand Trap Patents Covering Selected Ligand Traps.

(vii) If requested by Novo Nordisk, Keros shall provide Novo Nordisk with a copy of any proposed material filing with any patent authority in connection with proceedings before any patent authority in the Selected Ligand Traps-Specific Patents and, if requested by Novo Nordisk, shall provide to Novo Nordisk a reasonable opportunity (at least [***], if reasonably practicable) to comment on any such proposed material filing with respect to such Selected Ligand Traps-Specific Patents, which comments Keros shall consider in good faith.

(viii) If Keros elects to discontinue Prosecution or Maintenance of any Keros Background Patent (excluding Declined Ligand Traps-Specific Patents) or Keros New Ligand Trap Patents (excluding Declined Ligand Traps-Specific Patents) without filing a continuation or substitute patent application, Keros shall so advise Novo Nordisk in writing at least [***] in advance of such discontinuance and, if requested by Novo Nordisk, shall discuss with Novo Nordisk Keros' reasons for such discontinuance. If requested by Novo Nordisk and at Novo Nordisk's sole cost, Keros will take action to prevent such abandonment of such Patent, unless Keros has a material business or legal reason for not taking such action. For purposes of clarity, as between Keros and Novo Nordisk, Keros shall retain ownership of the Keros Background Patents and Keros New Ligand Trap Patents Covering Selected Ligand Traps.

(b) Novo Nordisk Background Patents and Novo Nordisk Patents. As between the Parties, Novo Nordisk shall have the sole right, at its sole discretion and expense, to Prosecute and Maintain and determine the strategy of Prosecution of all Patents comprising the Novo Nordisk Background IP as well as Novo Nordisk Patents.

(c) Keros New Ligand Trap Patents Covering Declined Ligand Traps. During the term of this Agreement, Keros shall at its own costs have the sole right, at its sole discretion and expense, to Prosecute and Maintain and determine the strategy for the Prosecution and Maintenance of any Keros New Ligand Trap Patent solely Covering the Declined Ligand Traps (i.e. Declined Ligand Traps-Specific Patents), including deciding on (A) the scope and content of the Patent; (B) the countries in which Prosecution and Maintenance should be conducted; and (C) whether to retain outside patent counsel to conduct all or particular Prosecution and Maintenance activities.

(d) Collaboration Patents. During the term of this Agreement, the Parties shall jointly decide if and how to Prosecute and Maintain and determine the strategy for the Prosecution and Maintenance of any Collaboration Patent and how costs and expenses will be allocated between the Parties, including deciding on (A) the scope and content of the Patent; (B) the countries in which Prosecution and Maintenance should be conducted; and (C) whether to retain outside patent counsel to conduct all or particular Prosecution and Maintenance activities. It is not the Parties' intent that Collaboration IP will be generated.

(e) Cooperation. Each Party shall reasonably cooperate with and assist the other Party in the Prosecution and Maintenance of any Keros New Ligand Trap Patent, Novo Nordisk Patent or Collaboration Patent, including by (A) consulting with the other Party as it may reasonably request, and (B) making its relevant and necessary scientists and scientific records reasonably available. In addition, either Party shall sign and deliver, or use reasonable efforts to have signed and delivered, at no charge to the other Party, all documents necessary in connection with such Prosecution and Maintenance.

(f) Patent Term Extensions. Novo Nordisk shall have the sole right to apply for patent term extension on a Keros Background Patent (excluding any Declined Ligand Traps-Specific Patents), Keros New Ligand Trap Patents (excluding any Declined Ligand Traps-Specific Patents), Novo Nordisk Patent or Collaboration Patent that Covers Licensed Product, as may be available under the provisions of the Drug Price Competition and Patent Term Restoration Act of 1984 or comparable laws outside the United States of America (including obtaining a supplementary protection certificate (SPC), such as those available to Member States of the European Union, and other similar measures in any other country), on a country-by-country basis. Keros shall cooperate and to provide reasonable assistance (including executing any documents as may reasonably be required) to Novo Nordisk in seeking and obtaining such patent term extension(s).

ARTICLE 7
Enforcement and Defense of Patents

7.1 Notice. With respect to intellectual property that is within the scope of any Keros Background IP, Keros New Ligand Trap IP, Novo Nordisk IP or Collaboration IP, each Party shall promptly notify the other Party in writing upon learning of any (a) actual or suspected infringement and/or misappropriation by a Third Party (collectively, an "**Infringement**") of the Keros Background IP, the Keros New Ligand Trap IP, the Novo Nordisk IP or the Collaboration IP or (b) claim by a Third Party of invalidity, unenforceability and/or non-infringement of a Keros Patent, Novo Nordisk Patent or the Collaboration Patent.

7.2 Enforcement and Defense of Keros Background IP and Keros New Ligand Trap IP.

(a) Keros shall at its own costs have the sole right (but not the obligation) to file suit against any Third Party for Infringement of the Keros Background Patents and Keros New Ligand Trap Patents (other than the Selected Ligand Traps-Specific Patents) or to otherwise seek to abate any Infringement thereof by such Third Party and to defend such Declined Ligand Traps-Specific Patents against a Third Party claim of invalidity, unenforceability or non-infringement. If Keros fails or decides not to institute any such enforcement action of the Keros Background Patents and Keros New Ligand Trap IP (other than the Declined Ligand Traps-Specific Patents) relevant for the Novo Nordisk Field within [***] of becoming first aware of any such infringement, misappropriation, or misuse, Novo Nordisk shall have the right, but not the obligation, to institute, at its sole cost and expense, such an enforcement action. Keros shall notify Novo Nordisk as soon as possible if it decides not to institute any such enforcement action. If Keros does institute such enforcement action but desires at any point in such enforcement action to cease to continue with such enforcement action, then Keros will provide a reasonable written notice to Novo Nordisk prior to discontinuing such enforcement action and Novo Nordisk shall then have the right, but not the obligation, to continue such enforcement action. The Parties shall reasonably cooperate and shall provide each other with any information or assistance that either reasonably requests. The non-enforcing Party shall have the right to join, at its own expense, any such legal action and to be represented in such action by its own counsel. If the non-enforcing Party is required under any law to join any such legal action initiated by the enforcing Party or if the failure of the non-enforcing Party to be a Party to such suit, action, or proceeding would in the opinion of counsel to the enforcing Party risk dismissal thereof, the non-enforcing Party shall execute all papers and perform such other acts as may be reasonably required to permit the litigation to be initiated or conducted, and the enforcing Party shall reimburse the non-enforcing Party for its reasonable expenses relating to its joining thereto and participation therein. For the avoidance of doubt, Novo Nordisk shall have no right to take action against infringement with respect to (a) Declined Ligand Traps-Specific Patents and/or Declined Ligand Traps, or (b) after the end of the Collaboration Term, any Keros Patent (other than Selected Ligand Traps-Specific Patents as set forth in subsection (b) below) with respect to Cardiovascular Indications or CKD Indications.

(b) Novo Nordisk shall at its own costs have the sole right (but not the obligation) to file suit against any Third Party for Infringement of the Selected Ligand Traps-Specific Patents or to otherwise seek to abate any Infringement thereof by such Third Party and to defend such Selected Ligand Traps-Specific Patents against a Third Party claim of invalidity, unenforceability or non-infringement. If requested to do so by Novo Nordisk, Keros shall reasonably cooperate with Novo Nordisk to enforce and defend such rights in relation to the Novo Nordisk Field. Keros will join such suit if the relevant court, tribunal or patent authority would lack jurisdiction if Keros were absent from such suit, and Keros will execute such legal papers and cooperate in the prosecution of such suit as may be reasonably requested by Novo Nordisk; provided, that Novo Nordisk will promptly reimburse all out-of-pocket expenses (including reasonable attorneys' fees and expenses) incurred by Keros in connection with joining such suit and providing such other requested cooperation.

(c) Enforcement and Defense of Novo Nordisk IP and Novo Nordisk Background Patents. Novo Nordisk shall at its own costs have the sole right (but not the obligation) to file suit against any Third Party for Infringement of the Novo Nordisk Patents and/or Patents included in the Novo Nordisk Background Patents or to otherwise seek to abate any Infringement thereof by such Third Party and to defend such Novo Nordisk Patents and/or Patents included in the Novo Nordisk Background Patents against a Third Party claim of invalidity, unenforceability or non-infringement. If requested to do so by Novo Nordisk, Keros shall reasonably cooperate with Novo Nordisk to enforce and defend such rights in relation to the Novo Nordisk Field. Keros will join such suit if the relevant court, tribunal or patent authority would lack jurisdiction if Keros were absent from such suit, and Keros will execute such legal papers and cooperate in the prosecution of such suit as may be reasonably requested by Novo Nordisk; provided, that Novo Nordisk will promptly reimburse all out-of-pocket expenses (including reasonable attorneys' fees and expenses) incurred by Keros in connection with joining such suit and providing such other requested cooperation.

(d) Enforcement and Defense of Collaboration IP. The Parties shall jointly decide if and how to enforce or otherwise seek to abate any Infringement of Collaboration IP and to defend such Collaboration Patents against a Third Party claim of invalidity, unenforceability or non-infringement and how costs and expenses will be allocated between the Parties for any such actions or defense. If requested to do so by a Party, the other Party shall reasonably cooperate with the first Party to enforce and defend such rights. Each Party will join such suit if the relevant court, tribunal or patent authority would lack jurisdiction if a Party were absent from such suit, and each Party will execute such legal papers and cooperate in the prosecution of such suit as may be reasonably requested by the other Party; provided, that the other Party will promptly reimburse all out-of-pocket expenses (including reasonable attorneys' fees and expenses) incurred by the Party in connection with joining such suit and providing such other requested cooperation.

7.3 Recovery. Except as otherwise provided, the costs and expenses of the Party bringing suit against a Third Party shall be borne by such Party, and any damages, settlements or other monetary awards recovered shall be shared as follows: [***]. The Parties shall agree in good faith the value of any non-monetary benefits.

ARTICLE 8
Confidentiality

8.1 Disclosure and Use of Confidential Information. Except to the extent expressly authorized by this Agreement, each Party (the "**Receiving Party**") in possession of the Confidential Information of the other Party (the "**Disclosing Party**") agrees to: (a) hold in confidence and not disclose or transfer the Disclosing Party's Confidential Information to any Third Party and (b) use the Disclosing Party's Confidential Information only for purposes of this Agreement.

8.2 Exceptions. The obligations of the Receiving Party set forth in Section 8.1 shall not apply to the Disclosing Party's Confidential Information to the extent that such Confidential Information:

(a) was approved in writing by the Disclosing Party for release or use by the Receiving Party without restriction;

(b) is part of the public domain at the time of disclosure to the Receiving Party or becomes part of the public domain through no wrongful act of the Receiving Party;

(c) is in the Receiving Party's possession at the time of disclosure, as the Receiving Party can by written documentation demonstrate, other than as a result of any prior confidential disclosure by the Disclosing Party;

(d) was disclosed to the Receiving Party by a Third Party having no duty of confidentiality to the Disclosing Party with respect to such Confidential Information and having the legal right to disclose such Confidential Information; or

(e) is independently developed, as the Receiving Party can by written documentation demonstrate, by its employees or consultants without use of or reference to the Confidential Information of the Disclosing Party.

8.3 Authorized Disclosures.

(a) Legal Compliance. A Party may disclose the other Party's Confidential Information if such disclosure is required by law, rule, regulation or legal process (including to comply with the order of a court or valid discovery request in connection with a legal or administrative proceeding or to comply with governmental regulations or regulations of any nationally recognized securities exchange), but only to the extent such disclosure is necessary for such compliance; *provided, however*, except for disclosures otherwise permitted under this Article 8, or as otherwise required or necessitated by law, such Party shall provide prompt notice of such disclosure requirement to the other Party and provide reasonable assistance requested by the other Party to enable such other Party to seek a protective order or otherwise prevent such disclosure.

(b) Regulatory Authorities. A Party may disclose the other Party's Confidential Information to a Regulatory Authority to the extent such disclosure is required to comply with applicable governmental regulations or to conduct preclinical or clinical studies related to Ligand Traps.

(c) Patent Prosecution. A Party may disclose the other Party's Confidential Information to the extent such disclosure is necessary for the Prosecution and Maintenance of any patent application or patent on Novo Nordisk Inventions, Keros New Ligand Trap Inventions or Collaboration Inventions, subject to the provisions of Section 6.2.

(d) Permitted Third Parties. Subject to all the terms and conditions of this Agreement, the Receiving Party may disclose and grant use of particular Confidential Information of the Disclosing Party to the Receiving Party's and its Affiliates' employees, consultants and contractors. Any such disclosure in any form is permitted only on a need to know basis and only on the condition that such Third Party is bound to the receiving Party by confidentiality obligations no less stringent than those of this Agreement.

8.4 Continuing Obligation. This Article 8 shall survive the expiration or termination of this Agreement for a period of [***] after any termination or expiration of this Agreement.

8.5 Protection Measures. Each Party agrees that it shall take reasonable measures to protect the secrecy of and avoid disclosure and unauthorized use of the Confidential Information disclosed to it by the other Party. Without limiting the foregoing, each Party shall take at least those measures that it takes to protect its own confidential information of a similar nature.

8.6 Confidential Information Proprietary to Disclosing Party; Return of Confidential Information. The Parties understand and agree that (a) the Confidential Information is and shall remain at all times the sole property of the Disclosing Party; (b) the Receiving Party shall not obtain any proprietary interest in any Confidential Information; and (c) all copies of the Confidential Information shall be returned promptly to the Disclosing Party in their entirety after expiry or termination, apart from one copy to be retained in the legal files of the receiving Party for the sole purpose of determining the scope of obligations incurred under this Agreement or as otherwise required by law.

8.7 Breaches of Confidentiality; Assistance in Respect of Same. The Receiving Party shall promptly notify the Disclosing Party if the Receiving Party becomes aware of any breach of confidence by any person to whom the Receiving Party has disclosed any Confidential Information. The Receiving Party shall give the Disclosing Party all reasonable assistance in connection with any action, demand, claim or proceeding that the Disclosing Party may institute against any such person in respect of such disclosure.

ARTICLE 9
Public Disclosures; Use of Names

9.1 Press Releases and Other Public Disclosures.

(a) Press Release. Neither Party will issue a press release, statement or public announcement relating to the terms of this Agreement without the prior written approval of the other Party, which approval shall not be unreasonably withheld or delayed

(b) Disclosures Regarding Declined Ligand Traps. Disclosures by Keros related to Declined Ligand Traps shall not be subject to either review or approval by Novo Nordisk provided that said disclosure shall not contain any Confidential Information of Novo Nordisk or of both Parties.

(c) Disclosures Required by Law. If one Party reasonably concludes that a public disclosure is required by law, rule or regulation (including the disclosure requirements of the United States Securities and Exchange Commission or the securities exchange or other stock market on which such Party's securities are traded), the Party seeking to make such disclosure shall have the right to make such disclosure, but shall limit such disclosure to that reasonably necessary to comply with the applicable law, rule or regulation. Each Party agrees that it shall obtain its own legal advice with regard to its compliance with securities and other laws, rules and regulations, and will not rely on any statements made by the other Party relating to such laws, rules and regulations.

9.2 Use of Names. Except as otherwise expressly provided in this Agreement, no right, express or implied, is granted by the Agreement to use in any manner the name of "Keros," "Novo Nordisk" or any other trade name or trademark of the other Party in connection with the performance of this Agreement.

ARTICLE 10
Term; Termination

10.1 Term. The term of the Agreement shall commence on the Effective Date and continue until expiration of the Royalty Term. After expiration of the Royalty Term, Novo Nordisk shall have a perpetual, fully paid up, non-exclusive license to the Keros Background IP and Keros New Ligand Trap IP related to the Selected Ligand Trap to Commercialize the Licensed Products, in each case within the Novo Nordisk Field and Territory.

10.2 Termination for Material Breach. Either Party may terminate this Agreement by written notice to the other Party, for any material breach of this Agreement by the other Party, if such breach is not cured within [***] ([***] in the case of a payment breach) after the breaching Party receives notice from the terminating Party specifying such breach.

10.3 Early Termination by Novo Nordisk. Novo Nordisk may terminate this Agreement and the Collaboration Term at any time and for any reason on [***] prior written notice to Keros. For the avoidance of doubt, Keros shall not be obligated to return the R&D Collaboration Budget Funding to Novo Nordisk as stipulated in Section 3.2.

10.4 Termination upon Bankruptcy. Either Party may terminate this Agreement if, at any time, the other Party will file in any court, country or jurisdiction, a petition in bankruptcy or insolvency or for reorganization or for an arrangement or for the appointment of a receiver or trustee of that Party or of its assets, or if the other Party proposes a written agreement of composition or extension of its debts, or if the other Party will be served with an involuntary petition against it, filed in any insolvency proceeding, and such petition will not be dismissed within [***] after the filing thereof, or if the other Party will propose or be a Party to any dissolution or liquidation, or if the other Party will make an assignment for the benefit of its creditors.

10.5 Termination for Patent Challenge. To the extent permitted by law, Keros may terminate this Agreement either in part or in its entirety upon [***] prior written notice to Novo Nordisk in the event that Novo Nordisk or any of its Affiliates or sublicensees commences any legal or administrative proceeding challenging the patentability, enforceability or validity of any claim of a Patent within the Keros Background IP, Keros New Ligand Trap IP, or Keros' interest in the Collaboration IP; provided that Keros will not have the right to terminate this Agreement under this Section 10.5 for any such challenge by any sublicensee if, within [***] of Keros' notice to Novo Nordisk under this Section 10.5, (i) such challenge is dismissed or withdrawn and not thereafter continued, or (ii) the sublicense to such sublicensee is terminated.

10.6 Effects of Expiration or Termination.

(a) Articles 1, 4, 8, 12, 13 and 14, together with Sections 3.3 through 3.6 (with respect to any payments accruing prior to the date of any such termination or expiration), 6.1 and 10.6 shall survive any termination or expiration of this Agreement; and

(b) Upon any termination of this Agreement by Keros pursuant to Section 10.2, by Novo Nordisk pursuant to Section 10.3 or by either Party pursuant to Section 10.4:

(i) the license granted by Keros to Novo Nordisk under Section 5.1 shall automatically terminate;

(ii) the Parties shall be relieved of all its future obligations under the Agreement (other than those set forth in Section 10.6(a) above).

(c) Effect of Certain Terminations. [***].

(d) Except as otherwise expressly provided in this Agreement, expiration or termination of this Agreement shall not affect the rights and obligations of the Parties that accrued prior to the effective date of such expiration or termination. Any right that a Party has to terminate this Agreement, and any rights that such Party has under this Article 10, shall be in addition to and not in lieu of all other rights or remedies that such Party may have at law or in equity or otherwise.

ARTICLE 11
Representations and Warranties; Keros Covenants

11.1 Mutual Representations and Warranties. Each Party represents and warrants to the other Party that as of the Effective Date:

(a) it is validly organized and existing under the laws of its jurisdiction of formation;

(b) the execution, delivery and performance of this Agreement, including the Exhibits hereto have been duly authorized by all necessary corporate action on its part;

(c) when executed and delivered, this Agreement will constitute a legal, valid and binding obligation of such Party enforceable against it in accordance with its terms except (i) as limited by applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors rights generally, and (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies;

(d) it has the legal right and power to enter into this Agreement and to fully perform its obligations hereunder and thereunder;

(e) the performance of its obligations will not conflict with such Party's charter documents or any agreement, contract or other arrangement to which such Party is a party;

(f) its employees who are or will be involved in the Research Plan have executed an agreement or has an existing obligation under law requiring assignment to such Party of all intellectual property made during the course of and as the result of his, her or its association with such Party, including in relation to Keros Background Patents in Exhibit B that such Patents have been assigned by all inventors to Keros, and obligating such employee to maintain the confidentiality of Confidential Information to the extent required under Article 8; and

(g) it has obtained all necessary consents, approvals and authorizations of all governmental authorities and other persons or entities required to be obtained by it in connection with this Agreement (as of the Effective Date) and the execution and delivery of this Agreement by it, the performance by it of its obligations hereunder and the consummation of the transactions contemplated hereby have been duly authorized by all requisite action on the part of the board of directors and stockholders of it, and no other action on the part of it or its board of directors or stockholders is necessary to authorize the execution and delivery of this Agreement by it or the consummation by it of the transactions contemplated hereby other than such actions which have been taken on or prior to the date hereof.

(h) It has not been debarred and in not subject to debarment, and it will not knowingly use in any capacity, in connection with any activities under this Agreement, the services of any Affiliate or Third Party who has been debarred pursuant to Section 306 of the United States Federal Food, Drug and Cosmetic Act, or who is the subject of a conviction described in such Section. Each Party agrees to inform the other Party promptly in writing if it or any Affiliate or Third Party who is performing services hereunder is debarred or is the subject of a conviction described in Section 306, or if any action, suit, claim, investigation or legal or administrative proceeding is pending, or to such Party's or its Affiliates' knowledge, is threatened, relating to debarment or conviction of such Party, or any Affiliate or Third Party performing services hereunder for the benefit of such Party.

11.2 Keros' Representations and Warranties. Keros represents and warrants to Novo Nordisk that as of the Effective Date:

(a) it Controls the Keros Patents listed on Exhibit B and has the right to grant licenses under such Keros Patents (as are in existence as of the Effective Date) to Novo Nordisk as contemplated under this Agreement;

(b) the Keros Background IP that is in existence as of the Effective Date is free of any mortgages, pledges, charges, liens, security interests or other encumbrances of any kind, including but not limited to mortgages, pledges, charges, liens, security interests or other encumbrances provided by Keros to a creditor in connection with a loan, line of credit or other indebtedness;

(c) there are no adverse proceedings, claims or actions pending, or, to Keros' knowledge, threatened, with respect to the Keros Background IP that would prevent Keros' performance of its obligations under this Agreement;

(d) Keros does not Control Ligand Traps other than the Existing Ligand Traps and those Ligand Trap variants (as Keros can by written documentation demonstrate) that have been disclosed to Novo Nordisk prior to the Effective Date;

(e) the rights granted to Novo Nordisk and its Affiliates hereunder do not conflict with, and are not inconsistent with any rights granted by Keros to any Third Party;

(f) to the knowledge of Keros, except as otherwise noted in Exhibit B, each of the Keros Patents has been duly prosecuted and/or maintained and each of the issued Keros Patents is valid and enforceable; and

(g) to the knowledge of Keros, none of the Keros Patents set forth in Exhibit B is (i) subject to a pending interference action, opposition action, re-examination proceeding, inter partes review, litigation or other similar action by a Third Party challenging such Keros Patents, other than actions by patent authorities in connection with the prosecution of patent applications, or (ii) except as otherwise noted in Exhibit B, has been abandoned, or has been asserted to be invalid or unenforceable in a communication to Keros or is subject to any inventorship proceeding or dispute.

11.3 Keros' Covenants. Keros hereby covenants:

(a) Keros will not during the term of this Agreement enter into any mortgages, pledges, charges, liens, security interests or other encumbrances of any kind with respect to Selected Ligand Traps-Specific Patents and Collaboration IP in which Keros has an ownership interest;

(b) Keros shall, during the term of this Agreement, disclose to Novo Nordisk any such material adverse proceedings, claims or actions that arise with respect to the Keros Background IP, Keros New Ligand Trap IP or Collaboration IP in which Keros has an ownership interest; and

(c) Keros will not, after the Effective Date, enter into any written or oral contractual obligation with a Third Party that would conflict with its obligations under this Agreement or that deprive Novo Nordisk of the benefits of or rights granted under this Agreement.

11.4 Novo Nordisk' Covenants. Novo Nordisk hereby covenants:

(a) Novo Nordisk will not during the term of this Agreement enter into any mortgages, pledges, charges, liens, security interests or other encumbrances of any kind with respect to Collaboration IP in which Novo Nordisk has an ownership interest;

(b) Novo Nordisk shall, during the term of this Agreement, disclose to Keros any such material adverse proceedings, claims or actions that arise with respect to the Keros New Ligand Trap IP or Collaboration IP in which Novo Nordisk has an ownership interest; and

(c) Novo Nordisk will not, after the Effective Date, enter into any written or oral contractual obligation with a Third Party that would conflict with its obligations under this Agreement or that is intended to deprive Keros of the benefits of or rights granted under this Agreement.

11.5 Disclaimers. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT NEITHER PARTY MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND WITH RESPECT TO MATERIALS OR INFORMATION SUPPLIED BY IT TO THE OTHER PARTY HEREUNDER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.

ARTICLE 12
Indemnification; Limitation on Liability; Insurance

12.1 Indemnification.

(a) Definitions. The following definitions are for purposes of Section 12.1:

(i) "**Claims**" means claims, suits, actions, demands or other proceedings by any Third Party.

(ii) "**Indemnitee**" means, as applicable, a Keros Indemnitee (as defined in Section 12.1(b) or a Novo Nordisk Indemnitee (as defined in Section 12.1 (c)).

(iii) "**Losses**" means any and all liabilities, damages, settlements, penalties, fines, costs or expenses (including, reasonable attorneys' fees and other expenses of litigation).

(b) Indemnification by Novo Nordisk. Novo Nordisk hereby agrees to indemnify, defend and hold harmless each of Keros and its officers, directors, employees and agents (for purposes of Section 12.1, each, a "**Keros Indemnitee**") from and against Losses resulting directly from Claims arising out of (i) Novo Nordisk's breach of its representations or warranties under Section 11 of this Agreement; or (ii) the negligence or willful misconduct in performing the activities to be performed by Novo Nordisk under this Agreement, including the manufacture, storage, use, Development or Commercialization of Ligands Traps or Licensed Product (including product liability claims), in each case by Novo Nordisk or its Affiliates or its contractors. Novo Nordisk's obligations under this Section 12.1 (b) shall not apply to the extent that any such Losses are attributable to (A) Keros' material breach of this Agreement, including breach of its representations or warranties under this Agreement or (B) the gross negligence or willful misconduct of any Keros Indemnitee.

(c) Indemnification by Keros. Keros hereby agrees to indemnify, defend and hold harmless each of Novo Nordisk and its officers, directors, employees and agents (for purposes of Section 12.1, each, a "**Novo Nordisk Indemnitee**") from and against Losses resulting directly from Claims arising out of (i) Keros' breach of its representations or warranties under Section 11 of this Agreement; or (ii) the negligence or willful misconduct in performing the activities to be performed by Keros under this Agreement, including the manufacture, storage, use, Development or Commercialization of Ligands Traps or Licensed Product (including product liability claims), in each case by Keros or its Affiliates or its contractors. Keros' obligations under this Section 12.1 (c) shall not apply to the extent that any such Losses are attributable to (A) Novo Nordisk's material breach of this Agreement, including breach of its representations or warranties under this Agreement or (B) the gross negligence or willful misconduct of any Novo Nordisk Indemnitee.

(d) Indemnification Procedures. The Indemnitee shall (i) notify the indemnifying Party (the "**Indemnitor**") of any Claim for which it seeks to exercise its rights under Section 12.1 (b) or (c) promptly after it receives notice of such Claim; (ii) permit the Indemnitor to assume the sole control of the defense thereof, including the right to settle or conclude such defense (so long as such settlement does not, without the Indemnitee's consent, admit liability or impose any obligation on the part of the Indemnitee), with counsel mutually satisfactory to the Parties; (iii) cooperate as reasonably requested (at the expense of Indemnitor) in the defense of such Claim; and (iv) not settle such Claim without the express, prior written consent of the Indemnitor.

(e) Limitations. The failure of an Indemnitee to deliver notice to the Indemnitor promptly after the commencement of any Claim for which such Indemnitee seeks to exercise its rights under Section 12.1, to the extent prejudicial to the Indemnitor's ability to defend such Claim, shall relieve the Indemnitor of its obligation to the Indemnitees under Section 12.1. The Parties agree that only Keros or Novo Nordisk may seek to exercise the rights under Section 12.1 (on its own behalf or on behalf of its Indemnitees), and other Indemnitees may not directly seek to exercise such rights.

12.2 Exclusion of Consequential Damages. IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL OR PUNITIVE DAMAGES, INCLUDING LOST PROFITS, HOWEVER CAUSED, ARISING FROM OR RELATING TO THIS AGREEMENT OR ANY BREACH OF THIS AGREEMENT OR ANY CLAIM ARISING HEREUNDER, *PROVIDED, HOWEVER*, THAT NOTHING IN THIS SECTION 12.2 IS INTENDED TO LIMIT THE RIGHTS OR OBLIGATIONS OF EITHER PARTY UNDER SECTION 12.1.

ARTICLE 13
Dispute Resolution

13.1 Internal Resolution. Except as otherwise expressly provided in this Agreement, any Dispute shall be first referred to an Executive of each Party for resolution, prior to proceeding under the other provisions of this Article 13. A Dispute shall be referred to such Executives upon one Party providing the other Party with written notice that such Dispute exists, and such Executives shall attempt to resolve such Dispute through good faith discussions. In the event that such Dispute is not resolved within [***] of such other Party's receipt of such notice, either Party may initiate by written notice to the other the Dispute resolution provisions in Section 13.2. The Parties agree that any discussions between such Executives regarding such Dispute will not constitute settlement discussions, unless the Parties agree otherwise in writing.

13.2 Arbitration.

(a) Rules. Except as otherwise expressly provided in this Agreement, the Parties agree that any Dispute not resolved internally by the Parties pursuant to Section 13.1 shall be resolved through binding arbitration under the Rules of Arbitration of the International Chamber of Commerce (for purposes of Article 13, the "**Rules**") by a single arbitrator appointed in accordance with the said Rules, applying the substantive law specified in Section 14.2. The demand for arbitration and counterclaim shall each include a statement setting forth the issues in dispute that are being presented for resolution through binding arbitration. In no event shall a demand for arbitration be made after the date when institution of a legal or equitable proceeding based upon such Dispute would be barred by the applicable statute of limitations as determined from the date such Dispute was referred to the arbitrator in accordance with this Section 13.2.

(b) Arbitrator; Location. Unless otherwise agreed by the Parties, the arbitrator shall be appointed in accordance with the Rules. The arbitration proceedings shall be conducted in New York, New York, USA. The Parties shall take all reasonable actions to commence the proceeding under this Section 13.2 as promptly as possible but in no event later than [***] after the initiation of any Dispute under this Section 13.2.

(c) Procedures; Awards. Each Party agrees to use reasonable efforts to make all of its current employees available, if reasonably needed, and agrees that the arbitrator may deem any party as "necessary." Following the request by either Party, the arbitrator shall make a determination regarding reasonable production by the Parties of documents relevant to the Dispute. The arbitrator shall be instructed and required to render a written, binding, non-appealable resolution and award on each issue that clearly states the basis upon which such resolution and award is made. The written resolution and award shall be delivered to the Parties as expeditiously as possible, but in no event more than [***] after conclusion of the hearing, unless otherwise agreed by the Parties. Judgment upon such award may be entered in any competent court or application may be made to any competent court for judicial acceptance of such an award and order for enforcement. Each Party agrees that, notwithstanding any provision of applicable law or of this Agreement, it will not request, and the arbitrator shall have no authority to award, punitive or exemplary damages against any Party.

(d) Costs. [***].

(e) Interim Equitable Relief. Notwithstanding anything to the contrary in this Section 13.2, in the event that a Party reasonably requires relief on a more expedited basis than would be possible pursuant to the procedure set forth in this Article 13, such Party may seek a temporary injunction or other interim equitable relief or bring an action in aid of arbitration in a court of competent jurisdiction pending the opportunity of the arbitrator to review the decision under this Section 13.2. Such court shall have no jurisdiction or ability to resolve Disputes beyond the specific issue of temporary injunction or other interim equitable relief.

(f) Protective Orders; Arbitrability. At the request of either Party, the arbitrator shall enter an appropriate protective order to maintain the confidentiality of information produced or exchanged in the course of the arbitration proceedings. The arbitrator shall have the power to decide all questions of arbitrability.

(g) Internation Arbitration Treaty. The Parties intend that each award by an arbitrator in an arbitration pursuant to this Section 13.2 shall be rendered in accordance with the United Nations Convention on the Recognition and Enforcement of Arbitral Awards and shall be enforceable in accordance therewith.

ARTICLE 14
Miscellaneous

14.1 Notices. Except as otherwise expressly provided in this Agreement, any notice required under this Agreement shall be in writing, shall specifically refer to this Agreement and shall be sent in accordance with the provisions of this Section 14.1. Notices shall be sent via one of the following means and will be effective (a) on the date of delivery, if delivered in person; or (b) on the date of receipt, if sent by private express courier or by first class certified mail, return receipt requested (or its equivalent). Notices shall be sent to the other Party at the addresses set forth below. Either Party may change its addresses for purposes of this Section 14.1 by sending written notice to the other Party in accordance with this Section 14.1.

If to Keros:

Keros Therapeutics, Inc.
99 Hayden Avenue, Building E, Suite 120
Lexington, Massachusetts 02142 USA
Attn: CEO
cc: Alliance Manager

with a required copy to:

Faber Daeufer & Itrato PC
890 Winter Street
Suite 315
Waltham, MA 02451 USA
[***]
[***]
Attn: [***]

If to Novo Nordisk:

Novo Nordisk A/S
Novo Allé
DK-2880 Bagsværd
Denmark
Attn: Head of Business Development

with a required copy to:

Novo Nordisk A/S
Novo Alle
DK-2880 Bagsværd
Denmark
Attn: General Counsel

14.2 Governing Law. This Agreement shall be governed by and construed under the laws of the State of New York, USA, without regard to conflict of laws principles. The Parties hereby exclude from this Agreement the application of the United Nations Convention on Contracts for the International Sale of Goods.

14.3 Assignment. Neither Party shall be allowed to assign or transfer any of its rights and/or obligations arising out of this Agreement, either in full or in part, to any Third Party without prior written consent of the other Party, provided however, that each Party may assign this Agreement (a) to an Affiliate, or (b) to a Third Party that acquires, by merger, sale of assets or otherwise, all or substantially all of the equity of Keros or all or substantially all of the assets or business of Keros to which the subject matter of this Agreement relates. This Agreement shall also be binding upon the legal successors of the Parties. No assignment and transfer shall be valid and effective unless and until the assignee/transferee shall agree in writing to be bound by the provisions of this Agreement.

14.4 Force Majeure. Neither Party shall be deemed to have breached this Agreement for failure to perform its obligations under this Agreement to the extent such failure results from causes beyond the reasonable control of the affected Party, such causes including acts of God, earthquakes, fires, floods, embargoes, wars, acts of terrorism, insurrections, riots, civil commotions, omissions or delays in action by any governmental authority, acts of a government

or agency thereof and judicial orders or decrees. If a force majeure event occurs, the Party unable to perform shall promptly notify the other Party of the occurrence of such event, and the Parties shall meet (in person or telephonically) promptly thereafter to discuss the circumstances relating thereto. The Party unable to perform shall (a) provide reasonable status updates to the other Party from time to time; (b) use commercially reasonable efforts to mitigate any adverse consequences arising out of its failure to perform; and (c) resume performance as promptly as possible.

14.5 Animal Welfare.

(a) Keros certifies that it is regularly engaged in conducting tests *in vitro* and *in vivo*. Further, Keros certifies that in the Research Collaboration, the Ligand Traps will be used by it only for tests *in vitro* and *in vivo* in laboratory research animals pursuant to the Research Plan and will not be administered to humans. The Parties agree to ensure high welfare standards for experimental animals. Keros acknowledges that it has read and understood the Novo Nordisk Principles for the Use of Animals attached hereto as Exhibit E and agrees to adhere to and comply with these obligations. Keros must promptly notify Novo Nordisk in the event of any unexpected issues in relation to animal welfare or bioethical concerns that occur under the Research Collaboration during the Collaboration Term. The Parties agree to collaborate to address any such issues and concerns.

(b) Novo Nordisk i) will review the Research Plan and ii) may require an on-site animal welfare inspection prior to approval of the Research Plan. In the event that Novo Nordisk wishes to perform an animal welfare inspection during the Collaboration Term, Keros must give Novo Nordisk access to its site upon reasonable notice of no less than [***].

14.6 Relationship of the Parties. The Parties are independent contractors, and nothing contained in this Agreement shall be deemed or construed to create a partnership, joint venture, employment, franchise, agency or fiduciary relationship between the Parties.

14.7 Amendment; Waiver. Except as otherwise expressly provided in this Agreement, no amendment to this Agreement shall be effective unless made in writing and executed by an authorized representative of each Party. A Party's failure to exercise, or delay in exercising, any right, power, privilege or remedy under this Agreement shall not (a) operate as a waiver thereof or (b) operate as a waiver of any other right, power, privilege or remedy. A waiver will be effective only upon the written consent of the Party granting such waiver.

14.8 Severability. If any of the provisions of this Agreement are held to be illegal, invalid or unenforceable, such illegal, invalid or unenforceable provisions shall be replaced by legal, valid and enforceable provisions that will achieve to the maximum extent possible the intent of the Parties, and the other provisions of this Agreement shall remain in full force and effect.

14.9 Entire Agreement. This Agreement contains the entire understanding between the Parties with respect to the subject matter hereof and supersede and terminate all prior agreements, understandings and arrangements between the Parties with respect to such subject matter, whether written or oral.

14.10 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument. A pdf file contained in an email, of this Agreement, including the signature pages hereto, will be deemed to be an original.

[Signature page follows]

In witness whereof, the Parties have caused this Agreement to be executed by their respective duly authorized representatives as set forth below.

Keros Therapeutics, Inc.

Signed: /s/ Jasbir S. Seehra
Name: Jasbir S. Seehra
Title: CEO

Novo Nordisk A/S

Signed: /s/ Mads Krogsgaard Thomsen
Name: Mads Krogsgaard Thomsen
Title: Chief Science Officer
Novo Nordisk NS

Signed: /s/ Lars Fruergaard Jørgensen
Name: Lars Fruergaard Jørgensen
Title: President & CEO
Novo Nordisk NS

EXHIBIT A: EXISTING LIGAND TRAPS

Existing Ligand Traps are the following:

[***]

[***]

EXHIBIT B: KEROS BACKGROUND PATENTS

Title	Serial No. / Publication No. / Patent No.	Territory	Status
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]

Exhibit C

Research Plan

[***]

Exhibit D

New Ligand Traps Information package

[***]

EXHIBIT E: NOVO NORDISK POLICY FOR USE OF ANIMALS

Novo Nordisk considers the use of animals to be essential for the discovery, development and production of pharmaceutical and medical products.

Ethical considerations and animal welfare are given high priority at Novo Nordisk. As an integral part of our approach to animal testing, we are constantly looking for new ways to replace, reduce and refine the use of animals for testing.

Animals will be used only where no available and acceptable alternatives exist.

To ensure uniform standards, the following principles must be adhered to throughout Novo Nordisk and all our external collaborators including contract laboratories, research laboratories, partners and suppliers:

- All activities involving animals must be conducted strictly in accordance with present legislation
- Alternatives to animal experiments must be used whenever possible
- Transgenic animals may be used for testing and experiments when this model is justified
- Animals bred specifically for experimental purposes must be used unless special conditions are in evidence
- Housing, husbandry and transportation of animals must as a minimum comply with internationally approved standards
    - Housing conditions must take into consideration the special needs of the animal species in question
    - Housing, husbandry and care of animals must be undertaken by personnel having received adequate and relevant education. The level of education must be documented
    - Health control should be supervised by a veterinary officer experienced in regard to laboratory animals
    - Transportation of animals must be as lenient as possible, taking into consideration the special needs of the animal species in question
- All precautions must be taken to reduce suffering and distress
    - Procedures for monitoring and evaluation of the well-being of the animals as well as treatment must be implemented

At Novo Nordisk records are kept updated on the type of experiment, animal species and number of animals used in accordance with the authorities' and the requirements of Novo Nordisk. The number of animals used internally as well as at facilities run by external collaborators will be published in the Annual Novo Nordisk Sustainability Report.

EXHIBIT F: NOVO NORDISK A/S' INVOICING INSTRUCTIONS

[***]

Exhibit 10.12

Keros Therapeutics, Inc., Tenant

LEDGEMONT TECHNOLOGY CENTER

LEXINGTON, MA

Table of Contents

ARTICLE 1: BASIC TERMS

The following terms used in this Lease shall have the meanings set forth below.

Date of Lease:	March 20, 2017
Landlord:	**128 Spring Street Lexington, LLC**, a Delaware limited liability company
Tenant:	Keros Therapeutics, Inc., a Delaware limited liability company
Building and Property:	The building complex known as Ledgemont Technology Center and consisting of the "Richards House," "Building B," "B Annex," "Building C," the "East Wing, (a/k/a Building D)" the parking garage and other appurtenances thereto located at 99 Hayden Avenue, Lexington, Massachusetts (the "Building" and such parcel of land hereinafter being collectively referred to as the "Property").
Premises:	Portions of the Building consisting of approximately 5,420 rentable square feet (subject to re-measurement as set forth herein) located on portion(s) of the 300 Level of Building D, as shown as the hatched area on Exhibit A.
Initial Term:	Five (5) Lease Years (defined below) and two and one-half (2 ½) months commencing on the Term Commencement Date (defined below).
Extension Term:	One (1) additional term of three (3) Lease Years.
Lease Year:	A period of twelve (12) consecutive months, commencing on the Term Commencement Date and each successive twelve (12) month period during the Term, except that if the Term Commencement Date shall occur on a date other than the first day of a month, then the first Lease Year shall include the period of the Term Commencement Date to the first day of the following month and twelve (12) calendar months thereafter.
Term Commencement Date:	The date Landlord delivers possession of the Premises to Tenant with the Initial Tenant Improvements (hereinafter defined) Substantially Complete (as defined in Section 11.04).

Rent Commencement Date:	The date that is two and one-half (2 ½) months following the Term Commencement Date
Permitted Uses:	General Office and laboratory (including research and development (including, but not limited to a vivarium subject to the provisions of the Lease)) use to the extent permitted by applicable zoning ordinances.
Tenant's Pro Rata Share:	2.90% subject to Section 4.06.
Brokers:	Transwestern RBJ, representing Tenant and Jones Lang LaSalle, representing Landlord by separate letter agreement between Landlord and Brokers.
Landlord's Managing Agent:	Related Beal, LLC
Letter of Credit Amount:	$130,930.94, subject to reduction and increase as provided in Article 15 herein.
Parking:	As set forth in Section 2.01(d) of the Lease.
Base Rent:	**Initial Term:**

Lease Year	Base Rent Per Rentable Square Foot	Base Rent	Base Rent Monthly Installment
1*	$ 39.00	$211,380.00	$ 17,615.00
2	$ 40.17	$217,721.40	$ 18,143.45
3	$ 41.38	$224,279.60	$ 18,689.97
4	$ 42.62	$231,000.40	$ 19,250.03
5 (plus any remaining portion of the Initial Term)	$ 43.89	$237,883.80	$ 19,823.65

* Provided Tenant is not in default, beyond ay applicable notice and cure periods, of any of its obligations under the terms of this Lease, Tenant shall not be obligated to pay Base Rent until the Rent Commencement Date

Extension Term:	As provided in Section 3.03(b).
Additional Rent:	All amounts payable by Tenant under this Lease other than Base Rent, including, without limitation, Tenant's Pro Rata Share of Taxes (Article 5); Utilities (Article 6); Insurance premiums (Article 7); and Operating Expenses (Article 8) (See Section 4.02). Tenant's Pro Rata Share is defined in Section 4.06 hereof.
Original Address of Landlord for Notices:	c/o Related Beal, LLC 177 Milk Street Boston, Massachusetts 02109 Attention: Michael Tammaro, Vice President with copies to: c/o Related Beal, LLC 177 Milk Street Boston, Massachusetts 02109 Attention: Stephen N. Faber, Executive Vice President and Sherin and Lodgen LLP 101 Federal Street Boston, Massachusetts 02110 Attention: Deborah Howitt Easton, Esquire
Original Address of Tenant for Notices:	
Before Term Commencement Date:	One Kendall Square, Building 1400W, Suite 14303 Cambridge, MA 02139 with a copy to: Faber Daeufer & Itrato PC 890 Winter Street, Suite 315 Waltham, MA 02451 Attn: Brian Connelly
After Term Commencement Date:	Ledgemont Technology Center 99 Hayden Avenue/128 Spring Street Lexington, Massachusetts 02421

	with a copy to: Faber Daeufer & Itrato PC 890 Winter Street, Suite 315 Waltham, MA 02451 Attn: Brian Connelly
Initial Tenant Improvements:	To be constructed by Landlord as set forth in Article 11.
Exhibits:	
Exhibit A:	Floor Plan of the Premises
Exhibit B:	Rules and Regulations
Exhibit C:	Rules and Regulations for Tenant Work
Exhibit D:	Tenant Work Insurance Schedule
Exhibit E:	Plans and Specifications for Initial Tenant Improvements
Exhibit E-1:	Vivarium Plans and Specifications
Exhibit F:	Construction Documents
Exhibit G:	Environmental Substances
Exhibit H:	Form of Term Commencement Date Agreement
Exhibit I:	Form of Letter of Credit

ARTICLE 2: PREMISES AND APPURTENANT RIGHTS

2.01 Lease of Premises; Appurtenant Rights. Landlord hereby leases the Premises to Tenant, and Tenant hereby leases the Premises from Landlord, for the Term, subject to all matters of record and mailers referred to below. Subject to Landlord's rules and regulations attached hereto as Exhibit B and such other reasonable rules and regulations as Landlord may from time to time adopt and of which Tenant is given notice (collectively, "Landlord's Rules") and to Force Majeure (as hereinafter defined), Tenant shall have access to the Premises twenty-four (24) hours a day, seven (7) days a week. The Premises have yet to be fully demised so the rentable square feet of the Premises set forth in this Lease is an estimate.

(a) Exclusions. The Premises exclude common areas and facilities of the Property, including, without limitation, exterior faces of exterior walls, the common stairways and stairwells (subject to Tenant's rights to use the stairways for access between portions of the Premises pursuant to Section 2.01(b)), entranceways and the main lobby, elevators and elevator

wells, fan rooms, electric and telephone closets, janitor closets, freight elevator vestibules, and pipes, ducts, conduits, wires and appurtenant fixtures serving other parts of the Property (exclusively or in common) and other common areas and facilities from time to time designated as such by Landlord. If the Premises include less than the entire rentable area of any floor, then the Premises also exclude the common corridors, elevator lobby and toilets located on such floor.

(b) Appurtenant Rights. Tenant shall have, as appurtenant to the Premises, the non-exclusive right to use in common with others (subject to Landlord's Rules and Force Majeure) the common areas and facilities of the Property necessary for Tenant's use and occupancy of the Premises, including, without limitation, common lavatories, stairways, corridors, lobbies, the loading dock servicing the Premises and, subject to Section 2.01(d) below, parking areas. Subject to Landlord's Rules and to Force Majeure, Tenant shall have access to the seating area of the common café in the building twenty-four (24) hours a day, seven (7) days a week. Tenant shall have the exclusive right to use, for the benefit of the Premises, an emergency generator that exclusively serves the Premises and provides 5 watts/rsf of backup power (the "Generator"), which Generator shall be provided as part of the Initial Tenant Improvements. Tenant shall, at its sole cost and expense, maintain and repair the Generator to keep same in good, working order (excluding any cost to replace the same unless the need for replacement is due to Tenant's negligence, in which case Tenant shall be responsible for the costs of replacement thereof). Tenant shall have the right to access for the benefit of the Premises up to 13.5kw of capacity from the emergency generator that serves the Premises in common with other tenants in the Building (the "Shared Generator") and the right to use, as appurtenant to the Premises, the shared pH neutralization system (the "pH System"). Tenant's right to use of the Shared Generator and the pH System is non-exclusive. Tenant shall pay to Landlord, as additional rent, its pro rata share of the maintenance, repair, replacement and operating costs for the Shared Generator and pH System as billed by Landlord in common with other tenants having shared use of the Shared Generator and/or pH System. As of the Commencement Date, Tenant's pro-rata share of the operating costs for the Shared Generator and pH Systems is 51%.

(c) Reservations. In addition to other rights reserved herein or by law, Landlord reserves the right from time to time, provided that Landlord shall use commercially reasonable efforts to avoid unreasonable (except in emergency) interference with Tenant's use of the Premises: (i) to make additions to or reconstructions of the Building and to install, use, maintain, repair, replace and relocate for service to the Premises and other parts of the Building, or either, pipes, ducts, conduits, wires and appurtenant fixtures, wherever located in the Premises, the Building, or elsewhere in the Property; (ii) to alter, eliminate or relocate any other common area or facility, including the drives, lobbies and entrances; and (iii) to grant easements and other rights with respect to the Property. Installations, replacements and relocations within the Premises referred to in clause (i) shall be located as far as practicable in the core areas of the Building, above ceiling surfaces, below floor surfaces or within perimeter walls of the Premises. The Building may be subdivided or combined into separate or unified lots, submitted to or removed from a condominium regime or divided or combined into separate leasehold lots by ground leases to facilitate financing, ownership or operation of all or portions of the Property and Building, provided that Tenant's rights and obligations under this Lease shall not be affected in any material respect and shall not result in any additional costs to Tenant. Tenant agrees to enter into any instruments reasonably requested by Landlord in connection with the foregoing, so long as the same are not inconsistent with the rights of Tenant under this Lease and are otherwise reasonably acceptable to Tenant.

(d) Parking.

(i) Commencing on the Term Commencement Date, Tenant shall have the appurtenant right to use up to 13 unreserved parking spaces for standard size automobiles and small utility vehicles (2.4 per each 1,000 rentable square feet of the Premises). The parking spaces shall be used by Tenant and Tenant's employees and business invitees and may be located on the Property and/or within the Building, and the location of said parking spaces, and the layout and location of the parking facilities, are subject to change from time to time. Tenant's right to use such parking spaces shall be non-exclusive.

(ii) None of Tenant's parking rights hereunder shall be assigned or sublicensed except in connection with a Transfer permitted under Article 13. Landlord shall have the right to make such parking available pursuant to a pass system or on any other reasonable basis determined by Landlord, and such parking rights shall be subject to Landlord's reasonable rules and regulations of which Tenant is provided written notice, from time to time, and the right of Landlord to limit the number of parking spaces available to Tenant, its employees and invitees, where the use of the same exceeds the above-stated ratio. Tenant acknowledges that Landlord has informed Tenant that Landlord intends to allocate in its tenant leases more than the actual parking spaces servicing the Property. It is further acknowledged and agreed that as a consequence of such over-allocation of parking spaces, there may occasionally occur instances in which the number of parking spaces actually available to Tenant shall be less than the Parking Spaces to which Tenant is entitled under this Lease. Landlord shall incur no liability to Tenant as a consequence of such over-allocation of parking spaces. Landlord shall have the right to alter the parking areas or their operation from time to time, and to temporarily close portions thereof for maintenance as necessary. Tenant's parking privileges constitute a license only, and no bailment is intended or shall be created. Neither Landlord nor any parking operator of the parking areas will have any responsibility for loss or damage due to fire or theft or otherwise to any automobile parked in the parking areas or to any personal property therein.

2.02 Roof License.

(a) Tenant shall have the non-exclusive license, at no additional cost, to install, operate and maintain, all in good order and repair, an antenna or dish ("Antenna") and supplemental HVAC unit ("Tenant's HVAC Unit") on a portion or portions of the roof of the Building ("Roof') in compliance with all of the terms and conditions of this Lease, including, but not limited to, Section 10.05 and Exhibit C. Tenant acknowledges and agrees that the right granted to Tenant hereunder is a non-exclusive license and is not a lease or an appurtenant right to the Premises and, further, that Tenant's liabilities and obligations under this Lease are not contingent or conditioned upon its ability to use the Antenna and Tenant shall continue to be obligated to perform all of its obligations under the Lease if Tenant is unable to use the Antenna. Tenant shall only use the Antenna to transmit and receive data transmissions for Tenant's use in the Premises. No person or entity other than Tenant (or a Permitted Transferee, subtenant, successor or assign) shall have the right to use or receive transmissions from the Antenna.

(b) The Antenna and Tenant's HVAC Unit shall be installed at a location or locations on the Roof selected by Landlord, in its sole but reasonable discretion, and Landlord shall have the right, to be exercised in good faith, to require Tenant to relocate the Antenna, but not Tenant's HVAC Unit, from time to time, at Tenant's sole cost and expense; provided, however, Landlord shall not require Tenant to so relocate its Antenna at Tenant's cost for purposes benefiting a third party, including another Building Tenant or occupant. Landlord makes no representation or warranty to Tenant that the Roof will be satisfactory to Tenant or will permit Tenant to receive the transmissions it desires to receive. Prior to installing, removing or replacing either the Antenna or Tenant's HVAC Unit, Tenant shall submit to Landlord plans and specifications for the installation of the Antenna and/or Tenant's HVAC Unit, as the case may be, prepared by a licensed engineer reasonably satisfactory to Landlord (the "Plans"). The Plans shall be reasonably satisfactory to Landlord, and shall show the location of the installations of the Antenna and/or Tenant's HVAC Unit and all related equipment and components on the Roof, the location and type of all piping, conduit, wiring, cabling, the manner in which the Antenna and/or Tenant's HVAC Unit will be placed on and fastened to the Roof, number, type, size and sealing of any Roof penetrations, and any other information requested by Landlord, in Landlord's good faith discretion. Landlord shall have the right to require that the Antenna and/or Tenant's HVAC Unit not be visible from any location on the ground and/or that the all such equipment be screened in a manner satisfactory to Landlord, in Landlord's good faith discretion. Landlord shall have the right to employ an engineer or other consultant to review the Plans and the reasonable, actual cost of such engineer or consultant shall be paid by Tenant to Landlord within thirty (30) days after request therefor. After Landlord has approved the Plans and prior to installing the Antenna and/or Tenant's HVAC Unit and any related equipment, wiring, conduit, piping, or cabling, Tenant shall obtain and provide to Landlord: (a) all required governmental and quasi-governmental permits, licenses, special zoning variances and authorizations, as required by applicable Laws and Restrictions, all of which Tenant shall obtain at its own cost and expense; and (b) a policy or certificate of insurance evidencing such insurance coverage as may be reasonably required by Landlord. Any alteration or modification of the Antenna and/or Tenant's HVAC Unit or any associated piping, conduit, wiring, cabling, equipment after the Plans have been approved shall require Landlord's prior written approval, which may be given or withheld in Landlord's good faith discretion.

(c) Installation and maintenance of the Antenna, Tenant's HVAC Unit or any associated piping, conduit, wiring, cabling, equipment shall be performed solely by contractors approved by Landlord, in its reasonable discretion. Landlord's may require Tenant to use a roofing contractor selected by Landlord to perform any work that could damage, penetrate or alter the Roof and an electrician selected by Landlord to install any associated piping, conduit, wiring, cabling, equipment on the Roof or in the Building. Landlord may require anyone going on the Roof to execute in advance a liability waiver satisfactory to Landlord. Tenant shall bear all costs and expenses incurred in connection with the installation, operation and maintenance of the Antenna and Tenant's HVAC Unit.

(d) Tenant acknowledges that Landlord may decide, in its good faith discretion, from time to time, to repair or replace the Roof (hereinafter "Roof Repairs"). If Landlord elects to make Roof Repairs, Tenant shall, upon Landlord's request, temporarily remove the Antenna so that the Roof Repairs may be completed. The cost of removing and reinstalling the Antenna shall be paid by Tenant, at Tenant's sole cost and expense. Landlord shall not be liable to Tenant for any damages, lost profits or other costs or expenses incurred by Tenant as the result of the Roof Repairs.

(e) On the termination or expiration of the Lease, Tenant shall remove the Antenna and all associated conduit, wiring, cabling, equipment and repair any damages caused thereby, at Tenant's sole cost and expense. If Tenant does not remove the Antenna on or before the date this Lease terminates or expires, Tenant hereby authorizes Landlord to remove and dispose of the Antenna and associated conduit, wiring, cabling, equipment, and Tenant shall promptly reimburse Landlord for the costs and expenses it incurs in removing and disposing of same and repairing any damages caused thereby. Tenant agrees that Landlord may dispose of the Antenna and any associated conduit, wiring, cabling, equipment in any manner selected by Landlord.

(f) Tenant's license to operate and maintain the Antenna and Tenant's HVAC Unit shall automatically expire and terminate on the date that the term of the Lease expires or is otherwise terminated. This license to operate and maintain the Antenna shall also terminate if any of the following continue for more than three (3) days after written notice from Landlord to Tenant: (a) the Antenna is causing physical damage to the Building or the Roof, (b) the Antenna is interfering with the normal or customary transmission or receipt of transmission or receipt of signals from or to the Building, (c) the Antenna is causing Landlord to be in violation of any agreement to which Landlord is a party or (d) the Antenna is causing Landlord to be in violation any local, state or federal law, regulation or ordinance.

(g) Tenant represents and warrants to Landlord that neither the Antenna nor Tenant's HVAC Unit will cause interference with (i) any existing communications equipment installed on the Building, or (ii) with the ability of office tenants/occupants of the Building or Project to receive or transmit radio, television, telephone, microwave, short-wave, long-wave or other signals of any sort presently or hereafter installed, or (iii) with any equipment, installation, wires, cabling or machinery (electronic or otherwise) at the Building or Project. Should any such interference occur, Landlord shall provide Tenant with notice of such interference and Tenant shall promptly make all necessary repairs and adjustments, at Tenant's expense, to insure cessation of interference to Landlord's reasonable satisfaction and any costs and expenses incurred by Landlord in connection therewith shall be paid to Landlord within thirty (30) days after Tenant's receipt of Landlord's invoice. If interference cannot be eliminated within forty eight (48) hours after receipt of notice from Landlord to Tenant, Tenant shall temporarily disconnect the electric power and shut down the interfering equipment, except for intermittent operation for the purpose of testing correction of such interference. In the event Tenant does not shut down such equipment as aforesaid, Landlord may do so without liability to Tenant.

ARTICLE 3: LEASE TERM

3.01 Lease Term. Subject to the terms and conditions of this Lease, the Initial Term of this Lease is set forth in Article 1, unless sooner terminated as provided herein. Landlord and Tenant agree to execute a Term Commencement Date Agreement substantially in the form attached hereto as Exhibit H, or as otherwise reasonably requested by Landlord confirming the actual Term Commencement Date and expiration date of the Term, once same are determined.

3.02 Hold Over. If Tenant (or anyone claiming through Tenant) shall remain in occupancy of the Premises or any part thereof after the expiration or early termination of the Term without a written agreement therefor executed and delivered by Landlord, then without limiting Landlord's other rights and remedies the person remaining in possession shall be deemed a tenant at sufferance, and Tenant shall thereafter pay monthly rent (pro rated for such portion of any partial month as Tenant shall remain in possession) at a rate equal to the greater of (a) one and one-quarter times the market rent then being quoted by Landlord for the Premises or reasonably comparable space in the Building, or (b) 1.75 times the amount payable as Base Rent for the twelve (12) month period immediately preceding such expiration or termination, and in either case with all Additional Rent also payable as provided in this Lease. After Landlord's acceptance of the full amount of such rent for the first month of such holding over, the person remaining in possession shall be deemed a tenant at will at such rent and otherwise subject to all of the provisions of this Lease. Notwithstanding the foregoing, if Landlord desires to regain possession of the Premises promptly after the termination or expiration hereof and prior to acceptance of rent for any period thereafter, Landlord may, at its option, forthwith re-enter and take possession of the Premises or any part thereof without process or by any legal process in force in the state where the Property is located. In any case, Tenant shall be liable to Landlord for all damages resulting from any failure by Tenant to vacate the Premises or any portion thereof when required hereunder.

3.03 Right to Extend.

(a) Extension Term. The Term of this Lease of all of the Premises may be extended for the Extension Term by unconditional written notice from Tenant to Landlord at least twelve (12) (but not more than fifteen (15)) months before the end of the Initial Term, time being of the essence. If Tenant does not timely exercise this option, or if on the date of such notice or at the beginning of the Extension Term (i) an Event of Default by Tenant exists, or (ii) Tenant is not leasing sixty percent (60%) or more of the Premises, or (iii) Tenant has made any Transfer under Article 13 (other than a Related Party Transfer), at Landlord's option upon written notice to Tenant, Tenant's right to extend the Term of this Lease shall irrevocably lapse and be void and of no further force and effect, Tenant shall have no further right to extend, and this Lease shall expire at the end of the Initial Term. If Tenant fails to timely exercise its rights hereunder, then within seven (7) days of Landlord's request therefor, Tenant shall execute and deliver to Landlord a certification, in recordable form, confirming the Tenant's failure to exercise (or waiver of) such right, and Tenant's failure to so execute and deliver such certification shall (without limiting Landlord's remedies on account thereof) entitle Landlord to execute and deliver to any third party, and record, an affidavit confirming the failure or waiver, which affidavit shall be binding on Tenant and may be conclusively relied on by third parties. All references to the Term shall mean the Initial Term as it may be extended by the Extension Term. The Extension Term shall be on all the same terms and conditions except that the Base Rent for the Extension Term shall be as set forth below.

(b) Extension Term Base Rent. Base Rent for each year of the Extension Term shall be established as the higher of (x) one hundred percent (100%) of the Market Rent (as defined in Section 3.03(c)) or (y) the Base Rent last in effect for the last Lease Year prior to the Extension Term. If Tenant gives Landlord timely notice of its exercise of the Extension Term option, then Landlord shall give Tenant written notice of Landlord's determination of Market Rent for the

Premises for the Extension Term no later than three (3) months prior to the expiration of the Initial Term. Within ten (10) days after Tenant receives such notice, Tenant shall notify Landlord of its agreement with or objection to Landlord's determination of the Market Rent, whereupon in the case of Tenant's objection, Market Rent shall be determined by arbitration conducted in the manner set forth below. If Tenant does not notify Landlord within such ten (10) day period of Tenant's agreement with or objection to Landlord's determination of the Market Rent, then the Market Rent for the Extension Term shall be conclusively deemed to be Landlord's determination of the Market Rent as set forth in Landlord's notice to Tenant.

(c) Arbitration of Market Rent. If Tenant timely notifies Landlord of Tenant's objection to Landlord's determination of Market Rent under the preceding subsection with respect to the Extension Term, such notice shall also set forth a request for arbitration and Tenant's appointment of a commercial real estate appraiser (an "Arbitrator"). Within five (5) business days thereafter, Landlord shall by notice to Tenant appoint a second Arbitrator. Each Arbitrator shall determine the Market Rent for the Extension Term within thirty (30) days after Landlord's appointment of the second Arbitrator. On or before the expiration of such thirty (30) day period, the two Arbitrators shall confer to compare their respective determinations of the Market Rent. If the difference between the amounts so determined by the two (2) Arbitrators is less than or equal to ten percent (10%) of the lower of said amounts then the final determination of the Market Rent shall be equal to the arithmetical average of said amounts. If such difference between said amounts is greater than ten percent (10%), then the two arbitrators shall within ten (10) days thereafter to appoint a similarly qualified third Arbitrator ("Third Arbitrator"), who shall determine the Market Rent for the Extension Term within ten (10) days after his or her appointment by selecting one or the other of the amounts determined by the other two (2) Arbitrators. Each party shall bear the cost of the Arbitrator selected by such party. The cost for the Third Arbitrator, if any, shall be shared equally by Landlord and Tenant. All Arbitrators appointed hereunder shall be licensed real estate brokers with at least ten (10) years' experience in the leasing of office/laboratory space in buildings similar in character and location to the Premises. The foregoing determination shall be conclusive, final and binding on the parties and enforceable in any court having jurisdiction over the parties.

(d) "Market Rent" shall be the fair market rent that willing parties would pay and receive as the Base Rent to lease similar space in the Building and similar space in similar buildings in the same geographic area, during the Extension Term and under the applicable terms and conditions of this Lease (and other relevant market factors).

(e) Rent Continuation. For any part of the Extension Term during which the Base Rent is in dispute or has otherwise not finally been determined, Tenant shall make payment on account of Base Rent at the Market Rent estimated by Landlord, and the parties shall adjust for any overpayments or underpayments upon the final determination of Base Rent. The failure by the parties to complete the process contemplated under this Section prior to commencement of the Extension Term shall not affect the continuation of the Term or the parties' obligation to make any adjustments for any overpayments or underpayments for the Base Rent due for the Extension Term promptly after the determination thereof is made.

ARTICLE 4: RENT

4.01 Base Rent. On the Rent Commencement Date and thereafter on the first day of each month during the Term, Tenant shall pay Landlord the monthly installment of Base Rent and commencing on the Term Commencement Date the monthly installments of Tenant's Pro Rata Share of Total Operating Costs and Tenant's Pro Rata Share of Taxes required by Section 4.02, in each case in advance. Rent shall be payable at Landlord's address or otherwise as Landlord may designate in writing from time to time.

4.02 Additional Rent.

(a) General. "Rent" means Base Rent and Additional Rent. Landlord shall estimate in advance (i) all Taxes under Article 5, (ii) all utility costs (unless separately metered to or separately contracted for by Tenant) under Article 6, (iii) all insurance premiums to be paid by Landlord under Article 7 and (iv) all Operating Expenses under Section 8.04 (individually, all such items in clauses (i) through (iv) being "Operating Costs" and collectively, being "Total Operating Costs") and Tenant shall pay one-twelfth (1/12th) of Tenant's Pro Rata Share of such estimated Total Operating Costs monthly in advance together with Base Rent but commencing on the Term Commencement Date. Landlord may adjust its estimates of Total Operating Costs at any time based upon its experience and reasonable anticipation of costs. Such adjustments shall be effective as of the next Rent payment date after notice to Tenant. Within one hundred twenty (120) days after the end of each fiscal year of the Property during the Term, Landlord shall endeavor to give to Tenant a reasonably detailed statement of the Total Operating Costs paid or incurred by Landlord during the preceding fiscal year and Tenant's Pro Rata Share of such expenses. Within the next thirty (30) days, Tenant shall pay Landlord any underpayment, or Landlord shall credit Tenant with any overpayment, of Tenant's Pro Rata Share of such Total Operating Costs. If the Term expires or the Lease is terminated as of a date other than the last day of a fiscal year, Tenant's payment of Additional Rent pursuant to this Section for such partial fiscal year shall be based on Landlord's reasonable estimate of the items otherwise includable in Total Operating Costs and shall be made on or before the later of (x) ten (10) days after Landlord delivers such estimate to Tenant or (y) the last day of the Term, with an appropriate payment or refund to be made upon Tenant's receipt of Landlord's statement of Total Operating Costs for such fiscal year. This Section shall survive the expiration or earlier termination of the Term.

(b) Allocation of Certain Operating Costs; Gross Up. If at any time during the Term Landlord provides services only with respect to particular portions of the Building that include the Premises or incurs other Operating Costs allocable to particular portions of the Building that include the Premises alone, then such Operating Costs shall be charged entirely to those tenants, including Tenant, if applicable, of such portions, notwithstanding the provisions hereof referring to Tenant's Pro Rata Share. If, during any period for which Landlord's Operating Costs are being computed, less than all of the Building is occupied by tenants, or if Landlord is not supplying all tenants with the services being supplied hereunder, Operating Costs shall be reasonably estimated and extrapolated by Landlord to determine the Operating Costs that would have been incurred if the Building were fully occupied for such year and such services were being supplied to all tenants, and such estimated and extrapolated amount shall be deemed to be the Operating Costs for such period. Landlord shall make a reasonable allocation of any Operating Costs incurred jointly for the Property and any other property.

(c) This Lease requires Tenant to pay directly to suppliers, vendors, carriers, contractors, etc., certain insurance premiums, utility costs, personal property taxes, maintenance and repair costs and other expenses. If Landlord pays any of these amounts in accordance with this Lease, Tenant shall reimburse such costs in full with the next monthly Rent payment. Unless this Lease provides otherwise, Tenant shall pay all Additional Rent then due on or before the date for the next monthly Rent payment.

(d) Audit Right. Provided there is no Event of Default, Tenant shall have the right to cause Landlord's determination of Tenant's Pro Rata Share of Total Operating Costs to be audited by an auditor reasonably acceptable to Landlord, one time with respect to any Fiscal Year, provided notice of Tenant's desire to so audit is given to Landlord no later than forty-five (45) days after Tenant receives an annual statement from Landlord and provided that such review is thereafter commenced and prosecuted by Tenant with due diligence. Any Operating Costs statement or accounting by Landlord shall be binding and conclusive upon Tenant unless (i) Tenant duly requests such review within such 45-day period, and (ii) within 3 months after such review request, Tenant shall notify Landlord in writing that Tenant disputes the correctness of such statement, specifying the particular respects in which the statement is claimed to be incorrect. The auditor conducting the review shall be compensated on an hourly basis and shall not be compensated based upon percentage of overcharges it discovers. No subtenant shall have any right to conduct a review, and no assignee shall conduct a review for any period during which such assignee was not in possession of the Premises. Tenant agrees that all information obtained from any such Operating Costs review, including without limitation, the results of any Operating Costs review shall be kept strictly confidential by Tenant and shall not be disclosed to any other person or entity. If as a result of such audit it is mutually agreed, or if it is ultimately determined, that Landlord's determination of the foregoing is (i) overstated, or (ii) understated, then in the case of (i) Landlord shall credit the difference against monthly installments of Rent next thereafter coming due (or refund he difference if the Term has ended and Tenant has no further obligation to Landlord), or in the case of (ii) Tenant shall pay to Landlord the amount of such excess. The cost of such audit shall be paid by Tenant unless the final result of such audit shall indicate an overstatement of more than 10%, in which case the cost of such audit shall be paid for by Landlord up to a maximum amount of $3,000.

4.03 Late Charge. Tenant acknowledges that if it pays Rent late, Landlord shall incur unanticipated costs, which shall be extremely difficult to ascertain exactly. Such costs include processing and accounting charges, and late charges that may be imposed on Landlord by any mortgage on the Property. Accordingly, if Landlord does not receive any Rent payment within five (5) days following its due date, Tenant shall pay Landlord a late charge equal to ten percent (10%) of the overdue amount; provided that no such late fee shall be due with respect to the first late payment in any calendar year if Tenant makes payment within one business day following notice (which need not be written). The parties agree that this late charge represents a fair and reasonable estimate of the costs Landlord shall incur by reason of Tenant's payment default. Payment of the late charge shall not cure Tenant's payment default or prevent Landlord from exercising other rights and remedies.

4.04 Interest. Any late Rent shall bear interest from the date due until paid at the rate equal to the Prime Rate plus four percent (4%) per annum except to the extent such interest would cause the total interest to be in excess of that legally permitted. The "Prime Rate" shall mean the prime lending rate per annum published in the Wall Street Journal from time to time. Payment of interest shall not cure Tenant's payment default or prevent Landlord from exercising other rights and remedies.

4.05 Method of Payment. Tenant shall pay the Base Rent to Landlord in advance in equal monthly installments by the first of each calendar month during the Term commencing on the Rent Commencement Date. Tenant shall make a pro rata payment of Base Rent and Additional Rent for any period of less than a month at the beginning or end of the Term. All payments of Base Rent, Additional Rent and other sums due shall be paid in current U.S. exchange by check drawn on a clearinghouse bank at the Original Address of Landlord or such other place as Landlord may from time to time direct (or if requested by Landlord in the case of Base Rent, by electronic fund transfer), without demand, set-off or other deduction. Without limiting the foregoing, Tenant's obligation to pay Rent shall be absolute, unconditional, and independent and shall not be discharged or otherwise affected by any law or regulation now or hereafter applicable to the Premises, or any other restriction on Tenant's use, or, except as expressly provided in herein, any casualty or taking, or any failure by Landlord to perform or other occurrence; and Tenant assumes the risk of the foregoing and waives all rights now or hereafter existing to quit or surrender this Lease or the Premises or any part thereof. It is intended that Base Rent payable hereunder shall be a net return to Landlord throughout the Term, free of expense, charge, offset, diminution or other deduction whatsoever on account of the Premises (excepting Landlord's financing expenses, federal and state income taxes of general application, and those expenses that this Lease expressly makes the responsibility of Landlord), and all provisions hereof shall be construed in terms of such intent.

4.06 Tenant's Pro Rata Share.

(a) For the purposes of this Lease, Tenant's Pro Rata Share of Taxes is equal to the product of the rentable square footage of the Premises multiplied by Landlord's PSF Taxes (hereafter defined) for each fiscal year, or ratable portion thereof, included in the Term. "Landlord's PSF Taxes" shall mean the Taxes (as defined in Section 5.02) divided by the rentable square footage of the Building, as same may be adjusted by Landlord from time to time for a remeasurement of or changes in the physical size of the Premises, the Building and/or the Project (as defined below), whether such changes in size are due to an addition to or a sale or conveyance of a portion of the Building, the Project or otherwise.

(b) Tenant's Pro Rata Share of Operating Expenses (as defined in Section 8.01), utilities and insurance is equal to the product of the rentable square footage of the Premises multiplied by Landlord's PSF Operating Expenses (hereafter defined) for each calendar year, or ratable portion thereof, included in the Term. "Landlord's PSF Operating Expenses" shall mean Operating Expenses (as defined in Section 8.01), utilities and insurance costs divided by the rentable square footage of the Building or the portion thereof with respect to which such Operating Expenses, utilities and insurance costs are determined.

(c) Tenant's Pro Rata Share shall be the percentage set forth in Article 1, which percentage has been determined by dividing the total number of rentable square feet in the Premises by the total number of rentable square feet in the Building, and multiplying the resulting quotient by one hundred (100). As of the date hereof, the rentable floor area of the Premises is as set forth in Article 1 and the Building is conclusively deemed to be 187,507 rentable square feet. Once the premises are demised and Building E is completed, the rentable square footage of the Building will be adjusted for changes in the physical size of the Premises, the Building and/or the Project (as defined below). Thereafter, the rentable floor area may be further adjusted by Landlord from time to time for a remeasurement of or changes in the physical size of the Premises, the Building and/or the Project, whether such changes in size are due to an addition to or a sale or conveyance of a portion of the Building, the Project or otherwise. Without limiting the generality of the foregoing, Landlord may equitably adjust Tenant's Pro Rata Share upon Tenant's use of the Utility Services as reasonably estimated and equitably determined by Landlord based upon factors such as the intensity of use of such Utility Services by Tenant such that Tenant shall pay the portion of such charges reasonably consistent with Tenant's use thereof.

ARTICLE 5: TAXES

5.01 Taxes. Tenant covenants and agrees to pay to Landlord as Additional Rent Tenant's Pro Rata Share of the Taxes for each fiscal tax period, or ratable portion thereof, included in the Lease Term. If Landlord receives a refund of any such Taxes, Landlord shall pay Tenant Tenant's Pro Rata Share of the refund after deducting Landlord's costs and expenses incurred in obtaining the refund. Tenant shall make estimated payments on account of Taxes in monthly installments on the first day of each month, in amounts reasonably estimated from time to time by Landlord pursuant to Section 4.02(a).

5.02 Definition of "Taxes." "Taxes" means all taxes, assessments, betterments, excises, user fees and all other governmental charges and fees of any kind or nature, or impositions or agreed payments in lieu thereof or voluntary payments made in connection with the provision of governmental services or improvements of benefit to the Building or the Property (including any so-called linkage, impact, or voluntary betterment payments), and all penalties and interest thereon (if due to Tenant's failure to make timely payments), assessed or imposed against the Premises or the property of which the Premises are a part (including, without limitation, any personal property taxes levied on such property or on fixtures or equipment used in connection therewith), other than a federal or state income tax of general application, franchise, estate, conveyance or transfer taxes. If during the Term the present system of ad valorem taxation of property shall be changed so that, in lieu of or in addition to the whole or any part of such ad valorem tax there shall be assessed, levied or imposed on such property or Premises or on Landlord any kind or nature of federal, state, county, municipal or other governmental capital levy, income, sales, franchise, excise or similar tax, assessment, levy, charge or fee (as distinct from the federal and state income tax in effect on the Date of Lease) measured by or based in whole or in part upon Building valuation, mortgage valuation, rents, services or any other incidents, benefits or measures of real property or real property operations, then any and all of such taxes, assessments, levies, charges and fees shall be included within the term of Taxes. Taxes shall also include expenses, including fees of attorneys, appraisers and other consultants, incurred in connection with any efforts to obtain abatements or reduction or to assure maintenance of Taxes for any year wholly or partially included in the Term, whether or not successful and whether or not such efforts involved filing of actual abatement applications or initiation of formal proceedings.

5.03 Personal Property Taxes. Tenant shall pay directly all taxes charged against Tenant Property (as defined in Section 10.06). Tenant shall use its best efforts to have personal property taxed separately from the Property. Landlord shall notify Tenant if any of Tenant's personal property is taxed with the Property, and Tenant shall pay such taxes to Landlord within fifteen (15) days of such notice.

ARTICLE 6: UTILITIES AND LANDLORD SERVICES

6.01 Utility Services. Commencing on the Term Commencement Date, Tenant shall provide and pay all charges and deposits for gas, water, sewer, electricity, and other energy, utilities and services used or consumed on the Premises ("Utility Services") during the Term which now or hereafter separately serve the Premises, or are not expressly to be provided by Landlord elsewhere hereunder. If such Utility Services are submetered or checkmetered to measure Tenant's actual consumption at the Premises, Tenant will reimburse Landlord for the cost of such consumption as measured thereby and as billed by Landlord. If such Utility Services are not separately metered, Tenant shall pay the cost of the same as part of the Operating Costs payable hereunder or, based upon Tenant's pro rata share of its usage of the system generating the Utility Services as billed by Landlord in common with other tenants having shared use of such system. It is understood and agreed that except as may be expressly provided hereunder, Landlord shall be under no obligation whatsoever to furnish any such services to the Premises, and shall not be liable for (nor suffer any reduction in any rent on account of) any interruption or failure in the supply of the same. If the Premises are not separately metered, Landlord reserves the right, at any time during the Term, to install a monitor or check meter to measure Tenant's consumption of any Utility Services, in which event Landlord shall calculate the applicable Utility Services based on Tenant's actual usage thereof, rather than as otherwise provided herein. To the extent permitted by law, Landlord shall have the right at any time and from time to time during the Term to contract for or purchase one or more Utility Services from any company or third-party providing Utility Services ("Utility Service Provider"). Tenant agrees reasonably to cooperate with Landlord and the Utility Service Providers and at all times as reasonably necessary, and on reasonable advance notice, shall allow Landlord and the Utility Service Providers reasonable access to any utility lines, equipment, feeders, risers, fixtures, wiring and any other such machinery or personal property within the Premises and associated with the delivery of Utility Services.

6.02 Landlord Services. Landlord agrees to furnish reasonable heat and air conditioning (HVAC) to the Premises and to common lobbies, hallways and lavatories, if any, during normal business hours on regular business days during the heating or air conditioning season, as applicable, to light common lobbies, passageways twenty-four (24) hours a day, to provide hot water to common lavatories, and to clean common areas, common area glass, common lavatories and glass main entry doorways to the Premises Mondays through Fridays, in substantially the same fashion as is typical for comparable first class office and laboratory projects in the Lexington area, subject to interruption due to accident, to the making of repairs, alterations or improvements, to labor difficulties, to trouble in obtaining fuel, electricity, service

or supplies from the sources from which they are usually obtained for such Building, governmental restraints, or to any cause beyond the Landlord's control. In no event shall Landlord be liable for any interruption or delay in any of the above services for any of such causes. For the purposes of this clause, reasonable heating of the Premises and the common areas shall be provided between the hours of 8:00 a.m. to 6:00 p.m. Monday through Friday and 8:00 a.m. to 1:00 p.m. on Saturday during the months from November through April (holidays excepted). Reasonable cooling of the Premises and the common areas shall be provided between the hours of 8:00 a.m. and 6:00 p.m. Monday through Friday and 8:00 a.m. to 12:00 p.m. on Saturday during the cooling season (holidays excepted). If Tenant requests Landlord to provide additional heat or air conditioning outside of such hours, Tenant shall pay therefor (within fifteen (15) days after billing) at reasonable rates established by Landlord from time to time. If such additional requested heat or air conditioning is furnished to other portions of the Building in addition to the Premises, the cost of the same shall be allocated among all portion of the Building requesting such additional service.

Notwithstanding the foregoing, Tenant shall be entitled to a proportionate abatement of Yearly Rent in the event of a Landlord Service Interruption (as defined below). For the purposes hereof, a "Landlord Service Interruption" shall occur in the event (i) the Premises shall lack any service which Landlord is required to provide hereunder thereby rendering the Premises untenantable for the entirety of the Landlord Service Interruption Cure Period (as defined below), (ii) such lack of service was not caused by Tenant, its employees, contractors, invitees or agents; (iii) Tenant in fact ceases to use the entire Premises for the entirety of the Landlord Service Interruption Cure Period; and (iii) such interruption of service was the result of causes, events or circumstances within the Landlord's reasonable control and the cure of such interruption is within Landlord's reasonable control. For the purposes hereof, the "Landlord Service Interruption Cure Period" shall be defined as fifteen (15) consecutive calendar days after Landlord's receipt of written notice from Tenant of the Landlord Service Interruption

6.03 Excess Usage by Tenant. Tenant shall not introduce to the Premises personnel, fixtures or equipment which (individually or in the aggregate) exceed those used by the average Building tenant or overload the capacity of the electrical, heating, ventilating and air conditioning, mechanical, plumbing or other utility systems serving the Premises or generate above average heat, noise or vibration at the Premises. If Tenant uses the Premises or installs fixtures or equipment in such a manner as would so overload said systems, as reasonably determined by Landlord, then, in addition to any other remedies Landlord may have, Tenant shall pay, as additional rent, within ten (10) days of billing therefor, the cost of providing and installing any additional equipment, facilities or services that may be required as a result thereof, and for any repairs or damage resulting therefrom.

ARTICLE 7: INSURANCE

7.01 Coverages. Tenant shall, at its own expense, maintain and keep in force, or cause to be maintained and kept in force by any general contractors, sub-contractors or third party entities where required by contract, throughout the term of this Lease and/or alteration or construction period and for such longer period, if any, Tenant remains in occupancy of the Premises, the following insurance coverages:

(a) Property Insurance. “All-Risk” or “Special” Form property insurance, and/or Builders Risk coverage for renovation projects, including, without limitation, coverage for fire, earthquake and flood; boiler and machinery (if applicable); sprinkler damage; vandalism; malicious mischief coverage on all equipment, furniture, fixtures, fittings, Tenant Work, Tenant Property or other improvements and betterments, business income, extra expense, merchandise, inventory/stock, contents, and personal property located on or in the Premises. Such insurance shall be in an amount equal to the full replacement cost of the aggregate of the foregoing and shall provide coverage comparable to the coverage in the standard ISO “All-Risk” or “Special” Form, when such coverage is supplemented with the coverages required above. Property policy shall also include coverage for plate glass, where required by written contract.

(b) Liability Insurance. Commercial General Liability insurance against any and all claims for personal injury, death or property damage occurring in, or about the Premises and arising out of Tenant’s operations on the Premises, or Tenant’s agents’, invitees’, sublessees’ use or occupancy of the Premises. Such insurance shall have a limit of not less than One Million Dollars ($1,000,000) per occurrence with a Two Million Dollar ($2,000,000) aggregate limit. Such insurance shall contain an extended (broad form) liability endorsement, including contractual liability coverage (including this Lease, and Tenant’s indemnity obligations hereunder). Such liability insurance shall be primary and not contributing to any insurance available to Landlord, and Landlord’s insurance (if any) shall be in excess thereto. Tenant’s commercial general liability insurance policy shall include Landlord, Landlord’s Management Agent, Landlord’s mortgagees and Landlord’s designees as additional insureds, and shall provide that such parties may, although additional insureds, recover for any loss suffered by Tenant’s negligence.

(c) Umbrella / Excess Liability Insurance. The foregoing liability limits shall be adequate as long as Tenant maintains an Umbrella policy limit of not less than Three Million Dollars ($3,000,000) per occurrence. Should Tenant not maintain an Umbrella policy with such limits, then the limits of the underlying Commercial General Liability policy shall be increased to Two Million Dollars ($2,000,000) per occurrence and Four Million Dollars ($4,000,000) aggregate.

(d) Other. Such other insurance as Landlord may reasonably require, from time to time, provided such other insurance is routinely required by reasonably prudent landlords of similar properties, and as may be required by law, including, without limitation (i) workers’ compensation insurance with a limit of liability as required by law to be maintained; (ii) employer’s liability insurance with a minimum limit of coverage of Two Million Dollars ($2,000,000); and (iii) business interruption and extra expense insurance coverage(s) satisfactory to Landlord.

(e) Form of the Policies. Tenant shall have the right to provide insurance coverage which it is obligated to carry pursuant to the terms hereof in a blanket policy, provided such policy expressly affords coverage to the Premises and to Landlord as required by this Lease.

(f) Failure by Tenant to Obtain Insurance. If Tenant does not procure the insurance required pursuant to this Section, or keep the same in full force and effect, Landlord may, but shall not be obligated to, take out the necessary insurance and pay the premium therefor after notice thereof to Tenant, and Tenant shall repay to Landlord, as additional rent, the amount so paid promptly upon demand. In addition, Landlord may recover from Tenant, as additional rent, any and all reasonable expenses (including attorneys' fees) and damages which Landlord may sustain by reason of the failure by Tenant to obtain and maintain such insurance, it being expressly declared that the expenses and damages of Landlord shall not be limited to the amount of the premiums thereon.

(g) Contractor Insurance. Tenant shall cause all contractors and subcontractors to maintain during any period of Tenant Work the insurance described on Exhibit D attached hereto.

(h) Deductibles. Tenant's insurance policies shall not include deductibles in excess of Five Thousand Dollars ($5,000) without Landlord's prior written consent. If any of the above insurances have deductibles or self-insured retentions, the Tenant and/or contractor (policy Named Insured) shall be responsible for the deductible amount.

(i) General Requirements. All of the insurance policies required in this Section ("Insurance Requirements") shall be written by insurance companies which are licensed to do business in the state where the Property is located, or obtained through a duly authorized surplus lines insurance agent or otherwise in conformity with the laws of such state, with an A.M. Best rating of at least "A" and a financial size category of not less than "VII". The liability policy(ies) shall name, as additional insureds, Landlord, Landlord's Management Agent, Landlord's mortgagees and Landlord's designees, and provide thirty (30) days' notice of cancellation, non-renewal of coverage. Tenant shall provide Landlord with certificates of insurance upon request, prior to move-in date, prior to commencement of the Tenant/contractor work, or within thirty (30) days of coverage inception and subsequent renewals or rewrites/replacements of any cancelled/non-renewed policies.

7.02 Avoid Action Increasing Rates. Tenant shall comply with Sections 9.01, 9.02, 9.03 and 9.04 and in addition shall not, directly or indirectly, use the Premises in any way that is prohibited by law or dangerous to people or property or that may jeopardize or increase the cost of any insurance coverage or require additional insurance. Tenant shall cure any breach of this Section within ten (10) days after notice from Landlord (or Tenant's independent knowledge of such breach) by (i) stopping any use that jeopardizes any insurance coverage or increases its cost and (ii) paying the increased cost of insurance. Tenant shall have no further notice or cure right under Article 14 for any such breach. Tenant shall reimburse Landlord for all of Landlord's costs incurred in providing any insurance that is attributable to any special endorsement or increase in premium resulting from the business or operations of Tenant, and any special or extraordinary risks or hazards resulting therefrom, including, without limitation, any risks or hazards associated with the generation, storage and disposal of Environmental Substances.

7.03 Waiver of Subrogation. Landlord and Tenant each waive any and every claim for recovery from the other for any and all loss of or damage to the Property or any part of it, or to any of its contents, which loss or damage is covered by valid and collectible property insurance. Landlord waives any and every such claim against Tenant that would have been covered had the insurance policies required to be maintained by Landlord by this Lease been in force, to the extent that such loss or damage would have been recoverable under such policies.

Tenant waives any and every such claim against Landlord that would have been covered had the insurance policies required to be maintained by Tenant under this Lease been in force, to the extent that such loss or damage would have been recoverable under such policies. This mutual waiver precludes the assignment of any such claim by subrogation (or otherwise) to an insurance company (or any other person), and Landlord and Tenant each agree to give written notice of this waiver to each insurance company that has issued or shall issue any property insurance policy to it, and to have the policy properly endorsed, if necessary, to prevent invalidation of the insurance coverage because of this waiver.

7.04 Landlord's Insurance. Landlord shall purchase and maintain during the Term with insurance companies qualified to do business in the state where the Property is located insurance that may include the following: (i) commercial general liability insurance for incidents occurring in the common areas, with coverage for premises/operations, personal and advertising injury, products/completed operations and contractual liability for bodily injury and property damage per occurrence, together with such other coverages and risks as Landlord shall reasonably decide or a mortgagee may require; (ii) property insurance covering property damage to the Building (including the Initial Tenant Improvements but excluding any Tenant Work), and loss of rental income, for full replacement cost value of the Building with co-insurance waived by inclusion of an agreed amount endorsement; and (iii) such other coverage(s) as may be required by Landlord's mortgagee or otherwise be deemed commercially reasonable by Landlord. As set forth in Section 4.02, the cost thereof shall be borne by Tenant and other tenants.

ARTICLE 8: OPERATING EXPENSES

8.01 Operating Expenses.

(a) "Operating Expenses" shall mean all costs and expenses associated with the ownership, operation, management, maintenance and repair of the Building and Property and of all heating, ventilating, air conditioning, plumbing, electrical, utility and safety systems for the Building. "Common Elements" shall mean all areas in the Building available for the common use of tenants of the Building and not leased or held for the exclusive use of Tenant or other tenants, including, but not limited to, the common café and common parking areas, driveways, sidewalks, access roads, plazas, landscaping and planted areas located in the Building or on the Property. Operating Expenses include, without limitation, the costs and expenses incurred in connection with the following: compliance with Landlord's obligations under Section 10.03; planting and landscaping; snow plowing and removal; utility, water and sewage services; maintenance of signs; supplies, materials and equipment purchased or rented, total wage and salary costs paid to, and all contract payments made on account of, all persons engaged in the operation, maintenance, security, cleaning and repair of the Property and Common Elements, including Social Security, old age and unemployment taxes and so called "fringe benefits"; services generally furnished to tenants of the Building; maintenance, repair and replacement of Building and Common Elements equipment and components; utilities consumed and expenses incurred in the operation, maintenance and repair of the Property and Common Elements; costs incurred under any reciprocal easement agreements benefiting the Property; costs incurred by Landlord to comply with the terms and conditions of any governmental approvals affecting operations of the Property; the amortized portion, properly attributable to the year in question, of

the cost, with interest thereon at a rate reasonably determined by Landlord, of any capital repairs, improvements or replacements made to the Property, by Landlord (i) which are for the primary purpose of reducing Operating Expenses, or (ii) which are required by governmental authority to comply with changes in applicable law taking effect after the execution of this Lease or (iii) which are costs incurred which are not considered annual recurring routine maintenance but maintains (as opposed to improving) the general appearance or condition of the Building (i.e. painting of Common Elements, replacement of carpet in Common Elements); workers' compensation insurance and property, liability and other insurance premiums; personal property taxes; rental or lease payments paid by Landlord for rented or leased personal property used in the operation or maintenance of the Property and Common Elements; fees for required licenses and permits; losses or subsidies paid or incurred by Landlord in operating the common café; routine maintenance and repair of parking areas and paving (including sweeping, striping, repairing, resurfacing, and repaving); refuse removal; security; reasonable reserves, including for roof replacement and exterior painting; and property management fees. Operating Expenses shall also include the Building's share (as reasonably determined and allocated by Landlord) of: (i) the costs incurred by Landlord in operating, maintaining, repairing, insuring and paying real estate taxes upon any common facilities of the office park or development (including, without limitation, the common facilities from time to time serving the Building in common with other buildings or parcels of land) of which the Property may be a part, from time to time, such as any so-called "loop" access roads, retention ponds, sewer and other utility lines, amenities and the like; (ii) shuttle bus service (if and so long as Landlord shall provide the same); (iii) the actual or imputed cost of the space occupied by on the grounds building attendant(s) and related personnel and the cost of administrative and or service personnel whose duties are not limited solely to the Building, as allocated to the Building by Landlord; and (iv) payments made by Landlord under any easement, license, operating agreement, declaration, restrictive covenant, or instrument pertaining to the payment or sharing of costs among park or development property owners. Landlord may use third parties or affiliates to perform any of the foregoing services, and the cost thereof shall be included in Operating Expenses, provided that with respect to affiliates such costs do not exceed the customary amount charged for the services provided by unaffiliated persons or entities of similar skill, competence and experience (it being agreed by Tenant that a management fee of four and one-half percent (4.5%) of the gross revenue of the Property complies with the foregoing). Costs referred to in this Section shall be ascertained in accordance with generally accepted accounting principles, including allowances for appropriate reserves, and allocated to appropriate fiscal periods on the accrual method of accounting.

(b) Operating Expenses shall not include: the cost of casualty repairs to the extent covered by insurance (except for reasonable deductibles paid by Landlord under insurance policies maintained by Landlord); costs associated with the operation of the business of Landlord and/or the sale and/or financing of the Building, as distinguished from the cost of Building operations, maintenance and repair; and costs of disputes between Landlord and its employees, tenants or contractors; any expenses for any item or service not provided to Tenant but to certain other tenant(s) on the Property; expenses for any item or service which Tenant pays directly to a third party or separately pays to Landlord; leasing commissions; expenses that relate to preparation of space for another tenant; legal expenses relating to other tenants; principal, interest and other expenses upon loans to Landlord or secured by a mortgage covering the Building or Property or a portion thereof; rent under any ground lease; salaries of executive officers of Landlord; depreciation claimed by Landlord for tax purposes; capital expenditures

except as expressly provided above; reserves; costs to rent equipment which if purchased would constitute a prohibited capital expenditure; management fees in excess of those that are customary for similar properties in the same geographic area as the Property (it being agreed by Tenant that a management fee of four and one-half percent (4.5%) of the gross revenue of the Property is considered customary as of the date hereof); costs incurred due to the negligence or willful misconduct of the Landlord, its agents and employees; penalties, fines and other costs incurred due to violation by the Landlord of any lease or any laws in force or effect as of the date of this Lease and any interest or penalties attributable to late payment by Landlord of any of the Operating Expenses (except if due to an action by Tenant); and costs and expenses of investigating, monitoring and remediating hazardous materials on, under or about the Building or Property (except if due to acts of Tenant)..

(c) Tenant shall pay Tenant's Pro Rata Share of Operating Expenses in accordance with Section 4.02.

ARTICLE 9: USE OF PREMISES

9.01 Permitted Uses. Tenant may use the Premises only for the Permitted Uses described in Article 1, and for no other purpose(s). Tenant shall keep the Premises equipped with appropriate safety appliances to the extent required by applicable laws or insurance requirements. The vivarium permitted to be operated in the laboratory portion of the Premises shall be used for biopharmaceutical research and development and the handling and testing of mice and rats only (the "Permitted Animals"), and for no other purpose or use. If Tenant proposes to use any animals other than the Permitted Animals in its operations, it shall first obtain the prior written consent of Landlord, which consent Landlord shall not unreasonably withhold. Animal testing, solely of Permitted Animals, shall be permitted subject to the following: (i) all testing shall be conducted in strict compliance with all applicable governmental rules and regulations and with good scientific and medical practice; (ii) all dead animals, any part thereof or any waste products related thereto, shall be disposed of, at Tenant's sole cost and expense, in strict compliance with all applicable governmental rules and regulations and with good scientific and medical practice; (iii) no odors, noises or any similar nuisance shall be permitted to emanate from or permeate the vivarium; and (iv) Tenant's use of the vivarium shall not interfere with the peaceable and quiet use and enjoyment by other tenants or occupants of the Building of their respective premises in the Building. Tenant shall procure and deliver to Landlord copies of all necessary permits and approvals necessary for the use and operation of the vivarium before allowing any actual Permitted Animals into the Premises and shall maintain such permits and approvals during the Lease term. Landlord may require Tenant to bring Permitted Animals in and out of the Building only before or after normal business hours. Tenant shall defend, save harmless, exonerate and indemnify Landlord from all injury, loss or damage to any person or property occasioned by or growing out of the use and operation of the vivarium and the presence of the Permitted Animals in and about the Premises.

9.02 Indemnification. Tenant shall assume exclusive control of all areas of the Premises, including all improvements, utilities, equipment, and facilities therein. Tenant is responsible for the Premises and any Tenant's improvements, equipment, facilities and installations, wherever located on the Property and all liabilities, including, without limitation, tort liabilities, incident thereto. To the maximum extent this agreement may be made effective

according to law, Tenant shall indemnify, save harmless and defend Landlord and Landlord's members, managers, officers, mortgagees, agents, employees, independent contractors, invitees, Landlord's Managing Agent and other persons acting under them (collectively, "Indemnitees") from and against all liability, claim, damage or cost (including reasonable attorneys' fees) arising in whole or in part out of (i) any injury, loss, theft or damage to any person or property while on or about the Premises, the Property or the Building; (ii) any condition within the Premises or, to the extent arising from the acts or omissions of Tenant, the Property or the Building; (iii) failure to comply with any Lease covenant by Tenant; or (iv) the use of the Premises (or, to the extent arising from the acts or omissions of Tenant, the Property or the Building) by, or any act or omission of, Tenant or persons claiming by, through or under Tenant, or any of its agents, employees, independent contractors, suppliers or invitees, in each case paying any cost to Landlord on demand as Additional Rent. The foregoing indemnity shall not apply to any liability, claim, damage or cost to the extent caused by the negligence or willful misconduct of Landlord and/or the Indemnitees. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

9.03 Compliance With Legal Requirements. Tenant shall not cause or permit the Premises, the Property or the Building to be used in any way that violates any law, code, ordinance, restrictive covenant, encumbrance, governmental regulation, order, permit, approval, variance, covenants or restrictions of record or any provision of the Lease (each a "Legal Requirement"), annoys or interferes with the rights of tenants of the Building, or constitutes a nuisance or waste. Tenant shall obtain, maintain and pay for all permits and approvals and shall promptly take all actions necessary to comply with all Legal Requirements, including, without limitation, the Occupational Safety and Health Act, applicable to Tenant's use of the Premises, the Property or the Building. Tenant shall maintain in full force and effect all certifications or permissions to provide its services required by any authority having jurisdiction to authorize, franchise or regulate such services. Tenant shall be solely responsible for procuring and complying at all times with any and all necessary permits and approvals directly or indirectly relating or incident to: the conduct of its activities on the Premises; its scientific experimentation, transportation, storage, handling, use and disposal of any chemical or radioactive or bacteriological or pathological substances or organisms or other hazardous wastes or environmentally dangerous substances or materials or medical waste or animals or laboratory specimens. Within ten (10) days of a request by Landlord, which request shall be made not more than once during each period of twelve (12) consecutive months during the Term hereof, unless otherwise reasonably requested by any mortgagee of Landlord, Tenant shall furnish Landlord with copies of all such permits and approvals that Tenant possesses or has obtained together with a certificate certifying that such permits are all of the permits that Tenant possesses or has obtained with respect to the Premises. Tenant shall promptly give written notice to Landlord of any warnings or violations relative to the above received from any federal, state or municipal agency or by any court of law and shall promptly cure the conditions causing any such violations. Tenant shall not be deemed to be in default of its obligations under the preceding sentence to promptly cure any condition causing any such violation in the event that, in lieu of such cure, Tenant shall contest the validity of such violation by appellate or other proceedings permitted under applicable law, provided that: (i) any such contest is made reasonably and in good faith, (ii) Tenant makes provisions, including, without limitation, posting bond(s) or giving other security, acceptable to Landlord to protect Landlord, the Building and the Property from any liability, costs, damages or expenses arising in connection with such violation and failure to

cure, (iii) Tenant shall agree to indemnify, defend (with counsel reasonably acceptable to Landlord) and hold Landlord harmless from and against any and all liability, costs, damages, or expenses arising in connection with such condition and/or violation, (iv) Tenant shall promptly cure any violation in the event that its appeal of such violation is overruled or rejected, and (v) Tenant's decision to delay such cure shall not, in Landlord's good faith determination, be likely to result in any actual or threatened bodily injury, property damage, or any civil or criminal liability to Landlord, any tenant or occupant of the Building or the Property, or any other person or entity. Tenant shall have no obligation under this Lease to make structural or capital improvements to the Premises, the Building or the Property to comply with Legal Requirements unless said improvements are required because of Tenant's particular manner of use of the Premises or Tenant Work. Landlord represents and warrants that as of the Term Commencement Date it has not received any written notices that the Premises are in violation of applicable law including, without limitation, the Americans with Disabilities Act.

9.04 Environmental Substances. "Environmental Law(s)" means all statutes, laws, rules, regulations, codes, ordinances, standards, guidelines, authorizations and orders of federal, state and local public authorities pertaining to any of the Environmental Substances or to environmental compliance, contamination, cleanup or disclosures of any release or threat of release to the environment, of any hazardous, biological, chemical, radioactive or toxic substances, wastes or materials, any pollutants or contaminants that are included under or regulated by any municipal, county, state or federal statutes, laws, rules, regulations, codes, ordinances, standards, guidelines, authorizations or orders, including, without limitation, the Toxic Substances Control Act, 15 U.S.C. § 2601, et seq.; the Clean Water Act, 33 U.S.C. § 1251, et seq.; the Clean Air Act, 42 U.S.C. § 7401, et seq.; the Safe Drinking Water Act, 42 U.S.C. § 300f-300j, et seq.; the Federal Water Pollution Control Act, 33 U.S.C. § 1321, et seq.; the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. Section 9601 et seq.; the Federal Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq.; the Massachusetts Hazardous Waste Management Act, as amended, M.G.L. Chapter 21C, and the Massachusetts Oil and Hazardous Material Release Prevention Act, as amended, M.G.L., Chapter 21E, as any of the same are from time to time amended, and the rules and regulations promulgated thereunder, and any judicial or administrative interpretation thereof, including any judicial or administrative orders or judgments, and all other federal, state and local statutes, laws, rules, regulations, codes, ordinances, standards, guidelines, authorizations and orders regulating the generation, storage, containment or disposal of any Environmental Substances, including, but not limited to, those relating to lead paint, radon gas, asbestos, storage and disposal of oil, biological, chemical, radioactive and hazardous wastes, substances and materials, and underground and above ground oil storage tanks; and any amendments, modifications or supplements of any of the foregoing.

"Environmental Substances" means, but shall not be limited to, any hazardous substances, hazardous waste, environmental, biological, chemical, radioactive substances, oil, petroleum products and any waste or substance, which because of its quantitative concentration, chemical, biological, radioactive, flammable, explosive, infectious or other characteristics, constitutes or may reasonably be expected to constitute or contribute to a danger or hazard to public health, safety or welfare or to the environment, or that would trigger any employee or community "right-to-know" requirements adopted by any federal, state or local governing or regulatory body, or for which any such body has adopted any requirements for the preparation or

distribution of a materials safety data sheet ("MSDS"), including, without limitation, any asbestos (whether or not friable) and any asbestos-containing materials, lead paint, waste oils, solvents and chlorinated oils, polychlorinated biphenyls (PCBs), toxic metals, etchants, pickling and plating wastes, explosives, reactive metals and compounds, pesticides, herbicides, radon gas, urea formaldehyde foam insulation and chemical, biological and radioactive wastes, or any other similar materials that are mentioned under or regulated by any Environmental Law; and the regulations adopted under these acts, and including any other products or materials subsequently found by an authority of competent jurisdiction to have adverse effects on the environment or the health and safety of persons.

Tenant shall neither cause or permit any Environmental Substances to be generated, produced, brought upon, used, stored, treated or disposed of in or about or on the Building by Tenant, nor permit or suffer persons acting under Tenant, to do the same, whether with or without negligence, without (i) Landlord's prior written consent and (ii) complying with all applicable Environmental Laws and Legal Requirements pertaining to the transportation, storage, use or disposal of such Environmental Substances, including obtaining proper permits and approvals and providing Landlord the applicable MSDS for each Environmental Substance. Landlord may take into account any factors or facts that Landlord reasonably believes relevant in determining whether to grant its consent. Landlord consents to Tenant's use of the Environmental Substances listed in Exhibit G in the amounts also listed in Exhibit G. Tenant shall not be permitted to use any Environmental Substances other than those identified on foregoing exhibit and not in excess of the quantities listed on said exhibit in the Premises without Landlord's prior written consent. From time to time at Landlord's request, Tenant shall execute affidavits, representations and the like concerning Tenant's best knowledge and belief, after due inquiry, regarding the presence or absence of Environmental Substances on the Premises, the Property or the Building and shall provide a then current list of all Environmental Substances and quantities used in the Premises. Tenant agrees to pay the cost of any environmental inspection or assessment requested by any lender that holds a security interest in the Property or this Lease, or by any insurance carrier, to the extent that such inspection or assessment pertains to any release, threat of release, contamination, claim of contamination, loss or damage or determination of condition in the Premises by Tenant, its employees, invitees, contractors or other persons acting under Tenant. In addition, at Landlord's request, Tenant shall promptly provide to Landlord all MSDSs for products used within the Premises.

If any transportation, storage, use or disposal of Environmental Substances on or about the Property or Building by Tenant, its agents, employees, independent contractors, or invitees results in any escape to, release to, threat of release to or contamination of the soil, surface or ground water, sewage system or ambient air or any loss or damage to person or property, Tenant agrees to: (a) notify Landlord immediately of the occurrence; (b) after consultation with Landlord, clean up the occurrence in full compliance with all applicable statutes, regulations and standards; and (c) indemnify, defend and hold Landlord, and the Indemnitees harmless from and against any claims, suits, causes of action, costs and fees, including attorneys' fees and costs, arising from or connected with any such occurrence. In the event of such occurrence, Tenant agrees to cooperate fully with Landlord and provide such documents, affidavits, information and actions as may be requested by Landlord (1) to comply with any Environmental Law or Legal Requirement, (2) to comply with any request of any mortgagee or tenant and/or (3) for any other reason deemed necessary by Landlord in its sole discretion. In the event of any such occurrence

that is required to be reported to a governmental authority under any Environmental Law or Legal Requirement, Tenant shall simultaneously deliver to Landlord copies of any notices given or received by Tenant and shall promptly pay when due any fine or assessment against Landlord, Tenant or the Premises or Property relating to such occurrence.

9.05 Signs and Auctions. Except as may be expressly set forth herein, no sign, antenna or other structure or thing, shall be erected or placed on the Premises or any part of the exterior of the Building or erected so as to be visible from the exterior of the Building without first securing the written consent of the Landlord. Tenant shall not conduct or permit any auctions or sheriffs sales at the Property. Landlord, at Landlord's cost, shall provide Tenant identification on existing multi-tenant signs or directories at the entrance to Building E and in the parking garage, as appropriate. Such signs will be mutually agreed upon by Landlord and Tenant provided that all such signs will be consistent with standard Building signage and will conform to local regulations.

9.06 Landlord's Access. Landlord or its agents may enter the Premises at all reasonable times to show the Premises to potential buyers, investors or other parties, or during the last nine (9) months of the Term, to potential tenants; to inspect and conduct tests in order to monitor Tenant's compliance with Legal Requirements governing Environmental Substances; for purposes described in Sections 2.01, 9.04, 10.03 and/or 10.04(b) or for any other purpose Landlord reasonably deems necessary. Landlord shall give Tenant prior notice (which may be oral) of such entry. However, in case of emergency, Landlord may enter any part of the Premises without prior notice to Tenant's representative and shall make reasonable efforts to notify Tenant. Except in the case of an emergency, Landlord agrees to provide Tenant with twenty-four (24) hours' advance written notice (which notice may be by e-mail) prior to entering the Premises.

ARTICLE 10: CONDITION AND MAINTENANCE OF PREMISES AND PROPERTY

10.01 Existing Conditions. Tenant shall accept the Premises and Property in their condition as of the Term Commencement Date "as is", subject to Landlord's completion of the Initial Tenant Improvements, and subject to all Legal Requirements. Notwithstanding the foregoing, on the Term Commencement Date, the Initial Tenant Improvements and all Core Building Systems shall be in good working condition. Tenant acknowledges that except for any express representations in this Lease, neither Landlord nor any person acting under Landlord has made any representation as to the condition of the Property or the suitability of the Property for Tenant's intended use. Tenant represents and warrants that Tenant has made its own inspection and inquiry regarding the Property and is not relying on any representations of Landlord or any Broker or persons acting under either of them.

10.02 Exemption and Limitation of Landlord's Liability.

(a) Exemption of Landlord from Liability. Tenant shall insure its personal property under an all risk full replacement cost property insurance policy. Landlord shall not be liable for any damage or injury to the person, property or business (including loss of revenue, profits or data) of Tenant, Tenant's employees, agents, contractors, or invitees, or any other person on or about the Property or the Building; provided, however, that this Section 10.02(a) shall not

exempt Landlord from liability for Landlord's negligence or willful misconduct. This exemption shall apply whether such damage or injury is caused by (among other things): (i) fire, steam, electricity, water, gas, sewage, sewer gas or odors, snow, ice, frost or rain; (ii) the breakage, leakage, obstruction or other defects of pipes, faucets, sprinklers, wires, appliances, plumbing, windows, air conditioning or lighting fixtures or any other cause; (iii) any other casualty or any Taking; (iv) theft; (v) conditions in or about Property or the Building or from other sources or places; or (vi) any act or omission of any other tenant.

(b) Limitation On Landlord's Liability. Tenant agrees that Landlord shall be liable only for breaches of its covenants occurring while it is owner of the Property (provided, however, that if Landlord from time to time is lessee of the ground or improvements constituting the Building, then Landlord's period of ownership of the Property shall be deemed to mean only that period while Landlord holds such leasehold interest). Upon any sale or transfer of the Building, the transferor Landlord (including any mortgagee) shall be freed of any liability or obligation thereafter arising and, subject to Section 9.1, Tenant shall look solely to the transferee Landlord as aforesaid for satisfaction of such liability or obligation. Tenant and each person acting under Tenant agrees to look solely to Landlord's interest from time to time in the Property for satisfaction of any claim against Landlord. No owner, trustee, beneficiary, partner, member, manager, agent, or employee of Landlord (or of any mortgagee or any lender or ground or improvements lessor) nor any person acting under any of them shall ever be personally or individually liable to Tenant or any person claiming under or through Tenant for or on account of any default by Landlord or failure by Landlord to perform any of its obligations hereunder, or for or on account of any amount or obligations that may be or become due under or in connection with this Lease or the Premises; nor shall it or they ever be answerable or liable in any judicial proceeding or order beyond the extent of their interest in the Property. No deficit capital account of any member or partner of Landlord shall be deemed to be a liability of such member or partner or an asset of Landlord. Any lien obtained to enforce any judgment against Landlord shall be subject and subordinate to any mortgage encumbering the Property. In no event shall Landlord (or any such persons) ever be liable to Tenant for indirect or consequential damages.

(c) Limitation On Tenant's Liability. The obligations of Tenant under this Lease are not intended to be and shall not be personally binding on, nor shall any resort be had to the personal assets of, any of its directors, officers, partners, beneficiaries, members, stockholders, employees, or agents. Except for damages incurred by Landlord as a result of Tenant's holdover after the expiration of the Term or in connection with a breach of Tenant's obligations under Sections 9.04 and 10.07, in no case shall Tenant be liable to Landlord hereunder for any lost profits, damage to business, or any form of special, indirect or consequential damages.

10.03 Landlord's Obligations.

(a) Repair and Maintenance. Subject to the provisions of Article 12, and except for damage caused by any act or omission of Tenant or persons acting under Tenant (but subject to the waiver in Section 7.03), Landlord shall keep the common areas of the Building (including, without limitation, common elevators and common parking areas) and the foundation, roof, Building systems including Core Building Systems (as defined in Section 10.05(a)) (to the extent not serving the Premises or another tenant's premises exclusively), structural supports, exterior windows and exterior walls of the Building in good order, condition and repair reasonable wear

and tear excepted. Landlord shall not be obligated to maintain or repair any interior windows, doors, plate glass, the surfaces of walls or other fixtures, components or equipment within the Premises, but the same shall be Tenant's obligation. Tenant shall promptly report in writing to Landlord any defective condition known to it that Landlord is required to repair. Tenant waives the benefit of any present or future law that provides Tenant the right to repair the Premises or Property at Landlord's expense or to terminate this Lease because of the condition of the Property or Premises.

10.04 Tenant's Obligations.

(a) Repair and Maintenance. Except for work that Section 10.03 or Article 12 requires Landlord to do, Tenant at its sole cost and expense shall keep the Premises including, without limitation, all Initial Tenant Improvements, other Tenant Work, Tenant Property, fixtures, systems and equipment now or hereafter on the Premises, or elsewhere exclusively serving the Premises, in good order, condition and repair, reasonable wear and tear excepted; shall keep in a safe, secure and sanitary condition all trash and rubbish temporarily stored at the Premises; and shall make all repairs and replacements and to do all other work necessary for the foregoing purposes whether the same may be ordinary or extraordinary, foreseen or unforeseen. The foregoing shall include, without limitation, Tenant's obligation to maintain floors and floor coverings, to paint and repair walls and doors, to replace and repair all interior glass and windows, ceiling tiles, lights and light fixtures, pipes, drains and the like in the Premises. Tenant shall hire its own cleaning contractor for the Premises and shall provide first-class janitorial service in the Premises on each business day during the Term (including daily disposal of trash from trash bins in the Premises). Tenant shall have the non-exclusive use of the Building compactor for disposal of trash that is not lab-related or Environmental Substances. If applicable, Tenant shall arrange for disposal of its own lab-related refuse by a licensed vendor in accordance with all applicable Legal Requirements. No storage shall be permitted outside of the Premises. Storage inside the Premises shall be provided in a manner not visible from outside the Premises. (For purposes of this Section, the term "reasonable wear and tear" constitutes that normal, gradual deterioration that occurs due to aging and ordinary use despite reasonable and timely maintenance and repairs or repairs and restoration, as the case may be; in no event shall "reasonable wear and tear" excuse Tenant from its obligations duty to maintain and/or repair as may be required hereunder.)

(b) Landlord's Right to Cure. If Tenant does not perform any of its obligations under Section 10.04(a), Landlord upon ten (10) days' prior notice to Tenant (or without prior notice in the case of an emergency) may perform such maintenance, repair or replacement on Tenant's behalf, and Tenant shall reimburse Landlord for all costs reasonably incurred together with an Administrative Charge (as defined in Section 14.02(f)), promptly upon demand.

10.05 Tenant Work.

(a) General. "Tenant Work" shall mean all work including demolition, improvements, additions and alterations in or to the Premises, except for the Initial Tenant Improvements. Without limitation, Tenant Work includes any penetrations in the walls, partitions, ceilings or floors and all attached carpeting, all signs visible from the exterior of the Premises, and any change in the exterior appearance of the windows in the Premises (including

shades, curtains and the like). All Tenant Work shall be subject to Landlord's prior written approval (which approval shall not be unreasonably withheld, conditioned or delayed) and shall be arranged and paid for by Tenant all as provided herein; provided that any interior, non-structural Tenant Work (including any series of related Tenant Work projects) that (a) costs less than the "Tenant Work Threshold Amount" (which shall be $10,000.00), (b) does not affect any fire-safety, telecommunications, electrical, mechanical, ventilation or plumbing systems of the Building ("Core Building Systems"), and (c) does not affect any penetrations in or otherwise affect any walls, floors, roofs, or other structural elements of the Building or any signs visible from the exterior of the Premises or any change in the exterior appearance of the windows in the Premises (including shades, curtains and the like) shall not require Landlord's prior approval if Tenant delivers the Construction Documents (as defined in Section 10.05(b)) for such work to Landlord at least five (5) business days' prior to commencing such work, provided that Construction Documents shall not be required with respect to Tenant Work which is of a purely decorative or cosmetic nature (e.g., painting, carpeting) provided no building permit is required. Whether or not Landlord's approval is required, Tenant shall neither propose nor effect any Tenant Work that in Landlord's reasonable judgment (i) adversely affects any structural component of the Building, (ii) would be incompatible with the Core Building Systems, (iii) affects the exterior or the exterior appearance of the Building or common areas within or around the Building or other property than the Premises, (iv) diminishes the value of the Premises, or (v) requires any unusual expense to readapt the Premises. Prior to commencing any Tenant Work affecting air disbursement from ventilation systems serving Tenant or the Building, including, without limitation, the installation of Tenant's exhaust systems, Tenant shall provide Landlord with a third party report from a consultant, and in a form, reasonably acceptable to Landlord, showing that such work will not adversely affect the ventilation systems of the Building (or of any other tenant in the Building) and shall, upon completion of such work, provide Landlord with a certification reasonably satisfactory to Landlord from such consultant confirming that no such adverse effects have resulted from such work. If, as a result of any Tenant Work, Landlord is obligated to comply with any Legal Requirement, including, but not limited to, the Americans With Disabilities Act, and such compliance requires Landlord to make any improvement or alteration to any portion of the Property, as a condition to Landlord's consent, Landlord shall have the right to require Tenant to pay to Landlord prior to the construction of any improvement or alteration by Tenant, the entire cost of any improvement or alteration Landlord is obligated to complete by such law or regulation.

(b) Construction Documents. No Tenant Work shall be effected except in accordance with complete, coordinated construction drawings and specifications ("Construction Documents") prepared in accordance with Exhibit F. Before commencing any Tenant Work requiring Landlord's approval hereunder, Tenant shall obtain Landlord's prior written approval of the Construction Documents for such work, which approval shall not be unreasonably withheld or delayed. The Construction Documents shall be prepared by an architect ("Tenant's Architect") registered in the Commonwealth of Massachusetts experienced in the construction of tenant space improvements in comparable buildings in the area where the Premises are located and, if the value of such Tenant Work will equal or exceed the Tenant Work Threshold Amount or will affect any Core Building Systems or structural components of the Building, the identity of such Architect shall be approved by Landlord in advance, such approval not to be unreasonably withheld in the case of interior, non-structural Tenant Work. Tenant shall be solely responsible for the liabilities associated with and expenses of all architectural and engineering services

relating to Tenant Work and for the adequacy, accuracy, and completeness of the Construction Documents even if approved by Landlord (and even if Tenant's Architect has been otherwise engaged by Landlord in connection with the Building). The Construction Documents shall set forth in detail the requirements for construction of the Tenant Work and shall show all work necessary to complete the Tenant Work including all cutting, fitting, and patching and all connections to the mechanical, electrical, and plumbing systems and components of the Building. Submission of the Construction Documents to Landlord for approval shall be deemed a warranty by Tenant that all Tenant Work described in the Construction Documents (i) complies with all applicable laws, regulations, building codes, and highest design standards, (ii) does not adversely affect any structural component of the Building, (iii) is compatible with and does not adversely affect the Core Building Systems, (iv) does not affect any property other than the Premises, (v) conforms to floor loading limits specified by Landlord, and (vi) with respect to all materials, equipment and special designs, processes or products, does not infringe on any patent or other proprietary rights of others. The Construction Documents shall comply with Landlord's requirements for the uniform exterior appearance of the Building, including, without limitation, the use of Building standard window blinds and Building standard light fixtures within fifteen (15) feet of each exterior window. Landlord's approval of Construction Documents shall signify only Landlord's consent to the Tenant Work shown and shall not result in any responsibility or warranty of Landlord concerning compliance of the Tenant Work with laws, regulations, or codes, or coordination or compatibility with any component or system of the Building, or the feasibility of constructing the Tenant Work without damage or harm to the Building, all of which shall be the sole responsibility of Tenant.

(c) Performance. The identity of any person or entity (including any employee or agent of Tenant) performing or designing any Tenant Work ("Tenant Contractor") shall, if the cost of such work in any instance is in excess of the Tenant Work Threshold Amount or will affect any Core Building Systems or structural components of the Building or involves any work other than interior, nonstructural alterations, be approved in advance by Landlord, such approval not to be unreasonably withheld. Once any Tenant Contractor has been approved, then the same Tenant Contractor may thereafter be used by Tenant for the same type of work until Landlord notifies Tenant that such Tenant Contractor is no longer approved. Tenant shall procure at Tenant's expense all necessary permits and licenses before undertaking any Tenant Work but shall not take any plans for Tenant Work to the municipal inspection services or fire departments, without on each occasion obtaining Landlord's prior written consent. Tenant shall perform all Tenant Work at Tenant's risk in compliance with all applicable laws and the rules and regulations attached hereto as Exhibit C as the same may be amended by Landlord from time to time and in a good and workmanlike manner employing new materials of good quality and producing a result at least equal in quality to the other parts of the Premises. When any Tenant Work is in progress, Tenant shall cause to be maintained insurance as described in the Tenant Work Insurance Schedule attached as Exhibit D and such other insurance as may be required under this Lease or reasonably required by Landlord covering any additional hazards due to such Tenant Work, and, if the cost of such Tenant Work exceeds the Tenant Work Threshold Amount also such bonds or other assurances of satisfactory completion and payment as Landlord may reasonably require, in each case for the benefit of Landlord. If the Tenant Work in any instance requires Landlord's approval hereunder, Tenant shall reimburse Landlord for its reasonable costs of reviewing the proposed Tenant Work and inspecting installation of the same. At all times while performing Tenant Work, Tenant shall require any Tenant Contractor to comply with all

applicable laws, regulations, permits and Landlord's rules and regulations relating to such work, including, without limitation, use of loading areas, elevators and lobbies. Landlord shall have the right to stop any work not being performed in conformance with this Lease, and, at its option, may repair or remove non-conforming work at the expense of Tenant. Each Tenant Contractor working on the roof of the Building shall coordinate with Landlord's roofing contractor, shall comply with its requirements and shall not violate existing roof warranties. Each Tenant Contractor shall work on the Premises without causing labor disharmony, coordination difficulties, or delay to or impairing of any guaranties, warranties or the work of any other contractor. Tenant shall obtain from each Tenant Contractor, prior to entry into the Building, an agreement to indemnify and hold the Indemnitees harmless from any claim, loss or expense arising in whole or in part out of any act or neglect committed by or under such person while on or about the Premises or Building to the same extent as Tenant has so agreed in this Lease, the indemnities of Tenant and Tenant Contractor being joint and several.

(d) Payment. Tenant shall pay the entire cost of all Tenant Work so that the Premises, including Tenant's leasehold, shall always be free of liens for labor or materials. If any such lien is filed that is claimed to be attributable to Tenant or persons acting under Tenant, then Tenant shall promptly (and always within thirty (30) days of Tenant's notice of filing thereof) discharge the same.

(e) Other.

(i) Tenant must schedule and coordinate all aspects of work with the Building manager and Building engineer and shall make prior arrangements for elevator use with the Building manager. If an operating engineer is required by any union regulations, Tenant shall pay for such engineer. If shutdown of risers and mains for electrical, mechanical and plumbing work is required, such work shall be supervised by Landlord's representative at Tenant's cost. If special security arrangements must be made (e.g., in connection with work outside normal business hours), Tenant Contractor shall pay the actual cost of such security. No work shall be performed in Building mechanical or electrical equipment rooms without Landlord's approval, which approval shall not be unreasonably withheld or delayed, and all such work shall be performed under Landlord's supervision. Except in case of emergency, at least forty-eight (48) hours' prior notice must be given to the Building management office prior to the shutdown of fire, sprinkler and other alarm systems, and in case of emergency, prompt notice shall be given. In the event that such work unintentionally alerts the Fire or Police Department or any private alarm monitoring company through an alarm signal, Tenant shall be liable for any fees or charges levied in connection with such alarm. Tenant shall pay to Landlord such charges as may from time to time be in effect with respect to any such shutdown. All demolition, installations, removals or other work that is reasonably likely to inconvenience other tenants or disturb Building operations must be scheduled with the Building manager at least twenty-four (24) hours in advance.

(ii) Tenant shall take all necessary and appropriate steps to ensure that any work carried out by or on behalf of Tenant is done in a manner so as to not interfere with any other tenants or occupants of the Building. Installations within the Premises (and elsewhere where Tenant is permitted to make installations) shall not interfere with existing services and shall be installed so as not to unreasonably interfere with subsequent installation of ceilings or services for other tenants. Redundant electrical, control and alarm systems and mechanical equipment and sheet metal used or placed on the Property during construction and not maintained as part of Tenant's use of the Premises must be removed as part of the work.

(iii) Each Tenant Contractor shall take all reasonable steps to assure that any work is carried out without disruption from labor disputes arising from whatever cause, including disputes concerning union jurisdiction and the affiliation of workers employed by said Tenant Contractor or its subcontractors. Tenant shall be responsible for, and shall reimburse Landlord for, all actual costs and expenses, including reasonable attorneys' fees incurred by Landlord in connection with the breach by any Tenant Contractor of such obligations. If Tenant does not promptly resolve any labor dispute caused by or relating to any Tenant Contractor, Landlord may in its sole discretion request that Tenant remove such Tenant Contractor from the Property, and if such Tenant Contractor is not promptly removed, Landlord may prohibit such Tenant Contractor from entering the Property.

(iv) Tenant shall diligently pursue and complete all Tenant Work and upon completion thereof, Tenant shall give to Landlord (x) a permanent certificate of occupancy (if one is legally required) and any other final governmental approvals required for such work, (y) copies of "as built" plans and all construction contracts and (z) proof of payment for all labor and materials.

10.06 Condition upon Termination. At the expiration or earlier termination of the Term, Tenant (and all persons claiming through Tenant) shall without the necessity of notice, deliver the Premises (including all Initial Tenant Improvements and Tenant Work, and all replacements thereof, except such additions, alterations, Initial Tenant Improvements and other Tenant Work as the Landlord may direct to be removed at the time the Landlord approves the plans thereof, or, in the case of Tenant Work not subject to Landlord approval, at the time of expiration or earlier termination of the Term) broom-clean, in compliance with the requirements of Section 10.07 and in good and tenantable condition, reasonable wear and tear, and damage by casualty or taking (to the extent provided in Article 12 only) excepted. (For purposes of the foregoing sentence, the term "reasonable wear and tear" constitutes that normal, gradual deterioration that occurs due to aging and ordinary use despite reasonable and timely maintenance and repairs; in no event shall "reasonable wear and tear" excuse Tenant from its duty to maintain same in good condition and repair and otherwise serviceable.) The Premises shall be surrendered to Landlord free and clear of any mechanic's liens (or any similar lien related to labor or materials) filed against any part of the Premises and free and clear of any financing or other encumbrance on any equipment and/or Initial Tenant Improvements or Tenant Work to be surrendered with the Premises. As part of such delivery, Tenant shall also provide all keys (or lock combinations, codes or electronic passes) to the Premises to Landlord; remove all signs wherever located; and, except as provided in this Section 10.06, remove all Tenant Property whether or not bolted or otherwise attached. As used herein, "Tenant Property" shall mean all trade fixtures, furnishings, equipment inventory, cabling and other personal property owned by Tenant or any person acting under Tenant at the Premises. Tenant shall repair all damage that results from such removal and restore the Premises substantially to a fully functional and tenantable condition (including the filling of all floor and wall holes, the removal of all disconnected wiring back to junction boxes and the replacement of all damaged ceiling tiles). Any property not so removed shall be deemed abandoned, shall at once become the property of Landlord, and may be disposed of in such manner as Landlord shall see fit; and Tenant shall pay the cost of removal and disposal to Landlord upon demand. The covenants of this Section shall survive the expiration or earlier termination of the Term.

10.07 Decommissioning of the Premises. Prior to the expiration of this Lease (or within thirty (30) days after any earlier termination), Tenant shall clean and otherwise decommission all interior surfaces (including floors, walls, ceilings, and counters), piping, supply lines, waste lines and plumbing in and/or exclusively serving the Premises, and all exhaust or other ductwork in and/or exclusively serving the Premises, in each case which has carried or released or been exposed to any Environmental Substances, and shall otherwise clean the Premises so as to permit the report hereinafter called for by this Section 10.07 to be issued. Prior to the expiration of this Lease (or within thirty (30) days after any earlier termination), Tenant, at Tenant's expense, shall obtain for Landlord a report addressed to Landlord and Landlord's designees (and, at Tenant's election, Tenant) by a reputable licensed environmental engineer or industrial hygienist that is designated by Tenant and acceptable to Landlord in Landlord's reasonable discretion, which report shall be based on the environmental engineer's or industrial hygienist's inspection of the Premises and shall show: that the Environmental Substances, to the extent, if any, existing prior to such decommissioning, have been removed as necessary so that the interior surfaces of the Premises (including floors, walls, ceilings, and counters), piping, supply lines, waste lines and plumbing, and all such exhaust or other ductwork in and/or exclusively serving the Premises, may be reused by a subsequent tenant or disposed of in compliance with applicable Environmental Laws (as defined in Section 9.04 hereof) without taking any special precautions for Environmental Substances, without incurring special costs or undertaking special procedures for demolition, disposal, investigation, assessment, cleaning or removal of Environmental Substances and without incurring regulatory compliance requirements or giving notice in connection with Environmental Substances; and that the Premises may be reoccupied for office or laboratory use, demolished or renovated without taking any special precautions for Environmental Substances, without incurring special costs or undertaking special procedures for disposal, investigation, assessment, cleaning or removal of Environmental Substances and without incurring regulatory requirements or giving notice in connection with Environmental Substances.

Further, for purposes of this Section: "special costs" or "special procedures" shall mean costs or procedures, as the case may be, that would not be incurred but for the nature of the Environmental Substances as Environmental Substances instead of non-hazardous materials. The report shall include reasonable detail concerning the clean-up location, the tests run and the analytic results. If Tenant fails to perform its obligations under this Section, without limiting any other right or remedy, Landlord may, on five (5) business days' prior written notice to Tenant perform such obligations at Tenant's expense, and Tenant shall promptly reimburse Landlord upon demand for all costs and expenses reasonably incurred together with an Administrative Charge, as defined in Section 14.02(f). Tenant's obligations under this Section shall survive the expiration or earlier termination of this Lease.

ARTICLE 11: INITIAL TENANT IMPROVEMENTS

11.01 Tenant has provided Landlord with all necessary information regarding Tenant's space planning needs in connection with its use of the Premises. Based upon such information supplied by Tenant, space plans and specifications have been prepared (the "Plans and Specifications") for the layout of Tenant's leasehold improvements to the Premises ("Initial Tenant Improvements"). The Initial Tenant Improvements shall not include Tenant's furniture, trade fixtures, equipment and personal property and are limited to the fit-up construction, as generally laid out and specified on the Plans and Specifications. Tenant acknowledges that the Initial Tenant Improvements, except as expressly provided in the Plans and Specifications, will be designed and constructed at Landlord's sole cost and expense (except as otherwise provided herein), in compliance with all applicable law and to the general quality of the design and construction of the Building and in accordance with Landlord's building standards for the Building. Tenant has approved and agreed to the Plans and Specifications. The Plans and Specifications are attached hereto as Exhibit E.

11.02 Tenant agrees that Landlord shall have no obligation to make any changes to the Plans and Specifications requested by Tenant, provided, however, to the extent Landlord agrees to any such changes, Tenant agrees that any additional cost resulting from such approved changes shall be the responsibility of Tenant and shall be paid in full by Tenant to Landlord within ten (10) business days of billing therefor by Landlord; and Tenant agrees that if any such changes do result in delay in Substantial Completion, same shall be deemed a Tenant Delay (as defined below).

11.03 Landlord shall proceed, using reasonable efforts, to obtain all necessary permits and approvals for the construction of the Initial Tenant Improvements, to engage a contractor or construction manager to perform or supervise the construction and to proceed to construct the Initial Tenant Improvements in substantial conformance with the Plans and Specifications. Landlord reserves the right to make changes and substitutions to the Plans and Specifications in connection with the construction of the Initial Tenant Improvements, provided (i) same do not materially adversely modify the Plans and Specifications; and (ii) such changes and substitutions will not adversely affect Tenant's operations in the Premises. Landlord hereby agrees to notify Tenant of such changes and substitutions before implementing the same. Landlord agrees to use reasonable efforts to Substantially Complete the Initial Tenant Improvements in a good and workmanlike manner by August 10, 2017, but in no event shall Landlord be liable to Tenant for any failure to deliver the Premises on any specified date, nor shall such failure give rise to any default or other remedies under this Lease or at law or equity; provided that in the event the Initial Tenant Improvements are not completed by October 10, 2017 (the "Abatement Date"), and provided that such failure to complete is not due to Tenant Delay (as defined below), Tenant shall receive a rent abatement of Base Rent on a day for day basis for each day after the Abatement Date that such work has not been Substantially Completed. Except for the Initial Tenant Improvements and any repairs expressly required to be made by Landlord under this Lease, Landlord shall have no obligation to perform any work or construction to make the Premises fit for use and occupation or for Tenant's particular purpose or to make them acceptable to Tenant.

11.04 The Initial Tenant Improvements shall be deemed "Substantially Complete" on the date (the "Substantial Completion Date") Tenant receives notice from Landlord that Landlord has received a certificate of occupancy (temporary or permanent) or a fully-signed off building permit for the Premises issued by the Town of Lexington (the "Certificate of Occupancy") and a letter from Landlord's contractor that the Initial Tenant Improvements are Substantially

Complete (subject to the Punchlist (as defined below)) and that the same may be occupied by Tenant for the Permitted Use. Landlord agrees to endeavor to keep Tenant reasonably apprised of the progress of the construction of the Initial Tenant Improvements and to give Tenant no less than fourteen (14) days' notice of the anticipated Substantial Completion Date. If a temporary Certificate of Occupancy is issued by the Town of Lexington, Landlord shall be responsible for obtaining a permanent Certificate of Occupancy or fully signed off building permit to the extent that is the common practice of the Town. Any of the Punchlist items that are not fully completed (of which Tenant shall give Landlord notice as provided below) on the Term Commencement Date shall thereafter be so completed with reasonable diligence by Landlord. Notwithstanding the foregoing, if any delay in the Substantial Completion of the Initial Tenant Improvements by Landlord is due to Tenant Delays (hereinafter defined), then Tenant shall be liable for Rent for each day that the Initial Tenant Improvements would have been Substantially Complete, if not for such Tenant Delays, as reasonably determined by Landlord. "Tenant Delays" shall mean delays caused by: (i) requirements of the Plans and Specifications requested by Tenant that do not conform to Landlord's building standards for office and lab build-out, or which contain long lead-time or non-standard items requested by Tenant; provided that Landlord has notified Tenant of such deviations upon execution of this Lease (ii) any material change in the Plans and Specifications requested by Tenant and agreed to by Landlord; (iii) any request by Tenant for a delay in the commencement or completion of the Initial Tenant Improvements for any reason; (iv) Tenant delay in finalizing and approving the design of the vivarium and value engineering of same or (v) any other act or omission of Tenant or its employees, agents or contractors which reasonably inhibits the Landlord from timely completing the Initial Tenant Improvements including, without limitation any delays caused by Tenant's presence in the Premises prior to the Term Commencement Date. The Premises shall not be deemed to be incomplete if only minor or insubstantial details of construction, decoration or mechanical adjustments remain to be done which do not unreasonably interfere with Tenant's occupancy of the Premises. If as a result of Tenant Delays the Premises are deemed ready for Tenant's occupancy, pursuant to the foregoing (and the term shall have commenced by reason thereof), but the Premises are not in fact actually ready for Tenant's occupancy, Tenant shall not (except with Landlord's consent not to be unreasonably withheld, conditioned or delayed) be entitled to take possession of the Premises for the permitted use until the Premises are in fact actually ready for such occupancy.

11.05 Within seven (7) business days after the Term Commencement Date, Landlord and Tenant shall confer and create a specific list of any defects or incomplete remaining items of work with respect to the Initial Tenant Improvements (a "Punchlist"). Except with respect to the items contained in the Punchlist and defects not readily discoverable by Tenant upon a reasonably diligent inspection and which are identified in writing to Landlord within nine (9) months after the Term Commencement Date , Tenant shall be deemed satisfied with the Initial Tenant Improvements, Landlord shall be deemed to have completed all of its obligations under this Article 11 and Tenant shall have no claim that Landlord has failed to perform in full its obligations hereunder

11.06 Intentionally omitted.

11.07 If Tenant occupies the Premises prior to the Term Commencement Date (which shall only be allowed upon the prior written consent of the Landlord), such occupancy shall be subject to all provisions of this Lease, such occupancy shall not change the Termination Date, and Tenant shall pay rent and all other charges provided for in this Lease during the period of such occupancy. Tenant shall be liable for any damages or delays caused by Tenant's activities at the Premises. Prior to entering the Premises, Tenant shall obtain all insurance it is required to obtain by the Lease and shall provide certificates of said insurance to Landlord; Tenant shall coordinate such entry with Landlord's building manager, and such entry shall be made in compliance with all terms and conditions of this Lease and the rules and regulations in effect from time to time.

11.08 All components of the Initial Tenant Improvements shall be part of the Building.

11.09 Based upon information provided by Tenant to Landlord regarding the vivarium portion of the Initial Tenant Improvements as shown on Exhibit E, Landlord shall cause final plans and specifications for the vivarium to be prepared and submitted to Tenant for approval, which approval shall not be unreasonably withheld or delayed and shall be deemed given if not disapproved of in writing within five (5) business days of submittal. The final plans and specifications for the vivarium shall be attached to this Lease as Exhibit E-1 following completion. Tenant acknowledges and agrees that the estimated cost to complete the vivarium portion of the Initial Tenant Improvements based upon Tenant's specifications as detailed on Exhibit E is expected to be $304,900.00 (the "Estimate"). Tenant has agreed to pay $196,864.00 towards the cost of the vivarium portion of the Initial Tenant Improvements. Landlord acknowledges and agrees that all costs associated with the construction of the vivarium within the Premises in excess of $196,864.00 shall be Landlord's responsibility; provided, however, that Tenant shall be responsible for any costs in excess of the Estimate due to Tenant requested changes to the plans and specifications for the vivarium as attached in Exhibit E and Exhibit E-1. Tenant understands and agrees that changes to the plans and specifications for the vivarium that may be needed or desired by Tenant will be subject to Landlord's reasonable approval. Tenant may elect to amortize, on a straight line basis, up to $196,864.00 of Tenant's contribution to the total cost of the vivarium over the Initial Term with an implied interest rate of 8%. Such payments shall be made with Tenant's payment of the Monthly Installment of Base Rent and shall be considered additional rent due under this lease. The balance, if any, owed by Tenant that cannot be amortized shall be paid by Tenant to Landlord within fifteen (15) days of when billed therefor.

ARTICLE 12: DAMAGE OR DESTRUCTION; CONDEMNATION

12.01 Damage or Destruction of Premises.

12.01.01 If the Premises or any part thereof shall be damaged by fire or other insured casualty, then, subject to the last paragraph of this Section, Landlord shall proceed with diligence, subject to then applicable statutes, building codes, zoning ordinances and regulations of any governmental authority, and at the expense of Landlord (but only to the extent of insurance proceeds made available to Landlord by any mortgagee of the Building and any ground lessor) to repair or cause to be repaired such damage (including the Initial Tenant Improvements but excluding Tenant Work, which Tenant shall promptly commence, and proceed with diligence, to restore). All such repairs made necessary by any act or omission of Tenant shall be made at the Tenant's expense to the extent that the cost of such repairs are less than the deductible amount in Landlord's insurance policy. All repairs to and replacements of

Tenant Property and any Tenant Work shall be made by and at the expense of Tenant. The cost of any repairs performed under this Section by Landlord which pursuant to this Section are to be at Tenant's expense (including costs of design fees, financing, and charges for administration, overhead and construction management services by Landlord and Landlord's contractor) shall constitute Additional Rent hereunder. If the Premises or any part thereof shall have been rendered unfit for use and occupation hereunder by reason of such damage, the Base Rent or a just and proportionate part thereof, according to the nature and extent to which the Premises shall have been so rendered unfit, shall be abated until the Premises (except as to Tenant Property, and any Tenant Work) shall have been restored as nearly as practicable to the condition in which they were immediately prior to such fire or other casualty, and that if and to the extent Landlord shall be unable to collect the insurance proceeds (including rent insurance proceeds) applicable to such damage because of some action or inaction on the part of Tenant, or the employees, licensees or invitees of Tenant, the cost of repairing such damage shall be paid by Tenant and there shall be no abatement of rent. Landlord shall not be liable for delays in the making of any such repairs that are due to government regulation, casualties, and strikes, unavailability of labor and materials, delays in obtaining insurance proceeds, and other causes beyond the reasonable control of Landlord, nor shall Landlord be liable for any inconvenience or annoyance to Tenant or injury to the business of Tenant resulting from delays in repairing such damage.

12.01.02 If (i) the Premises are so damaged by fire or other casualty (whether or not insured) at any time during the last thirty (30) months of the Term that the cost to repair such damage is reasonably estimated to exceed one-third (1/3) of the total Base Rent payable hereunder for the period from the estimated completion date of repair until the end of the Term, (ii) at any time the Building (or any portion thereof, whether or not including any portion of the Premises) is so damaged by fire or other casualty (whether or not insured) that substantial alteration or reconstruction or demolition of the Building (or a portion thereof) shall in Landlord's judgment be required, or (iii) at any time damage to the Building occurs by fire or other insured casualty and any mortgagee or ground lessor shall refuse to permit insurance proceeds to be utilized for the repair or replacement of such property and Landlord determines not to repair such damage, then and in any of such events, this Lease and the term hereof may be terminated at the election of Landlord by a notice from Landlord to Tenant within six (6) months, or such longer period as is required to complete arrangements with any mortgagee or ground lessor regarding such situation, following such fire or other casualty; the effective termination date pursuant to such notice shall be not less than thirty (30) days after the day on which such termination notice is received by Tenant. If any mortgagee refuses without fault by Tenant to permit insurance proceeds to be applied to replacement of the Premises, and neither Landlord nor such mortgagee has commenced such replacement within six (6) months following adjustment of such casualty loss with the insurer, then Tenant may, until any such replacement commences, terminate this Lease by giving at least thirty (30) days prior written notice thereof to Landlord and such termination shall be effective on the date specified if such replacement has not then commenced. Notwithstanding anything to the contrary herein, if the Premises or the Building are substantially damaged so as to render the Premises completely untenantable or inaccessible for the uses permitted under this Lease, Tenant shall have the right to terminate this Lease by prior written notice thereof either (i) within fifteen (15) days after receipt of Landlord's notice electing to repair the damage if Landlord estimates that the repair will take longer than six (6) months to complete or that once the damage is repaired there will be less than nine (9) months remaining in the Term, or (ii) given upon thirty (30) days if Landlord fails to repair the

damage prior to six (6) months from the date of Landlord's notice; provided Tenant's termination shall be void if Landlord delivers the Premises to Tenant within such thirty (30) day period. In the event of any termination, the Term shall expire as though such effective termination date were the date originally stipulated in Article I for the end of the Term and the Base Rent and Additional Rent for Total Operating Costs (to the extent not abated as set forth above) shall be apportioned as of such date.

12.02 Eminent Domain. In the event that all or any substantial part of the Premises or the Building or its common areas is taken (other than for temporary use, hereafter described) by public authority under power of eminent domain (or by conveyance in lieu thereof), then by notice given within three (3) months following the recording of such taking (or conveyance) in the appropriate registry of deeds, this Lease may be terminated at Landlord's election thirty (30) days after such notice. In the event there is a taking that results in the loss of reasonable access to the Premises; results in the loss of more than twenty-five percent (25%) of the rentable floor area of the Premises; or results in loss of parking facilities for the Building and Landlord reasonably determines it is not practical to relocate such parking or relocate and reconnect such facilities within the remaining Building or Property then Tenant shall have the right, upon written notice to Landlord given within thirty (30) days after notice of the taking, to terminate the Lease. In the event of termination, Base Rent and Tenant's share of Total Operating Costs and Taxes shall be apportioned as of the date of termination. If this Lease is not terminated as aforesaid, subject to the rights of mortgagees Landlord shall within a reasonable time thereafter, diligently restore what may remain of the Premises (excluding any Tenant Property or other items installed or paid for by Tenant that Tenant is permitted or may be required to remove upon expiration and any and Tenant Work) to a tenantable condition. In the event some portion of rentable floor area of the Premises is taken (other than for temporary use) and this Lease is not terminated, Base Rent and Tenant's Pro Rata Share of Total Operating Costs shall be proportionally abated for the remainder of the Term. In the event of any taking of the Premises or any part thereof for temporary use, (i) this Lease shall be and remain unaffected thereby and rent shall not abate, and (ii) Tenant shall be entitled to receive for itself such portion or portions of any award made for such use with respect to the period of the taking that is within the Term, provided that if such taking shall remain in force at the expiration or earlier termination of this Lease, then Tenant shall pay to Landlord a sum equal to the reasonable cost of performing Tenant's obligations hereunder with respect to surrender of the Premises and upon such payment shall be excused from such obligations.

So long as Tenant is not then in breach of any covenant or condition of this Lease, any specific damages that are expressly awarded to Tenant on account of its relocation expenses, and specifically so designated, shall belong to Tenant. Except as provided in the preceding sentence of this paragraph, Landlord reserves to itself, and Tenant releases and assigns to Landlord, all rights to damages accruing on account of any taking or by reason of any act of any public authority for which damages are payable. Tenant agrees to execute such further instruments of assignment as may be reasonably requested by Landlord, and to turn over to Landlord any damages that may be recovered in any proceeding or otherwise; and Tenant irrevocably appoints Landlord as its attorney-in-fact with full power of substitution so to execute and deliver in Tenant's name, place and stead all such further instruments if Tenant shall fail to do so after ten (10) days' notice.

ARTICLE 13: ASSIGNMENT AND SUBLETTING

13.01 Landlord's Consent Required. Except as set forth in this Article, Tenant shall not directly or indirectly assign this Lease, or sublet or license the Premises or any portion thereof, or advertise the Premises for assignment or subletting or permit the occupancy of all or any portion of the Premises by any person other than Tenant (each of the foregoing actions are collectively referred to as a "Transfer") without obtaining, on each occasion, the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed provided that Tenant complies with the provisions of this Article. A Transfer shall include, without limitation, any transfer of Tenant's interest in this Lease by operation of law, merger or consolidation of Tenant into any other firm or corporation, and the transfer or sale of a controlling interest in Tenant, whether by sale of its capital stock or otherwise or any sale of all or a substantial part of Tenant's assets. Any Transfer shall be subject to this Lease, all of the provisions of which shall be conditions to such Transfer and be binding on any transferee. No transferee shall have any right further to transfer its interest in the Premises except in accordance with this Article 13. The foregoing restrictions shall be binding on any assignee or sublessee to which Landlord has consented, provided, notwithstanding anything else contained in this Lease, Landlord's consent to any further assignment, subleasing or any sub-subleasing by any approved assignee or sublessee may be granted or withheld by Landlord in accordance with this Article 13. If Tenant does Transfer with (or without) Landlord's consent, any option or other right that Tenant may have relating to the Premises, including any right to extend the Term or lease other premises, shall automatically be terminated except in the case of a Related Party Transfer.

13.02 Terms. Without limitation, it shall not be unreasonable for Landlord to withhold such consent for any Transfer where, in Landlord's reasonable opinion: (i) the proposed transferee does not have a financial standing and credit rating reasonably acceptable to Landlord; (ii) the proposed transferee does not have a good reputation in the community; (iii) the business in which the proposed transferee is engaged could detract from, or be inappropriate for, the Building, its value or the costs of ownership thereof; (iv) intentionally omitted; (v) the proposed transferee is a current tenant or a prospective tenant (or any affiliate of such tenant or prospective tenant), meaning such tenant has been shown space or has been presented with or has made an offer to lease space, of the Building or the Project and Landlord has comparable space available in the Project; (vi) the use of the Premises by any transferee (even though a Permitted Use) violates any use restriction granted by Landlord in any other lease or would otherwise cause Landlord to be in violation of its obligations under another lease or agreement to which Landlord is a party; (vii) if such Transfer is not approved of by the holder of any mortgage on the Property (if such approval is required); (viii) a proposed transferee's business will impose a burden on the Property's parking facilities, elevators, common areas, facilities, or utilities that is greater than the burden imposed by Tenant, in Landlord's reasonable judgment; (ix) any guarantor of this Lease refuses to consent to the proposed transfer or to execute a written agreement reaffirming the guaranty; (x) Tenant is in default of any of its obligations under the Lease at the time of the request or at the time of the proposed Transfer; (xi) if requested by Landlord, the transferee refuses to sign a non-disturbance and attornment agreement in favor of Landlord's lender; (xii) Landlord has sued or been sued by the proposed transferee or has otherwise been involved in a legal dispute with the proposed transferee; (xiii) the transferee is involved in a business which is not in keeping with the then current standards of the Property; (xiv) the Transfer will result in there being more than one subtenant of the Premises; or (xv) the transferee is a governmental or

quasi-governmental entity or an agency, department or instrumentality of a governmental or quasi-governmental agency. Landlord may condition its consent upon such transferee depositing with Landlord such additional security as Landlord may reasonably require to assure the performance and observance of the obligations of such party to Landlord. In no event, however, shall Tenant assign this Lease or sublet the whole or any part of the Premises to a proposed transferee which has been judicially declared bankrupt or insolvent according to law, or with respect to which an assignment has been made of property for the benefit of creditors, or with respect to which a receiver, guardian, conservator, trustee in involuntary bankruptcy or similar officer has been appointed to take charge of all or any substantial part of the proposed transferee's property by a court of competent jurisdiction, or with respect to which a petition has been filed for reorganization under any provisions of the Bankruptcy Code now or hereafter enacted, or if a proposed transferee has filed a petition for such reorganization, or for arrangements under any provisions of the Bankruptcy Code now or hereafter enacted and providing a plan for a debtor to settle, satisfy or extend the time for the payment of debts.

13.03 Right of Termination or Recapture. If Tenant requests Landlord's consent to a Transfer (excepting a Related Party Transfer, as hereinafter defined) of all or a portion of the Premises, Landlord shall have the option, exercisable by written notice to Tenant given within thirty (30) days after Landlord's receipt of Tenant's completed request, to terminate this Lease as of the date specified in such notice, which shall not be less than thirty (30) nor more than one hundred twenty (120) days after the date of such notice, as to the entire Premises in the case of a proposed Transfer of the whole Premises, and as to the portion of the Premises to be transferred in the case of a partial Transfer. In the event of termination in respect of a portion of the Premises, the portion so eliminated shall be delivered to Landlord on the date specified in good order and condition in the manner required under this Lease at the end of the Term and thereafter, to the extent necessary in Landlord's judgment, Landlord, at Tenant's cost and expense, may have access to and may make modification to the Premises (or portion thereof) so as to make such portion a self-contained rental unit with access to common areas, elevators and the like. Base Rent and the Tenant's share shall be adjusted according to the extent of the rentable square footage of the Premises for which the Lease is terminated. If Landlord does exercise its right to terminate this Lease or recapture the portion of the Premises pursuant to this Section 13.03, Tenant may rescind its request for consent to Transfer within three (3) business days and, in such case, Landlord's recapture shall be null and void and this Lease shall continue in full force and effect. If Landlord does not exercise its right to terminate this Lease or recapture the portion of the Premises pursuant to this Section 13.03, then Landlord, subject to the provisions of Section 13.02, will not unreasonably withhold, condition or delay its consent to the proposed Transfer.

13.04 Procedures. At least twenty (20) days prior to the effective date of any Transfer, Tenant shall give Landlord in writing the details of the proposed Transfer, including, but not limited to: (i) the name, business, and financial condition of the prospective transferee, (ii) a true and complete copy of the letter of intent containing all of the principal terms and conditions of such Transfer, and (iii) any other information Landlord reasonably deems relevant. Prior to the effective date of the Transfer, Tenant shall give Landlord (y) a true and complete copy of the proposed assignment or sublease, and (z) a written agreement of the assignee, subtenant or licensee agreeing with Landlord to perform and observe all of the terms, covenants, and conditions of this Lease undertaken by such transferee and such other matters as are contained in

Landlord's standard form of consent to a Transfer. Tenant shall pay to Landlord, as Additional Rent, Landlord's reasonable out-of-pocket attorneys' fees in reviewing any Transfer up to a maximum amount of $5,000. Notwithstanding the foregoing, Tenant may make a Related Party Transfer (as defined below) without the consent of Landlord provided that Tenant gives Landlord at least ten (10) days' prior notice thereof together with evidence reasonably satisfactory to Landlord that the proposed Transfer is a Related Party Transfer and such Related Party Transfer is subject to all of the other terms and conditions for this Article. A "Related Party Transfer" transactions with an entity (i) into or with which Tenant is merged or consolidated, (ii) to which substantially all of Tenant's assets are transferred as a going concern, or (iii) which controls or is controlled by Tenant or is under common control with Tenant, shall not be deemed to be a Transfer within the meaning of this Section, provided that in any of such events (1) Landlord receives prior written notice of any such transactions, (2) the assignee or subtenant agrees directly with Landlord, by written instrument in form satisfactory to Landlord, to be bound by all the obligations of Tenant hereunder including, without limitation, the covenant against further assignment and subletting without complying with this Article 13, (3) in no event shall Tenant be released from its obligations under this Lease, (4) any such transfer or transaction is for a legitimate, regular business purpose of Tenant other than a transfer of Tenant's interest in this Lease, and (5) the involvement by Tenant or its assets in any transaction, or series of transactions (by way of merger, sale, acquisition, financing, refinancing, transfer, leveraged buy-out or otherwise) whether or not a formal assignment or hypothecation of this Lease or Tenant's assets occurs, will not result in a reduction of the Net Worth of Tenant (as defined below), from the Net Worth of Tenant as it is represented to Landlord at the time of the execution by Landlord of this Lease, or as it exists immediately prior to said transaction or transactions constituting such reduction, at whichever time said Net Worth of Tenant was or is greater. "Net Worth" of Tenant for purposes of this Section shall be the tangible net worth of Tenant (excluding any guarantors) established under generally accepted accounting principles consistently applied.

13.05 Excess Rents. If the consideration, rent, or other amounts payable to Tenant under any other Transfer exceed the Rent and Tenant's Transfer Expenses ((a) pro rated based on floor area in the case of a subletting, license or other occupancy of less than the entire area of the Premises and (b) amortized on a straight line basis over the remaining Term), then Tenant shall pay to Landlord, as Additional Rent, fifty percent (50%) of the amount of such excess when and as received. Tenant's "Transfer Expenses" shall mean Tenant's actual reasonable payments to third parties in connection with such a Transfer on account of brokerage, legal and market-based fit-up costs or market-based improvement allowances. Without limiting the generality of the first sentence of this Section, any non-market lump-sum payment or series of payments (including, without limitation, for the purchase or use of so-called leasehold improvements or Tenant Property and any separate charges for services) on account of any Transfer shall be deemed to be in excess of Rent and other charges in its or their entirety.

13.06 No Release. Notwithstanding any Transfer and whether or not the same is a Related Party Transfer or is consented to, the liability of Tenant to Landlord shall remain direct and primary. Any transferee of all or substantially all of Tenant's interest in the Premises (including any such transferee under a Related Party Transfer) shall be jointly and severally liable with Tenant to Landlord for the performance of all of Tenant's covenants under this Lease; and such assignee shall upon request execute and deliver such instruments as Landlord

reasonably requests in confirmation thereof (and agrees that its failure to do so shall be a default). Tenant hereby irrevocably authorizes Landlord to collect Rent from any transferee (and upon notice any transferee shall pay directly to Landlord) and apply the net amount collected to the rent and other charges reserved under this Lease. No Transfer shall be deemed a waiver of the provisions of this Section, or the acceptance of the transferee as a tenant, or a release of Tenant from direct and primary liability for the performance of all of the covenants of this Lease. Notwithstanding anything to the contrary in the documents effecting the Transfer, no Transfer shall alter in any manner whatsoever the terms of this Lease, to which any Transfer at all times shall be subject and subordinate. The breach by Tenant or any transferee of any covenant in this Article shall be a default for which there is no cure period.

Anything contained in the foregoing provisions of this section to the contrary notwithstanding, neither Tenant nor any transferee nor any other person having an interest in the possession, use, occupancy or utilization of the Premises shall enter into any lease, sublease, assignment, license, concession or other agreement for use, occupancy or utilization of space in the Premises that provides for rental or other payment for such use, occupancy or utilization based, in whole or in part, on the net income or profits derived by any person from the Premises leased, used, occupied or utilized (other than an amount based on a fixed percentage or percentages of receipts or sales), and any such purported lease, sublease, assignment, license, concession or other agreement shall be absolutely void and ineffective as a conveyance of any right or interest in the possession, use, occupancy or utilization of any part of the Premises.

13.07 Certain Additional Rights. If the Premises or any part thereof are Transferred by Tenant, following the occurrence of a default which has continued beyond any applicable cure period, Landlord, in addition to any other remedies provided hereunder or at law, may at its option collect directly from any such transferee(s) all rents becoming due to the Tenant under any such Transfer and apply such rent against any amounts due Landlord by Tenant under this Lease, and Tenant hereby irrevocably authorizes and directs such transferee(s) to so make all such rent payments, if so directed by Landlord; and it is understood that no such election or collection or payment shall be construed to constitute a novation of this Lease or a release of Tenant hereunder, or to create any lease or occupancy agreement between the Landlord and such subtenant or impose any obligations on Landlord, or otherwise constitute the recognition of such sublease by Landlord for any purpose whatsoever. Tenant hereby absolutely and unconditionally assigns and transfers to Landlord all of Tenant’s interest in all rentals and income arising from any Transfer entered into by Tenant, and Landlord may collect such rent and income and apply same toward Tenant’s obligations under this Lease; provided, however, that until a default occurs in the performance of Tenant’s obligations under this Lease, Tenant may receive, collect and enjoy the rents accruing under such Transfer. Landlord shall not, by reason of this or any other assignment of such rents to Landlord nor by reason of the collection of the rents from a transferee, be deemed to have assumed or recognized any Transfer or to be liable to the transferee for any failure of Tenant to perform and comply with any of Tenant’s obligations to such transferee under such Transfer, including, but not limited to, Tenant’s obligation to return any security deposit. Tenant hereby irrevocably authorizes and directs any such transferee, upon receipt of a written notice from Landlord stating that a default exists in the performance of Tenant’s obligations under this Lease, to pay to Landlord the rents due as they become due under the Transfer. Tenant agrees that such transferee shall have the right to rely upon any such statement and request from Landlord, and that such transferee shall pay such rents to Landlord

without any obligation or right to inquire as to whether such default exists and notwithstanding any notice from or claim from Tenant to the contrary. In the event Tenant shall default in the performance of its obligations under this Lease or Landlord terminates this Lease by reason of a default of Tenant, Landlord at its option and without any obligation to do so, may require any transferee to attorn to Landlord.

ARTICLE 14: EVENTS OF DEFAULT AND REMEDIES

14.01 Events of Default. Landlord and Tenant hereby agree that the occurrence of any one or more of the following events is a material default (sometimes referred to as an "Event of Default") by Tenant under this Lease:

14.01.01 Tenant's failure to make any payment of Base Rent, Additional Rent, Rent, Tenant's share of Operating Expenses, Tenant's share of Taxes, late charges, or any other payment required to be made by Tenant hereunder, as and when due, where such failure shall continue for a period of five (5) days after written notice thereof from Landlord to Tenant; provided if Landlord has given two (2) prior notices of any such failure (under this subsection 14.01.01) in any twelve (12) month period, then Tenant shall be in default if any such payment is not made on or before the due date without notice;

14.01.02 Tenant's failure to observe or perform any of the covenants, conditions or provisions of this Lease to be observed or performed by Tenant (other than those referenced in Section 14.01(a), above) where such failure shall continue for a period of thirty (30) days after written notice thereof from Landlord to Tenant (or such additional time as may be reasonable provided that Tenant notifies Landlord within such thirty (30) day period of the circumstances requiring such extended cure period; commences cure of such failure within such 30-day period and is diligently pursuing completion of the same and keeps Landlord reasonably apprised of such diligent efforts to cure same. In no event, however, shall such extended cure period exceed sixty (60) days) plus reasonable extensions for delays due to Force Majeure;

14.01.03 Tenant's abandonment of the Premises; provided that Tenant shall not be deemed to have abandoned the Premises if Tenant has made reasonable arrangements for the security of the Premises for the balance of the Term, has decommissioned the Premises as required by Section 10.07 herein and Tenant continues to satisfy its obligations under this Lease;

14.01.04 Tenant's (or any transferee of Tenant's) attempt to make any Transfer of the Premises in violation of this Lease;

14.01.05 (i) The making by Tenant or any guarantor of Tenant's obligations hereunder of any general arrangement or general assignment for the benefit of creditors; (ii) Tenant or any guarantor becoming a "debtor" as defined in 11 U.S.C. 101 or any successor statute thereto (unless, in the case of a petition filed against Tenant or guarantor, the same is dismissed within sixty (60) days); (iii) the appointment of a trustee or receiver to take possession of substantially all of Tenant's assets located at the Premises or of Tenant's interest in this Lease, where possession is not restored to Tenant within thirty (30) days; (iv) the attachment, execution or other judicial seizure of substantially all of Tenant's assets located at the Premises or of Tenant's interest in this Lease, where such seizure is not discharged within thirty (30) days; or (v) the insolvency of Tenant. In the event that any provision of this Section 14.04(e) is unenforceable under applicable law, such provision shall be of no force or effect;

14.01.06 The discovery by Landlord that any financial statement, representation or warranty given to Landlord by Tenant, or by any guarantor of Tenant's obligations hereunder, was materially false at the time given, Tenant acknowledging that Landlord has entered into this Lease in material reliance on such information;

14.01.07 The failure of Tenant to comply with any of its obligations within the applicable specified timeframes under (i) Article 7 with respect to maintaining and evidencing the required insurance coverages; (ii) Article 15; (iii) Section 16.03; and (iv) Section 16.04.

then, and in any such case, Landlord and its agents lawfully may, in addition to any remedies for any preceding breach, immediately or at any time thereafter without demand or notice and with or without process of law, enter upon any part of the Premises in the name of the whole or mail or deliver a notice of termination of the Term of this Lease addressed to Tenant at the Premises or any other address herein, and thereby terminate the Term and repossess the Premises as of Landlord's former estate. At Landlord's election such notice of termination may be included in any notice of default. Upon such entry or mailing the Term shall terminate, all executory rights of Tenant and all obligations of Landlord will immediately cease, and Landlord may expel Tenant and all persons claiming under Tenant and remove their effects without any trespass and without prejudice to any remedies for arrears of Rent or prior breach; and Tenant waives all statutory and equitable rights to its leasehold (including rights in the nature of further cure or redemption, if any). If Landlord engages attorneys in connection with any failure to perform by Tenant hereunder, Tenant shall promptly reimburse Landlord for the fees of such attorneys on demand as Additional Rent. Without implying that other provisions do not survive, the provisions of this Article shall survive the Term or earlier termination of this Lease.

Rent forgiveness, allowances for (and/or Landlord expenses in designing and constructing) leasehold improvements to ready the Premises for Tenant's occupancy and the like, if any, have been agreed to by Landlord as inducements for Tenant faithfully to perform all of its obligations. For all purposes, upon the occurrence and during the pendency of any Event of Default any future payments relating to such inducements shall be, at Landlord's election, be tolled until the Event of Default has been cured.

14.02 Remedies for Default.

14.02.01 Reletting Expenses Damages. If the Term of this Lease is terminated for an Event of Default, Tenant covenants, as an additional cumulative obligation after such termination, to pay all of Landlord's reasonable out-of-pocket costs, including reasonable attorneys' fees, related to Tenant's Event of Default and in collecting amounts due and all reasonable expenses in connection with reletting, including tenant inducements to new tenants, brokerage commissions, fees for legal services, expenses of preparing the Premises for reletting and the like together with an administrative charge of fifteen percent (15%) of all the foregoing costs ("Reletting Expenses"). It is agreed that Landlord may (i) relet the Premises or part or parts thereof for a term or terms that may be equal to, less than or exceed the period that would otherwise have constituted the balance of the Term, and may grant such tenant inducements,

including free rent, as Landlord in its sole discretion considers advisable, and (ii) make such alterations to the Premises as Landlord in its sole discretion considers advisable, and no failure to relet or to collect rent under any reletting shall operate to reduce Tenant's liability. Any obligation to relet imposed by law will be subject to Landlord's reasonable objectives of developing its property in a harmonious manner with appropriate mixes of tenants, uses, floor areas, terms and the like. Landlord's Reletting Expenses together with all other sums provided for whether incurred prior to or after such termination will be due upon demand. Subject to the conditions and limitations hereafter set forth, Landlord agrees to use commercially reasonable efforts to relet the Premises to another tenant after Tenant vacates the Premises in the event that this Lease is terminated by Landlord as the result of an Event of Default hereunder. Marketing of the Premises in a manner similar to the manner in which Landlord markets other premises within Landlord's control in the Building shall be deemed to have satisfied Landlord's obligation to use "commercially reasonable efforts" to relet the Premises. In no event shall Landlord be required to (a) solicit or entertain negotiations with any other prospective tenants for the Premises until Landlord obtains full and complete possession of the Premises including, without limitation, the final and unappealable legal right to relet the Premises free of any claim of Tenant, (b) relet the Premises before leasing other vacant space in the Building, (c) lease the Premises for a rental or upon terms and conditions less than the current fair market rental and terms and conditions then prevailing for similar office space in the Building, (d) enter into a lease with any proposed tenant that does not have, in Landlord's good faith opinion, sufficient financial resources or operating experience to operate the Premises in a first-class manner, or (e) relet the Premises for a use that is inconsistent with other uses in the Building or inconsistent with Landlord's leasing program for the Building.

14.02.02 Termination Damages. If the Term of this Lease is terminated for default, unless and until Landlord elects lump sum liquidated damages described in the next paragraph, Tenant covenants, as an additional, cumulative obligation after any such termination, to pay punctually to Landlord all the sums and perform all of its obligations in the same manner as if the Term had not been terminated. In calculating such amounts Tenant will be credited with the net proceeds of any rent then actually received by Landlord from a reletting of the Premises after deducting all Rent that has not then been paid by Tenant, provided that Tenant shall never be entitled to receive any portion of the re-letting proceeds, even if the same exceed the Rent originally due hereunder.

14.02.03 Lump Sum Liquidated Damages. If this Lease is terminated for default, Tenant covenants, as an additional, cumulative obligation after any such termination, to pay forthwith to Landlord at Landlord's election made by written notice at any time after termination, as liquidated damages a single lump sum payment equal to the sum of (i) all sums to be paid by Tenant and not then paid at the time of such election, plus, (ii) the excess of the present value of all of the Rent reserved for the residue of the Term (with Additional Rent deemed to increase ten percent (10%) in each year on a compounding basis) over the present value of the aggregate fair market rent and Additional Rent payable (if less than the Rent payable hereunder) on account of the Premises during such period, which fair market rent shall be reduced by reasonable projections of vacancies and by Landlord's Reletting Expenses described above to the extent not theretofore paid to Landlord). (The Federal Reserve discount rate (or equivalent) shall be used in calculating such present values under clause (ii), and in the event the parties are unable to agree on such fair market rent, the matter shall be submitted, upon the

demand of either party, to the office of the American Arbitration Association (or successor) closest to the Property, with a request for arbitration in accordance with the rules of the Association by a single arbitrator who shall be a licensed real estate broker with at least ten (10) years' experience in the leasing of office/laboratory buildings similar in character and location to the Premises, whose decision shall be conclusive and binding on the parties.)

14.02.04 Remedies Cumulative; Late Performance. The remedies to which Landlord may resort under this Lease, and all other rights and remedies of Landlord are cumulative, and any two or more may be exercised at the same time. Nothing in this Lease shall limit the right of Landlord to prove and obtain in proceedings for bankruptcy or insolvency an amount equal to the maximum allowed by any statute or rule of law in effect at the time; and Tenant agrees that the fair value for occupancy of all or any part of the Premises at all times shall never be less than the Base Rent and all Additional Rent payable from time to time. Tenant shall also indemnify and hold Landlord harmless in the manner provided elsewhere herein if Landlord shall become or be made a party to any claim or action (a) instituted by Tenant against any third party, or by any third party against Tenant, or by or against any person claiming Tenant; (b) for foreclosure of any lien for labor or material furnished to or for Tenant or such other person; (c) otherwise arising out of or resulting from any act or transaction of Tenant or such other person; or (d) necessary to protect Landlord's interest under this Lease in a bankruptcy proceeding, or other proceeding under Title 11 of the United States Code, as amended.

14.02.05 Waivers; Accord and Satisfaction. No consent by Landlord or Tenant to any act or omission that otherwise would be a default shall be construed to permit other similar acts or omissions. Neither party's failure to seek redress for violation or to insist upon the strict performance of any covenant, nor the receipt by Landlord of Rent with knowledge of any breach of covenant, shall be deemed a consent to or waiver of such breach. No breach of covenant shall be implied to have been waived unless such is in writing, signed by the party benefiting from such covenant and delivered to the other party; and no acceptance by Landlord of a lesser sum than the Rent due shall be deemed to be other than on account of the earliest installment of such Rent. Nor shall any endorsement or statement on any check or in any letter accompanying any check or payment be deemed an accord and satisfaction; and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such installment or pursue any other right or remedy. The acceptance by Landlord of any Rent following the giving of any default and/or termination notice shall not be deemed a waiver of such notice. If Landlord commences any summary proceeding for possession of the Premises or in any action based on non-payment of Rent by Tenant hereunder, Tenant hereby waives the right to interpose any non-compulsory claim or counterclaim of whatever nature or description in any such proceeding.

14.02.06 Landlord's Curing. If Tenant fails to perform any covenant within any applicable cure period, then Landlord at its option may (without waiving any right or remedy for Tenant's non-performance) at any time thereafter perform the covenant for the account of Tenant. Tenant shall upon demand reimburse Landlord's out-of-pocket cost (including reasonable attorneys' fees) of so performing, together with an administrative charge equal to fifteen percent (15%) of such cost ("Administrative Charge") on demand as Additional Rent. Notwithstanding any other provision concerning cure periods, Landlord may cure any non-performance for the account of Tenant after such notice to Tenant, if any, as is reasonable under the circumstances if curing prior to the expiration of the applicable cure period is reasonably necessary to prevent likely damage to the Premises or possible injury to persons, or to protect Landlord's interest in the Premises.

ARTICLE 15: SECURITY DEPOSIT/LETTER OF CREDIT

Simultaneously with the execution and delivery of this Lease, Tenant shall deliver to Landlord a clean, irrevocable letter of credit in the Letter of Credit Amount (as defined in Article 1) in the form attached hereto as Exhibit I or otherwise satisfactory in form and content to Landlord and issued by an FDIC insured bank reasonably satisfactory to Landlord in favor of Landlord. During the Term hereof, including any extensions thereof, or for any period that Tenant remains in possession of the premises following the expiration of the term, or for any period Tenant has obligations hereunder to Landlord that remain unsatisfied following the expiration of the term (as may be extended), and for ninety (90) days after the latest to occur of the foregoing (i.e., the expiration of the term (as may be extended), the date on which Tenant vacates and yields up the premises, etc.), the letter of credit shall be held to ensure the full and timely performance of Tenant's obligations under this Lease; which letter of credit may be drawn upon by Landlord after an Event of Default (provided, however, that delivery of a default notice to Tenant shall not be required for purposes of this Article 15 and to draw on the letter of credit if Landlord is prohibited from delivering same under applicable law, including, without limitation, all applicable bankruptcy insolvency laws) and applied from time to time against outstanding obligations of Tenant hereunder without notice or demand. Tenant shall have no right to require Landlord to so draw and apply the letter of credit, nor shall Tenant be entitled to credit the same against rents or other sums payable hereunder. During the entire Term hereof, including any extension thereof, Tenant shall cause said letter of credit to be renewed, in form reasonably acceptable to Landlord if different in form to that delivered hereunder, prior to the date of expiration of same. Without limiting any other remedies of Landlord, in the event that Tenant fails to renew any letter of credit given hereunder prior to the date of expiration thereof, then Landlord shall have the right to draw down the entire amount of said letter of credit and hold such sums as a cash deposit. If and to the extent that Landlord makes such use of the letter of credit, or any part thereof, the sum so applied by Landlord (from cash or from a drawing on the letter of credit) shall be restored to the letter of credit (or by a new letter of credit equal to the difference) by Tenant forthwith upon notice from Landlord, and failure to so restore (within the grace period applicable to Base Rent hereunder) shall be a default hereunder giving rise to all of Landlord's rights and remedies applicable to a default in the payment of rent. In the event of a change of circumstance relating to the bank issuing the letter of credit, or Landlord otherwise reasonably believes the financial conditions of the issuing bank has been degraded, Landlord reserves the right to require Tenant to replace the letter of credit from time to time with a substitute similar letter of credit issued by another bank satisfactory to Landlord.

Notwithstanding the foregoing, in the event Tenant fails to provide Landlord with evidence reasonably satisfactory to Landlord by the date that is two (2) months following the Term Commencement Date indicating that Tenant has closed on its second (2nd) tranche of financing in the amount of $3,000,000.00 (the "2nd Tranche") Tenant shall increase the Letter of Credit Amount to $168,339.78 by providing Landlord with a substitute letter of credit in the increased amount in exchange for the existing letter of credit(s) which Landlord is then holding, or by an amendment to the existing letter of credit(s) then held by Landlord, in form and substance acceptable to Landlord, which is accepted by Landlord in writing.

Provided that: (i) Tenant has not been in default of any of its obligations under this Lease after the giving of any applicable notice and the expiration of any applicable cure period prior to any Reduction Date, as hereinafter defined, in question, (ii) Tenant is, as of such Reduction Date, not in default of its obligation under the Lease (provided, however, that if there is no reduction of the security deposit based upon Tenant's failure to satisfy the condition set forth in this clause (ii), then Tenant may subsequently achieve a reduction in the security deposit pursuant to this sentence at such time as Tenant cures such default, so long as the Lease is then in full force and effect and Tenant is otherwise then in full compliance with its obligations under the Lease), and (iii) the Lease is then in full force and effect, Landlord shall refund to Tenant such portion of the letter of credit which it is then holding so as to cause the Letter of Credit Amount to be reduced as of each Reduction Date to the amount shown in the following schedule:

Reduction Date	New Reduced Letter of Credit Amount
The date Tenant provides Landlord with evidence reasonably satisfactory to Landlord indicating that Tenant has closed on the 2nd Tranche	$112,226.52
The date Tenant provides Landlord with evidence reasonably satisfactory to Landlord indicating that Tenant has closed on its third (3rd) tranche of financing in an amount of at least $3,000.000.00	$93,522.10
The last day of the third (3rd) Lease Year	$74,817.68
The last day of the fourth (4th) Lease Year	$37,408.84

Any reduction in the Letter of Credit Amount shall be accomplished by Tenant providing Landlord with a substitute letter of credit in the reduced amount in exchange for the existing letter of credit(s) which Landlord is then holding, or by an amendment to the existing letter of credit(s) then held by Landlord, in form and substance acceptable to Landlord, which is accepted by Landlord in writing.

ARTICLE 16: PROTECTION OF LENDERS

16.01 Subordination and Superiority of Lease. Tenant agrees that this Lease and the rights of Tenant hereunder will be subject and subordinate to any lien of the holder of any existing or future mortgage, and to the rights of any lessor under any ground or improvements lease of the Building (all mortgages and ground or improvements leases of any priority are collectively referred to in this Lease as "mortgage," and the holder or lessor thereof from time to

time as a "mortgagee"), and to all advances and interest thereunder and all modifications, renewals, extensions and consolidations thereof. With respect to future liens of any mortgage hereafter granted, Landlord will request that the mortgagee execute and deliver to Tenant an agreement (in such form as such mortgagee may request) in which the mortgagee agrees that such mortgagee shall not disturb Tenant in its possession of the Premises upon Tenant's execution thereof and attornment to such mortgagee as Landlord and performance of its Lease covenants (which conditions Tenant agrees with all mortgagees to perform). Upon such attornment, this Lease shall continue in full force and effect as a direct lease between the mortgagee and Tenant upon all of the terms, conditions and covenants as are set forth in this Lease, except that the mortgagee shall not be (i) liable in any way to Tenant for any act or omission, neglect or default on the part of Landlord under this Lease, (ii) responsible for any monies owing by or on deposit with Landlord to the credit of Tenant unless actually received by the mortgagee, (iii) subject to any counterclaim or setoff which theretofore accrued to Tenant against Landlord, (iv) bound by any amendment or modification of this Lease subsequent to such mortgage, or by any previous prepayment of Rent for more than one (1) month, which was not approved in writing by the mortgagee, (v) liable beyond mortgagee's interest in the Property, (vi) responsible for the performance of any work to be done by the Landlord under this Lease to render the Premises ready for occupancy by the Tenant, or (vii) required to remove any person occupying the Premises or any part thereof, except if such person claims under the mortgagee. Tenant agrees that any present or future mortgagee may at its option unilaterally elect to subordinate, in whole or in part and by instrument in form and substance satisfactory to such mortgagee alone, the lien of its mortgagee (or the priority of its ground lease) to some or all provisions of this Lease.

Tenant agrees that this Lease shall survive the merger of estates of ground (or improvements) lessor and lessee. Until a mortgagee (either superior or subordinate to this Lease) forecloses Landlord's equity of redemption (or terminates or succeeds to a new lease in the case of a ground or improvements lease) no mortgagee shall be liable for failure to perform any of Landlord's obligations (and such mortgagee shall thereafter be liable only after it succeeds to and holds Landlord's interest and then only as limited herein). Tenant shall, if requested by Landlord or any mortgagee, give notice of any alleged non-performance on the part of Landlord to any such mortgagee provided that an address for such mortgagee has been designated to Tenant in writing, and Tenant agrees that such mortgagee shall have a separate, consecutive reasonable cure period of no less than thirty (30) days (to be reasonably extended in the same manner Landlord's cure period is to be extended and for such additional periods as is necessary to allow such Mortgagee to take possession of the Property) following Landlord's cure period during which such mortgagee may, but need not, cure any non-performance by Landlord. The agreements in this Lease with respect to the rights and powers of a mortgagee constitute a continuing offer to any person that may be accepted by taking a mortgage (or entering into a ground or improvements lease) of the Premises. This Section shall be self-operative, but in confirmation thereof, Tenant shall execute and deliver the subordination agreement in such form as any mortgagee may request.

16.02 Rent Assignment. If from time to time Landlord assigns this Lease or the rents payable hereunder to any person, whether such assignment is conditional in nature or otherwise, such assignment shall not be deemed an assumption by the assignee of any obligations of Landlord; but, subject to the limitations herein including Sections 16.01 and 10.02(b), the assignee shall be responsible only for non-performance of Landlord's obligations that occur after it succeeds to, and only during the period it holds possession of, Landlord's interest in the Premises after foreclosure or voluntary deed in lieu of foreclosure.

16.03 Other Instruments. The provisions of this Article shall be self-operative; nevertheless, Tenant agrees to execute, acknowledge and deliver any subordination, attornment or priority agreements or other instruments conforming to the provisions of this Lease (and being otherwise commercially reasonable) from time to time requested by Landlord or any mortgagee, and further agrees that its failure to do so within ten (10) business days after written request shall be a default for which this Lease may be terminated without further notice. Without limitation, where Tenant in this Lease indemnifies or otherwise covenants for the benefit of mortgagees, such agreements are for the benefit of mortgagees as third-party beneficiaries; and at the request of Landlord, Tenant from time to time will confirm such matters directly with such mortgagee.

16.04 Estoppel Certificates. Within ten (10) business days after Landlord's request, Tenant shall execute, acknowledge and deliver to Landlord a written statement certifying: (i) that none of the terms or provisions of this Lease have been changed (or if they have been changed, stating how); (ii) that this Lease has not been canceled or terminated; (iii) the last date of payment of Base Rent and other charges and the time period covered; (iv) that Landlord is not in default under this Lease (or if Tenant states that Landlord is in default, describing it in reasonable detail); and (v) such other information with respect to Tenant or this Lease as Landlord may reasonably request or which any prospective purchaser or encumbrancer of the Property may require. Landlord may deliver any such statement by Tenant to any such prospective purchaser or encumbrancer, which may rely conclusively upon such statement as true and correct. If Tenant does not deliver such statement to Landlord within such ten (10) business day period, Landlord, and any such prospective purchaser or encumbrancer, may conclusively presume and rely upon the following facts: (i) that the terms and provisions of this Lease have not been changed except as represented by Landlord; (ii) that this Lease has not been canceled or terminated except as otherwise represented by Landlord; (iii) that not more than one (1) month's Base Rent or other charges have been paid in advance; and (iv) that Landlord is not in default under this Lease. In such event, Tenant shall be estopped from denying the truth of such facts.

16.05 Tenant's Financial Condition. Tenant, within ten (10) business days after request from Landlord from time to time, shall deliver to Landlord Tenant's annual audited financial statements for the latest available two (2) fiscal years, including the year ending no more than six (6) months prior to Landlord's request, and quarterly financial statements certified in writing by Tenant's chief financial officer. Landlord may deliver such financial statements to its investors, mortgagees, lenders and prospective mortgagees, lenders, investors and purchasers on the condition that such parties agree to maintain such financial statements on a confidential basis. Tenant represents and warrants to Landlord that each such financial statement shall be true and accurate as of its date. Except for publicly available information, Landlord shall maintain such financial statements on a confidential basis. Notwithstanding anything set forth herein to the contrary, Landlord agrees that a breach of such confidentiality may cause Tenant harm for which recovery of damages would be an inadequate remedy, and in such event, Tenant shall be entitled to obtain timely injunctive relief, as well as such further relief as may be granted by a court of competent jurisdiction.

ARTICLE 17: MISCELLANEOUS PROVISIONS

17.01 Landlord's Consent Fees. In addition to fees and expenses in connection with Tenant Work, as described in Section 10.05, Tenant shall pay Landlord's reasonable out-of-pocket fees and expenses, including legal, engineering and other consultants' fees and expenses, incurred in connection with Tenant's request for Landlord's consent under Article 13 (Assignment and Subletting) or in connection with any other act by Tenant that requires Landlord's consent or approval under this Lease; provided however, in no event shall any such fees and expenses exceed $5,000 for each request.

17.02 Notice of Landlord's Default. Landlord shall in no event be in default in the performance of any of Landlord's obligations under this Lease unless and until Landlord shall have failed to perform such obligations within thirty (30) days, or such additional time as is reasonably required to correct any such default, after notice by Tenant to Landlord properly specifying wherein Landlord has failed to perform any such obligation. It is the express understanding and agreement of the parties and a condition of Landlord's agreement to execute this Lease that in no event shall Tenant have the right to terminate this Lease or seek an abatement to or offset from Base Rent, Additional Rent or Rent as a result of Landlord's default, but Tenant shall be entitled to seek all other remedies, at law or equity, as a result of such default, subject to the terms and conditions of this Lease. Tenant hereby waives its right to recover punitive, special or consequential damages arising out any act, omission or default by Landlord (or any party for whom Landlord is responsible). This Lease and the obligations of Tenant hereunder shall not be affected or impaired because Landlord is unable to fulfill any of its obligations hereunder or is delayed in doing so, if such inability or delay is caused by reason of Force Majeure, and the time for Landlord's performance shall be extended for the period of any such delay. Any claim, demand, right or defense by Tenant or Landlord that arises out of this Lease or the negotiations which preceded this Lease shall be barred unless the other party commences an action thereon, or interposes a defense by reason thereof, within twelve (12) months after the date of the inaction, omission, event or action that gave rise to such claim, demand, right or defense.

17.03 Quiet Enjoyment. Landlord agrees that, so long as (i) Tenant is not in default under the terms of this Lease and (ii) this Lease is in full force and effect, Tenant shall lawfully and quietly hold, occupy and enjoy the Premises during the Term of this Lease without disturbance by Landlord or by any person claiming through or under Landlord, subject to the terms of this Lease and any encumbrances of record. The foregoing covenant of quiet enjoyment is in lieu of any other covenant, expressed or implied.

17.04 Interpretation. In any provision relating to the conduct, acts or omissions of Tenant, the term "Tenant" includes Tenant's agents, employees, contractors, invitees, successors, assigns or others using the Premises with Tenant's expressed or implied permission.

17.05 Notices. All notices, requests and other communications required under this Lease shall be in writing, addressed as specified in Article 1, and shall be (i) personally delivered, (ii) sent by certified mail, return receipt requested, postage prepaid, or (iii) delivered by a national overnight delivery service that maintains delivery records. All notices shall be effective upon delivery (or refusal to accept delivery).

17.06 No Recordation. Tenant shall not record this Lease but, if required by applicable law in order to protect Tenant's interest in the Premises, each party hereto agrees, on the request of the other, to execute a so-called memorandum of lease or short form lease in recordable form and complying with applicable law and reasonably satisfactory to Landlord's attorneys. The party requesting or requiring such recording shall pay all expenses, transfer taxes and recording fees. In no event shall such document set forth the rent or other charges payable by Tenant under this Lease; and any such document shall expressly state that it is executed pursuant to the provisions contained in this Lease and is not intended to vary the terms and conditions of this Lease.

17.07 Security Measures. Tenant acknowledges that Landlord shall have no obligation to provide guard service or other security measures for the benefit of the Premises or the Property, and Landlord shall have no liability to Tenant due to its failure to provide such services. Tenant assumes all responsibility for the protection of Tenant, its agents, employees, contractors and invitees and the property of Tenant and of Tenant's agents, employees, contractors and invitees from acts of third parties. Nothing herein contained shall prevent Landlord, at Landlord's sole option, from implementing security measures for the Building or any part thereof, in which event Tenant shall participate in such security measures and the cost thereof shall be included within the definition of Operating Expenses, and to the maximum extent permissible by law, Landlord shall have no liability to Tenant and its agents, employees, contractors and invitees arising out of Landlord's provision of security measures. As of the date hereof, Landlord provides periodic patrolled security of the Building common areas and grounds from time to time throughout the day and night, the cost of which is included in Operating Expenses. Landlord reserves the right at any time or from time to time, in its sole discretion, to implement additional, modify, alter or discontinue security measures for the Building, Property or any part thereof, in which event Tenant shall participate in such security measures and the cost thereof shall be included within the definition of Operating Expenses, and to the maximum extent permissible by law, Landlord shall have no liability to Tenant and its agents, employees, contractors and invitees arising out of Landlord's provision of security measures. Landlord shall have the right, but not the obligation, to require all persons entering or leaving the Building to identify themselves to a security guard and to reasonably establish that such person should be permitted access to the Building.

17.08 Corporate Authority. If Tenant is a business entity, then the person or persons executing this Lease on behalf of Tenant jointly and severally warrant and represent in their capacity as a duly authorized representative of Tenant and not in his or her individual capacities that (a) Tenant is duly organized, validly existing and in good standing under the laws of the jurisdiction in which such entity was organized; (b) Tenant has the authority to own its property and to carry on its business as contemplated under this Lease; (c) Tenant is in material compliance with all laws and orders of public authorities applicable to Tenant; (d) Tenant has duly executed and delivered this Lease; (e) the execution, delivery and performance by Tenant of this Lease (i) are within the powers of Tenant, (ii) have been duly authorized by all requisite action, (iii) will not violate any provision of law or any order of any court or agency of government, or any agreement or other instrument to which Tenant is a party or by which it or any of its property is bound, and (iv) will not result in the imposition of any lien or charge on any of Tenant's property, except by the provisions of this Lease; and (f) the Lease is a valid and binding obligation of Tenant in accordance with its terms. Tenant, if a business entity, agrees

that breach of the foregoing warranty and representation shall at Landlord's election be a default under this Lease for which there shall be no cure. This warranty and representation shall survive the termination of the Term. Upon execution of this Lease, Tenant shall provide a board resolution or other entity vote authorizing the execution of this Lease on behalf of Tenant and identifying the person authorized to execute this Lease on behalf of Tenant together with a clerk's or secretary's certificate indicating that such authorized person has in fact executed this Lease.

17.09 Relocation. Landlord shall have the right at any time to relocate Tenant to any other leasable space in the Property (or Project) provided that said space shall be approximately the same size as the Premises and that Landlord shall pay the cost of moving Tenant's furniture and equipment to the new space. The new space shall include tenant improvements that are substantially equivalent to the tenant improvements contained in the Premises, and the cost of any required tenant improvements shall be paid by Landlord. Landlord shall deliver substitute space to Tenant not more than one hundred eighty (180) days after Tenant approves plans for the construction of required tenant improvements at the new space, if any. Tenant shall not unreasonably withhold or delay its approval of any plans for the construction of tenant improvements. Landlord shall give Tenant not less than thirty (30) days advance notice of the estimated move in date. Prior to the date that Tenant is moved to the new space, Tenant shall remain in the Premises and shall continue to perform all of its obligations under this Lease. After Tenant moves into the new space, this Lease shall remain in full force and effect and be deemed applicable to such new space, except as to Base Rent, Tenant's share of Operating Expenses and Taxes, all of which shall be adjusted based on the relationship between the number of rentable square feet in the original Premises and the number of rentable square feet in the new space; provided, however, in the event the square footage of the new space is greater than the Premises then Base Rent and Tenant's Pro Rata Share shall not change. Upon Tenant's election to be relocated, Landlord and Tenant shall amend this Lease to provide for the relocation of the Premises.

17.10 Joint and Several Liability; Right to Lease. If more than one (1) party signs this Lease as Tenant, they shall be jointly and severally liable for all obligations of Tenant. Landlord reserves the absolute right to effect such other tenancies in the Property as Landlord in its sole discretion shall determine, and Tenant is not relying on any representation that any specific tenant or number of tenants will occupy the Property.

17.11 Force Majeure. If Landlord cannot perform any of its obligations under this Lease due to an event(s) of Force Majeure, the time provided for performing such obligations shall be extended by a period of time equal to the duration of the events. In case Tenant is prevented or delayed from performing any covenant or duty to be performed on Tenant's part by reason of an event(s) of Force Majeure, Tenant shall not be deemed in default hereunder while such cause continues. The preceding sentence shall not apply to Tenant's covenants and obligations to pay rent, additional charges and/or other charges or sums due Landlord hereunder or required to be paid to third parties hereunder. The preceding sentence shall not be interpreted to diminish Landlord's rights hereunder to cure a breach of this Lease by Tenant or to recover the expense of such cure. As used in this Lease, an event or events of "Force Majeure" shall include strike or labor troubles, lockout, breakdown, accident, order, preemption or regulation of or by any governmental authority or failure to supply or inability by the exercise of reasonable

diligence to obtain supplies, parts or employees necessary to furnish such services or because of war, civil commotion, or other emergency, or other extraordinary conditions of supply and demand, extraordinary weather conditions, so-called acts of God, or for any other cause beyond the party's reasonable control.

17.12 Limitation of Warranties. Landlord and Tenant expressly agree that there are and shall be no implied warranties of merchantability, habitability, suitability, fitness for a particular purpose or of any other kind arising out of this Lease, and there are no warranties that extend beyond those expressly set forth in this Lease.

17.13 No Other Brokers. Landlord and Tenant represent and warrant to each other that the Broker(s) named in Article 1 and Landlord's Managing Agent are the only agents, Broker(s), finders or other parties with whom such party has dealt who may be entitled to any commission or fee with respect to this Lease or the Premises or the Property. Landlord and Tenant agree to indemnify and hold the other harmless from any claim, demand, cost or liability, including attorneys' fees and expenses, asserted by any party other than the Broker(s) named in Article 1 and Landlord's Managing Agent based upon dealings of that party with the indemnifying party. Landlord shall be responsible for the payment of any brokerage fees to the Broker(s) named in Article 1 and Landlord's Managing Agent. The provisions of this Section shall survive the Term or early termination of this Lease.

17.14 Applicable Law and Construction. This Lease may be executed in counterparts, shall be construed as a sealed instrument, and shall be governed exclusively by the provisions hereof and by the laws of the state where the Property is located without regard to principles of choice of law or conflicts of law. A facsimile signature to this Lease shall be sufficient to prove the execution by a party. The covenants of Landlord and Tenant are independent, and such covenants shall be construed as such in accordance with the laws of the state where the Property is located. If any provisions shall to any extent be invalid, the remainder shall not be affected. Other than contemporaneous instruments executed and delivered of even date, if any, this Lease contains all of the agreements between Landlord and Tenant relating in any way to the Premises and supersedes all prior agreements and dealings between them. There are no oral agreements between Landlord and Tenant relating to this Lease or the Premises. This Lease may be amended only by instrument in writing executed and delivered by both Landlord and Tenant. The provisions of this Lease shall bind Landlord and Tenant and their respective successors and assigns, and shall inure to the benefit of Landlord and its successors and assigns and of Tenant and its permitted successors and assigns, subject to Article 13. The titles are for convenience only and shall not be considered a part of the Lease. This Lease shall not be construed more strictly against one party than against the other merely by virtue of the fact that it may have been prepared primarily by counsel for one of the parties, it being recognized that both Landlord and Tenant have contributed substantially and materially to the preparation of this Lease. If Tenant is granted any extension or other option, to be effective the exercise (and notice thereof) shall be unconditional; and if Tenant purports to condition the exercise of any option or to vary its terms in any manner, then the option granted shall be void and the purported exercise shall be ineffective. The enumeration of specific examples of a general provision shall not be construed as a limitation of the general provision. Unless a party's approval or consent is required by the express terms of this Lease not to be unreasonably withheld, such approval or consent may be withheld in the party's sole discretion. The

submission of a form of this Lease or any summary of its terms shall not constitute an offer by Landlord to Tenant; but a leasehold shall only be created and the parties bound when this Lease is executed and delivered by both Landlord and Tenant. Nothing herein shall be construed as creating the relationship between Landlord and Tenant of principal and agent, or of partners or joint venturers or any relationship other than landlord and tenant. This Lease and all consents, notices, approvals and all other related documents may be reproduced by any party by any electronic means or by facsimile, photographic, microfilm, microfiche or other reproduction process and the originals may be destroyed; and each party agrees that any reproductions shall be as admissible in evidence in any judicial or administrative proceeding as the original itself (whether or not the original is in existence and whether or not reproduction was made in the regular course of business), and that any further reproduction of such reproduction shall likewise be admissible. If any payment in the nature of interest provided for in this Lease shall exceed the maximum interest permitted under controlling law, as established by final judgment of a court, then such interest shall instead be at the maximum permitted interest rate as established by such judgment. The term "Term" includes the Initial Term as it may be extended pursuant to Section 3.03.

17.15 Construction on the Property or Adjacent Property. Tenant acknowledges that Landlord is undertaking, or may undertake in the future, certain renovations in the Building or on or about the Property (the "Project") including the right to make changes to the size, shape, location, number and extent of the improvements comprising the Property. In connection therewith, Landlord may, among other things, erect scaffolding or other necessary structures at the Property, limit or eliminate access to portions of the Property, including portions of the common areas, or perform work in or about the Building, which work may create noise, dust or leave debris in the Building. Landlord and its agents, employees, licensees and contractors shall also have the right to enter on the Property or Building to undertake work pursuant to any easement granted pursuant to the above paragraph; to shore up the foundations and/or walls of the Building; to erect scaffolding and protective barricades around, within or adjacent to the Building; and to do any other act necessary for the safety of the Building or the expeditious completion of such work. Tenant hereby agrees that such work and Landlord's actions in connection therewith shall in no way constitute a constructive eviction of Tenant or entitle Tenant to any abatement of rent. Although Landlord shall use commercially reasonable efforts to minimize any material interference of Tenant's use or occupancy of or access to the Premises, Landlord shall have no responsibility or for any reason be liable to Tenant for any direct or indirect injury to or interference with Tenant's business arising from the foregoing work, nor shall Tenant be entitled to any compensation or damages from Landlord for any inconvenience or annoyance occasioned by such work or Landlord's actions in connection therewith. Landlord shall have the right, in connection with the development, redevelopment, alteration, improvement, operation, maintenance, or repair of the Building, the Property or the Project, to subject the Property to easements for the construction, reconstruction, alteration, improvement, operation, repair or maintenance of elements thereof, for access and egress for parking, for the installation, maintenance, repair, replacement or relocation of utilities serving the Building, the Property or the Project and to subject the Property to such other rights, agreements, and covenants for such purposes as Landlord may determine. Tenant hereby agrees that this Lease shall be subject and subordinate to any such matters that do not unreasonably interrupt Tenant's use of or access to the Premises. The foregoing sentence shall be self-operative, but Tenant hereby irrevocably appoints Landlord as Tenant's attorney-in-fact to execute, acknowledge and

deliver any documents appropriate to accomplish or confirm the same if Tenant fails to do so within ten (10) days after request therefor. Neither Tenant nor any persons acting under Tenant shall take any action to oppose the Project, nor shall the Tenant knowingly permit any persons acting under Tenant to take any action in opposition to the Project.

17.16 Vacancy at End of Term. If Tenant vacates substantially all of the Premises (or substantially all of a major portion of the Premises, including a floor of the Building) at any time within the last six (6) months of the Term, Landlord may enter the vacated Premises (or such portions) and commence demolition work or construction of leasehold improvements for future tenants, provided that such entry does not materially interfere with any continuing operations of Tenant in any other portions of the Premises. The exercise of such right by Landlord will not affect Tenant's obligations to pay Base Rent or Additional Rent with respect to the Premises vacated (or such portions), which obligations shall continue without abatement until the end of the Term.

17.17 Confidentiality. Tenant acknowledges and agrees that the terms of this Lease are confidential. Disclosure of the terms hereof could adversely affect the ability of Landlord to negotiate other leases with respect to the Building and may impair Landlord's relationship with other tenants of the Building. Tenant agrees that it and its partners, officers, directors, employees, brokers, and attorneys, if any, shall not disclose the terms and conditions of this Lease to any other person or entity without the prior written consent of Landlord which may be given or withheld by Landlord, in Landlord's sole discretion, except as required for financial disclosures or securities filings. Notwithstanding the foregoing, it is agreed that Tenant may disclose the terms of this Lease as it deems necessary to existing and potential lenders, investors, acquirers and potential subtenants provided such entities are advised to keep the terms confidential. It is understood and agreed that damages alone would be an inadequate remedy for the breach of this provision by Tenant, and Landlord shall also have the right to seek specific performance of this provision and to seek injunctive relief to prevent its breach or continued breach.

17.18 OFAC CERTIFICATION AND INDEMNITY. Executive Order No. 13224 on Terrorist Financing, effective September 24, 2001 (the "Executive Order"), and the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (Public Law 10756, the "Patriot Act") prohibit certain property transfers. Tenant hereby represents and warrants to Landlord (which representations and warranties shall be deemed to be continuing and re-made at all times during the Term) that neither Tenant nor any stockholder, manager, beneficiary, partner, or principal of Tenant is subject to the Executive Order, that none of them is listed on the United States Department of the Treasury Office of Foreign Assets Control ("OFAC") list of "Specially Designated Nationals and Blocked Persons" as modified from time to time, and that none of them is otherwise subject to the provisions of the Executive Order or the Patriot Act. The most current list of "Specially Designated Nationals and Blocked Persons" can be found at http://www.treas.gov/offices/eotffc/ofac/sdn/index.html. Tenant shall from time to time, within ten days after request by Landlord, deliver to Landlord any certification or other evidence requested from time to time by Landlord in its reasonable discretion, confirming Tenant's compliance with these provisions. No assignment or subletting shall be effective unless and until the assignee or subtenant thereunder delivers to Landlord written confirmation of such party's compliance with the provisions of this subsection, in form

and content satisfactory to Landlord. If for any reason the representations and warranties set forth in this subsection, or any certificate or other evidence of compliance delivered to Landlord hereunder, is untrue in any respect when made or delivered, or thereafter becomes untrue in any respect, then an event of default hereunder shall be deemed to occur immediately, and there shall be no opportunity to cure. Tenant shall indemnify, defend with counsel reasonably acceptable to Landlord, and hold Landlord harmless from and against, any and all liabilities, losses claims, damages, penalties, fines, and costs (including reasonable attorneys' fees and costs) arising from or related to the breach of any of the foregoing representations, warranties, and duties of Tenant. The provisions of this subsection shall survive the expiration or earlier termination of this Lease for the longest period permitted by law.

17.19 WAIVER OF JURY TRIAL. LANDLORD AND TENANT HEREBY WAIVE THEIR RESPECTIVE RIGHT TO TRIAL BY JURY OF ANY CAUSE OF ACTION, CLAIM, COUNTERCLAIM OR CROSS-COMPLAINT IN ANY ACTION, PROCEEDING AND/OR HEARING BROUGHT BY EITHER LANDLORD AGAINST TENANT OR TENANT AGAINST LANDLORD ON ANY MATTER WHATSOEVER ARISING OUT OF, OR 1N ANY WAY CONNECTED WITH, THIS LEASE, THE RELATIONSHIP OF LANDLORD AND TENANT, TENANT'S USE OR OCCUPANCY OF THE PREMISES, OR ANY CLAIM OF INJURY OR DAMAGE, OR THE ENFORCEMENT OF ANY REMEDY UNDER ANY LAW, STATUTE, OR REGULATION, EMERGENCY OR OTHERWISE, NOW OR HEREAFTER IN EFFECT.

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Executed to take effect as a sealed instrument on the Date of Lease first set forth above.

LANDLORD:

128 SPRING STREET LEXINGTON, LLC

By: /s/ Robert L. Beal
Name: Robert L. Beal
Title: Authorized Signatory

TENANT:

KEROS THERAPEUTICS, INC.

By: /s/ Jasbir S. Seehra
Name: Jasbir S. Seehra
Title: President and Treasurer
Duly Authorized

By:
Name:
Title:
Duly Authorized

Exhibit A

Floor Plan of Premises

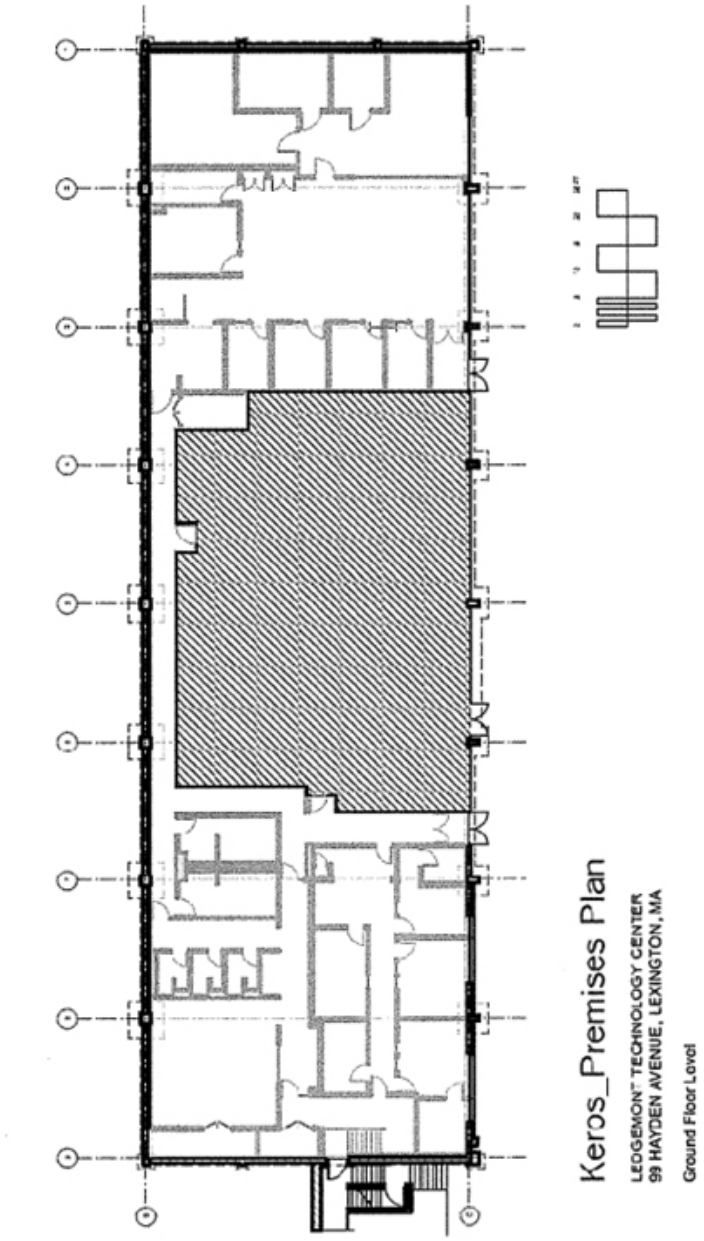


Exhibit B

Rules and Regulations

1. If Tenant requires telephone, data, burglar alarm or similar service, the cost of purchasing, installing and maintaining such service shall be borne solely by Tenant. No boring or cutting for wires will be allowed without the prior written consent of Landlord. Landlord shall direct electricians as to where and how telephone, data, and electrical wires are to be introduced or installed. The location of burglar alarms, telephones, call boxes or other office equipment affixed to the Premises shall be subject to the prior written approval of Landlord

2. Tenant shall not place a load upon any floor of its Premises, including mezzanine area, if any, which exceeds the load per square foot that such floor was designed to carry and that is allowed by law. Heavy objects shall stand on such platforms as determined by Landlord to be necessary to properly distribute the weight. Landlord will not be responsible for loss of or damage to any such equipment or other property from any cause, and all damage done to the Building by maintaining or moving such equipment or other property shall be repaired at the expense of Tenant.

3. Tenant shall not install any radio or television antenna, satellite dish, loudspeaker or other device on the roof or exterior walls of the Building without Landlord's prior written consent which consent shall be in Landlord's sole discretion.

4. Tenant shall not mark, drive nails, screw or drill into the partitions, woodwork, plaster or drywall (except for pictures and general office uses) or in any way deface the Premises or any part thereof. Tenant shall not affix any floor covering to the floor of the Premises or paint or seal any floors in any manner except as approved by Landlord. Tenant shall repair any damage resulting from noncompliance with this rule.

5. No cooking shall be done or permitted on the Premises, except that Underwriters' Laboratory approved microwave ovens, toaster ovens or equipment for brewing coffee, tea, hot chocolate and similar beverages shall be permitted, provided that such equipment and use is in accordance with all applicable federal, state and city laws, codes, ordinances, rules and regulations.

6. All trash and refuse shall be contained in suitable receptacles at locations approved by Landlord. Tenant shall not place in the trash receptacles any personal trash or material that cannot be disposed of in the ordinary and customary manner of removing such trash without violation of any law or ordinance governing such disposal.

7. Tenant shall comply with all safety, fire protection and evacuation procedures and regulations established by Landlord or any governing authority.

8. Tenant assumes all responsibility for securing and protecting its Premises and its contents including keeping doors locked and other means of entry to the Premises closed.

9. Tenant shall not use any method of heating or air conditioning other than that supplied by Landlord without Landlord's prior written consent.

10. No person shall go on the roof without Landlord's permission.

11. Canvassing, soliciting, distribution of handbills or any other written material in the Building or Property is prohibited and each tenant shall cooperate to prevent the same. No tenant shall solicit business from other tenants or permit the sale of any goods or merchandise in the Building or Property without the written consent of Landlord.

12. Any equipment belonging to Tenant which causes noise or vibration that may be transmitted to the structure of the Building or to any space therein to such a degree as to be objectionable to Landlord or to any tenants in the Building shall be placed and maintained by Tenant, at Tenant's expense, on vibration eliminators or other devices sufficient to eliminate the noise or vibration.

13. Driveways, sidewalks, halls, passages, exits, entrances and stairways ("Access Areas") shall not be obstructed by tenants or used by tenants for any purpose other than for ingress to and egress from their respective premises. Access areas are not for the use of the general public and Landlord shall in all cases retain the right to control and prevent access thereto by all persons whose presence, in the judgment of Landlord, shall be prejudicial to the safety, character, reputation and interests of the Building or its tenants.

14. Landlord reserves the right to designate the use of parking areas and spaces. Tenant shall not park in visitor, reserved, or unauthorized parking areas. Tenant and Tenant's guests shall park between designated parking lines only and shall not park motor vehicles in those areas designated by Landlord for loading and unloading. Vehicles in violation of the above shall be subject to being towed at the vehicle owner's expense. Vehicles parked overnight without prior written consent of the Landlord shall be deemed abandoned and shall be subject to being towed at vehicle owner's expense. Tenant will from time to time, upon the request of Landlord, supply Landlord with a list of license plate numbers of vehicles owned or operated by its employees or agents.

15. No trucks, tractors or similar vehicles can be parked anywhere other than in Tenant's own truck dock area. Tractor-trailers which must be unhooked or parked with dolly wheels beyond the concrete loading areas must use steel plates or wood blocks under the dolly wheels to prevent damage to the paving surfaces. No parking or storing of such trailers will be permitted in the parking areas or on streets adjacent thereto.

16. No sign, placard, picture, advertisement, name or notice (collectively referred to as "Signs") shall be installed or displayed on any part of the outside of the Building without the prior written consent of the Landlord which consent shall be in Landlord's sole discretion. All approved Signs shall be printed, painted, affixed or inscribed at Tenant's expense by a person or vendor approved by Landlord and shall be removed by Tenant at Tenant's expense upon vacating the Premises. Landlord shall have the right to remove any Sign installed or displayed in violation of this rule at Tenant's expense and without notice. Subject to approval by Landlord and by the Town of Lexington, Tenant will have the right to signage similar to that of other tenants of the Building. All such signage will be installed, maintained, and, at the end of the Term, removed by Tenant at its sole expense, with Tenant repairing any damage caused by same.

17. During periods of loading and unloading, Tenant shall not unreasonably interfere with traffic flow and loading and unloading areas of other tenants. All products, materials or goods must be stored within the Tenant's Premises and not in any exterior areas, including, but not limited to, exterior dock platforms, against the exterior of the Building, parking areas and driveway areas. Tenant agrees to keep the exterior of the Premises clean and free of nails, wood, pallets, packing materials, barrels and any other debris produced from their operation.

18. Tenant shall not permit any motor vehicles to be washed or mechanical work or maintenance of motor vehicles to be performed on any portion of the Premises or parking lot.

19. Tenant shall not permit smoking or carrying of lighted cigarettes or cigars in areas reasonably designated by Landlord or any applicable governmental agencies as non-smoking areas.

20. Canvassing, soliciting, distribution of handbills or any other written material in the Building or Property is prohibited and each tenant shall cooperate to prevent the same. No tenant shall solicit business from other tenants or permit the sale of any goods or merchandise in the Building or Property without the written consent of Landlord.

21. Tenant shall not permit any animals, other than seeing-eye dogs, to be brought or kept in or about the Premises or any common area of the property; provided however, Tenant shall be permitted to bring animals on the Premises to be housed in the vivarium in the Premises, but subject to all of the terms and conditions of the Lease including, without limitation, Section 9.01.

22. Tenant shall not alter any lock or other access device or install a new or additional lock or access device or bolt on any door of its Premises without the prior written consent of Landlord. Tenant, upon the termination of its tenancy, shall deliver to Landlord the keys or other means of access to all doors.

23. These Rules and Regulations are in addition to, and shall not be construed to in any way modify or amend, in whole or in part, the terms, covenants, agreements and conditions of any lease of any premises in the Building. Landlord may waive any one or more of these Rules and Regulations for the benefit of any tenant or tenants, and any such waiver by Landlord shall not be construed as a waiver of such Rules and Regulations for any or all tenants. Landlord shall not enforce these Rules and Regulations in a discriminatory manner against Tenant.

24. Landlord reserves the right to make such other and reasonable rules and regulations as in its judgment may from time to time be needed for safety and security, for care and cleanliness of the Building and for the preservation of good order in and about the Building. Tenant agrees to abide by all such rules and regulations herein stated and any additional rules and regulations which are adopted. Tenant shall be responsible for the observance of all of the foregoing rules by Tenant's employees, agents, clients, customers, invitees and guests.

Exhibit C

Rules and Regulations for Design and Construction of Tenant Work

1.	**DEFINITIONS**	
1.1	Building:	128 Spring Street, Ledgemont I.
1.2	Property Manager:	Related Beal, LLC, or such other individual/entity as landlord may designate, from time to time.
1.3	Consultant:	Any architectural, engineering or design consultant engaged by a Tenant in connection with Tenant Work.
1.4	Contractor:	Any Contractor engaged by Tenant of the Building for the performance of any Tenant Work, and any Subcontractor employed by any such Contractor.
1.5	Plans:	All architectural, electrical and mechanical construction drawings and specifications required for the proper construction of the Tenant Work.
1.6	Regular Business Hours:	Monday through Friday, 8:00 a.m. through 6:00 p.m., holidays and weekends excluded.
1.7	Tenant:	Any occupant of the Building.
1.8	Tenant Work:	Any alterations, improvements, additions, repairs or installations on the building performed by or on behalf of any Tenant.
1.9	Tradeperson:	Any employee (including, without limitation, any mechanic laborer, or Tradeperson) employed by a Contractor performing Tenant Work.

2. **GENERAL**

2.1 All Tenant Work shall be performed in accordance with these Rules and Regulations and the applicable provisions of the Lease and to current local and state code.

2.2 The provisions of these Rules and Regulations shall be incorporated in all agreements governing the performance of all Tenant Work, including, without limitation, any agreements governing services to be rendered by each Contractor and Consultant.

2.3 Except as otherwise provided in these Rules and Regulations, all inquiries, submissions and approvals in connection with any Tenant Work shall be processed through the Property Manager.

3. **INTENTIONALLY OMITTED**

4. **RECONSTRUCTION NOTIFICATION AND APPROVALS**

4.1 Approval to Commence Work:

A) Tenant shall submit to Property Manager, for the approval of the Landlord, the names of all prospective Contractors and Certificates of Insurance, prior to issuing any bid packages to such Contractors.

B) No Tenant Work shall be undertaken by any Contractor or Tradeperson unless and until all the matters set forth in Section 4.2 below have been received for the Tenant Work in question and unless the Property Manager has approved the matters set forth in Section 4.2 below.

4.2 No Tenant Work shall be performed unless, at least two (2) weeks before any Tenant Work is to begin, all of the following have been provided to the Property Manager and approved. In the event that Tenant proposes to change any of the following, the Property Manager shall be immediately notified of such change and such change shall be subject to the approval of the Property Manager:

A) Schedule for the work, indication start and completion dates, any phasing and special working hours, and also a list of anticipated shutdowns of building systems.

B) List of all Contractors and Subcontractors, including addresses, telephone numbers, emergency (after hours) telephone numbers, trades employed, and the union affiliation, if any, of each Contractor and Subcontractor.

C) Names and telephone numbers of the supervisors of the work.

D) Copies of all necessary governmental permits, licenses and approvals.

E) Proof of current insurance, to the limits set out in Exhibit D to the Lease and Regulations, naming Landlord (128 Spring Street Lexington, LLC) and Landlord's designees as additional insured parties.

F) Notice of the involvement of any Contractor in any ongoing threatened labor dispute.

G) Payment, Performance and Lien Bonds from sureties acceptable to Landlord, in form acceptable to Landlord, naming Landlord as an additional obligee.

H) Evidence that Tenant has made provision for either written waivers of lien from all Contractors and suppliers of material, or other appropriate protective measures approved by Landlord.

I) A pre-existing condition survey as specified in Section 7.2(C).

4.3 Reporting Incidents: All accidents, disturbances, labor disputes or threats thereof, and other noteworthy events pertaining to the Building or the Tenant's property shall be reported immediately to the Property Manager. A written report must follow within twenty-four (24) hours.

5. **CONSTRUCTION SCHEDULE**

5.1 Coordination:

A) All Tenant Work shall be carried out expeditiously and with minimum disturbance and disruption to the operation of the Building and without causing discomfort, inconvenience, or annoyance to any of the other tenants or occupants of the Building or the public at large.

B) All schedules for the performance of construction, including materials deliveries, must be coordinated through the Property Manager. The Property Manager shall have the right, without incurring any liability to any Tenant, to stop activities and/or to require rescheduling of Tenant Work based upon adverse impact on the tenants or occupants of the Building or on the maintenance or operation of the Building.

C) If any Tenant Work requires the shutdown of risers and mains for electrical, mechanical, sprinkler, and plumbing work, such work shall be supervised by a representative of Landlord, the cost of which shall be charged directly to the tenant at the prevailing building rate. No Tenant Work will be performed in the Building's mechanical or electrical equipment rooms without both Landlord's prior approval and the supervision of a representative of Landlord, the cost of which shall be reimbursed by the Tenant to the Landlord. Tenant shall provide the Property Manager with at least one week to schedule such work.

5.2 Time Restrictions:

A) Subject to Section 5.1 of these Rules and Regulations, general construction work will generally be permitted at all times, unless such work affects other tenants or occupants of the building or poses a safety concern at which time it will need be scheduled during non-business hours.

B) Tenant shall provide the Property Manager with at least forty eight (48) hours' notice before proceeding with Special Work, as hereinafter defined, and such Special Work will be permitted only at times agreed to by the Property Manager during periods outside of Regular Business Hours. "Special Work" shall be defined as the following operations:

1. All utility disruptions, shutoffs and turnovers.

2. Activities involving high levels of noise, including demolition, coring, drilling and ramsetting.

3. Activities resulting in excessive dust or odors, including demolition, staining and spray painting.

4. All construction work which will require access to multi-tenant areas or other tenant areas.

C) The delivery of construction materials to the Building, their distribution within the Building, and the removal of waste materials shall also be confined to periods outside Regular Business Hours, unless otherwise specifically permitted in writing by the Property Manager. Costs for use of the freight elevator after Regular Business Hours shall be billed directly to such tenant at the then prevailing rate.

D) If coordination, labor disputes or other circumstances require, the Property Manager may change the hours during which regular construction work can be scheduled and/or restrict or refuse entry to and exit from the Building by any Contractor.

6. **CONTRACTOR PERSONNEL**

6.1 Work in History:

A) All Contractors shall be responsible for employing skilled and competent personnel and suppliers who shall abide by the rules and regulations herein set forth as amended from time to time by Landlord.

B) No Tenant shall at any time, either directly or indirectly, employ, permit the employment, or continue the employment of any contractor if such employment or continued employment will or does interfere or cause any labor disharmony, coordination difficulty, delay or conflict with any other contractors engaged in construction work in or about the Building or the complex in which the Building is located.

C) Should a work stoppage or other action occur anywhere in or about the Building as a result of the presence, anywhere in the Building, or a Contractor engaged directly or indirectly by a Tenant, or should such Contractor be deemed by Landlord to have violated any applicable rules or regulations, then upon twelve hours written notice, Landlord may, without incurring any liability to Tenant or said contractor, require any such Contractor to vacate the premises demised by such Tenant and the Building, and to cease all further construction work therein.

6.2 Conduct:

A) While in or about the Building, all Tradepersons shall perform in a dignified, quiet, courteous, and professional manner at all times. Tradepersons shall wear clothing suitable for their work and shall remain full attired at all times. All Contractors will be responsible for their Tradepersons' proper behavior and conduct.

B) The Property Manager reserves the right to remove any one who, or any contractor which; is causing a disturbance to any tenant or occupant of the Building or any other person using or servicing the Building; is interfering with the work of others; or is in any other way displaying conduct or performance not compatible with the Landlord's standards.

6.3 Access:

A) All Contractors and Tradepersons shall contact the Property Manager prior to commencing work, to confirm work location and Building access, including elevator usage and times of operation. Access to the Building before and after Regular Business Hours or any other hours designated from time to time by the Property Manager and all day on weekends and holidays will only be provided when forty-eight (48) hours advanced notice is given to the Property Manager.

B) No Contractor or Tradepersons will be permitted to enter any private or public space in the Building, other than the common areas of the Building necessary to give direct access to the premises of Tenant for which he has been employed, without the prior approval of the Property Manager.

C) All Contractors and Tradepersons must obtain permission from the Property Manager prior to undertaking work in any space outside of the Tenant's premises. This requirement specifically includes ceiling spaces below the premises where any work required must be undertaken at the convenience of the affected Tenant and outside of Regular Business Hours. Contractors undertaking such work shall ensure that all work, including work required to reinstate removed items and cleaning, be completed prior to opening of the next business day. Any cleaning or repairs costs incurred by Landlord, as a result of work outside the construction area shall be charged to the Tenant.

D) Contractors shall ensure that all furniture, equipment and accessories in areas potentially affected by any Tenant Work shall be adequately protected by means of drop cloths or other appropriate measures. In addition, all Contractors shall be responsible for maintaining security to the extent required by the Property Manager.

E) Temporary access doors for tenant construction areas connecting with a public corridor will be building standards, i.e., door, frame, hardware and lockset. A copy of the key will be furnished to the Property Manager.

6.4 Safety:

A) All Contractors shall police ongoing construction operations and activities at all times, keeping the premises orderly, maintaining cleanliness in and about the premises, and ensuring safety and protection of all areas, including truck docks, elevators, lobbies, and all other public areas which are used for access to the premises.

B) All Contractors shall appoint a supervisor who shall be responsible for all safety measures, as well as for compliance with all applicable government laws, ordinances, rules and regulations such as, for example, "OSHA" and "Right-to-Know" legislation.

C) Any damage caused by Tradepersons or other Contractor employees shall be the responsibility of the Tenant employing the Contractor. Costs for repairing such damage shall be charged directly to such Tenant.

6.5 Parking:

A) No parking of contractor or sub-contractor vehicles will be provided in the truck dock, handicapped or fire access lanes, or any private ways in or surrounding the property. Vehicles so parked will be towed at the expense of the Tenant who has engaged the Contractor for whom the owner of such vehicle is employed.

B) Garage parking is available on-site.

7. **BUILDING MATERIALS**

7.1 Delivery:

A) All deliveries of construction materials shall be made at the predetermined times approved by the Property Manager and shall be effected safely and expeditiously only at the location determined by the Property Manager.

7.2 Transportation in Building:

A) Distribution of materials from delivery point to the work area in the Building shall be accomplished with the least disruption to the operation of the Building possible. Elevators will be assigned for material delivery and will be controlled by the Building Management.

B) Contractors shall provide adequate protection to all carpets, wall surfaces, doors and trim in all public areas through which materials are transported. Contractors shall continuously clean all such areas. Protective measures shall include runners over carpet, padding in elevators and any other measures determined by the Property Manager.

C) Any damage caused to the Building through the movement of construction materials or otherwise shall be the responsibility of Tenant who has engaged the Contractor involved. Charges for such damage will be submitted by the Landlord directly to the Tenant. Prior to the commencement of tenant work, a pre-existing condition survey shall be submitted to the Property Manager. Such survey shall be used at the completion of the project to determine, if any, the extent of damage to the building systems or finishes.

7.3 Storage and Placement:

A) All construction materials shall be stored only in the premises where they are to be installed. No storage of materials will be permitted in any public areas, loading docks or corridors leading to the premises.

B) No flammable, toxic, or otherwise hazardous materials may be brought in or about the Building unless all of the following are met: (i) authorized by the Property Manager, (ii) all applicable laws, ordinances, rules and regulations are complied with, and (iii) all necessary permits have been obtained. All necessary precautions shall be taken by the contractor handling such materials against damage or injury caused by such materials.

C) All materials required for the construction of the premises must comply with Building Standards, must conform to the plans and specifications approved by Landlord, and must be installed in the locations shown on the drawings approved by the Landlord.

D) All work shall be subject to supervision and inspection by Landlord's Representative.

E) No alterations to approved plans will be made without prior knowledge and approval of the Property Manager. Such changes shall be documented on the as-build drawings required to be delivered to Landlord pursuant to Paragraph 10 of the rules and regulations.

F) All protective devices (e.g., temporary enclosures and partitions) and materials, as well as their placement, must be approved by the Property Manager.

G) It is the responsibility of Contractors to ensure that the temporary placement of materials does not impose a hazard to the Building or its occupants, either through overloading, or interference with Building systems, access, egress or in any other manner whatsoever.

H) All existing and/or new openings made through the floor slab for piping, cabling, etc. must be sealed per code. All holes in the floor slab at abandoned floor outlets, etc. need to be filled with solid concrete.

7.4 Salvage and Waste Removal:

A) All rubbish, waste and debris shall be neatly and cleanly removed from the Building by Contractors daily unless otherwise approved by the Property Manager. The Building's trash compactor shall not be used for construction or other debris. For any demolition and debris, each Contractor must make arrangements with the Property Manager for the scheduling and location of an additional dumpster to be supplied at the cost of the Tenant engaging such Contractor. Where, in the opinion of the Property Manager, such arrangements are not practical, such Contractors will make alternative arrangements for removal at the cost of the Tenant engaging such Contractors.

B) Toxic or flammable materials are to be properly removed daily and disposed of in full accordance with all applicable laws, ordinances, rules and regulations.

C) Contractors shall, prior to removing any item (including, without limitation, building standard doors, frames and hardware, light fixtures, ceiling diffusers, ceiling exhaust fans, sprinkler heads, fire horns, ceiling speakers and smoke detectors) from the Building, notify the Property Manager that it intends to remove such item. At the election of Property Manager, Contractors shall deliver any such items to the Property Manager. Such items will be delivered, without cost, to an area designated by the Property Manager which area shall be within the Building or the complex in which the Building is located.

8. **PAYMENT OF CONTRACTORS**

Tenant shall promptly pay the cost of all Tenant Work so that Tenant's premises and the Building shall be free of liens for labor or materials. If any mechanic's lien is filed against the Building or any part thereof which is claimed to be attributable to the Tenant, its agents, employees or contractors, Tenant shall give immediate notice of such lien to the Landlord and shall promptly discharge the same by payment or filing any necessary bond within 10 days after Tenant has first notice of such mechanic's lien.

9. **CONFLICT BETWEEN RULES AND REGULATIONS AND LEASE**

In the event of any conflict between the Lease and these Rules and Regulations, the terms of the Lease shall control.

10. **GENERAL**

10.1. These Rules and Regulations are in addition to, and shall not be construed to in any way modify or amend, in whole or in part, the terms, covenants, agreements and conditions of any lease of any premises in the Building. Landlord may waive any one or more of these Rules and Regulations for the benefit of any tenant or tenants, and any such waiver by Landlord shall not be construed as a waiver of such Rules and Regulations for any or all tenants.

10.2. Landlord reserves the right to make such other and reasonable rules and regulations as in its judgment may from time to time be needed for safety and security, for care and cleanliness of the Building and for the preservation of good order in and about the Building. Tenant agrees to abide by all such rules and regulations herein stated and any additional rules and regulations which are adopted. Tenant shall be responsible for the observance of all of the foregoing rules by Tenant's employees, agents, clients, customers, invitees and guests.

SCHEDULE A OF EXHIBIT C

RULES AND REGULATIONS

FOR DESIGN AND CONSTRUCTION OF TENANT WORK

Ledgemont Technology Center

BASE BUILDING CHARGES

Contractors desiring to work on the Building Systems must coordinate all work with the Management Office at 781-861-7786.

All work must be scheduled a minimum of one week prior to the start of work. A work order will be issued listing the system affected and the time of shutdown. No work will commence until the work order has been signed by an authorized representative of the construction company.

Contractors must obtain credit approval from the Management Office prior to any work authorization.

	Fire Alarm Shutdown	Reconnect Shutdown
8:00 a.m. to 5:00 p.m.	$ 125.00	N/C
5:00 p.m. to 8:00 a.m.	$ 175.00	$ 175.00
Saturday	$ 225.00	$ 225.00
Sunday	$ 250.00	$ 250.00

Labor charge (per person) for Fire Alarm Watch or Sprinkler System Shutdown (required when servicing or testing any life safety device):

8:00 a.m. to 5:00 p.m.	$40.00 per hour
5:00 p.m. to 8:00 a.m.	$60.00 per hour
Saturday	$60.00 per hour
Sunday	$80.00 per hour

Contractor may not proceed with any work until authorization to begin work has been obtained from the Management Office. A separate request is to be issued for each day in which the Life Safety work is being performed.

Contractor will be fined $1,500.00 for each and every false alarm caused by contractor’s employees or their actions. Contractor will be fined $500.00 for every smoke detector covered by the contractor or their subcontractors.

$30.00 Per Hr (3 Hr Min) Contractors must pay a minimum of $1,500.00 to repair the elevator cabs if damaged.

SCHEDULE B OF EXHIBIT C

RULES AND REGULATIONS

FOR DESIGN AND CONSTRUCTION OF TENANT WORK

INSTALLATION OF CABLES

1.1 Computer and Telephone Cables

1.1.1 Layout

A layout of cables must be submitted to the Property Manager for approval prior to installation.

1.1.2 Installation

A) Cables installed above the ceiling must be Teflon coated or encased in metal conduit.

B) Cables must be tagged every 15’ and color coded.

C) Cables must be properly affixed to the framing above the duct work so that they are self-supporting. Do not fasten to light fixtures.

D) Cables must not sag and will be installed in the shortest possible runs.

E) Connections (connectors, splices, etc.) must be securely installed so that they will not pull apart if cable is accidentally touched or pulled.

1.2 Electrical Floor Outlet Cables

1.2.1 Layout

A layout of cables must be submitted to the Property Manager for approval prior to installation.

1.2.2 Installation

A) Cables must be tagged every 15’ and color coded.

B) Runs will be as short and as free of slack as possible secured per code requirements.

C) Cables are to be installed in tenant’s own ceiling then down partitions into the ceiling of the tenant below.

D) Cables must be properly secured so that they are self-supporting.

E) All connections (connectors, splices, etc.) must be located in the tenant’s own space to avoid damage from below.

F) Cables must be secured with clamps where they pass through the floor to prevent connections from separating.

G) Where feasible, install cables above duct work and other materials in the ceiling.

1.1 Electrical Work

1.3.1 All power wiring in Mechanical Rooms, Electric Rooms and Telephone rooms must be in EMT.

1.4 Security System

1.4.1 Layout

A layout of the security system wiring must be submitted to the Property Manager for approval prior to installation.

1.4.2 Installation

A) All wiring for the security system will be tagged every 15’.

SCHEDULE C OF EXHIBIT C

RULES AND REGULATIONS

FOR DESIGN AND CONSTRUCTION OF TENANT WORK

1. WELDING AND HEAT CUTTING WORK

1.1 Definition

Welding and heat cutting activities as well as soldering and brazing shall be included in "Special Work" category as defines in Section 5.2(B). They require the tenant to provide the Property Manager with at least forty eight (48) hours' notice before proceeding and must be performed during periods outside of regular business hours.

1.2 Permitting

The Contractor must obtain a permit from the Lexington Fire Department before commencing work.

1.3 Precautions

Because welding and other hot work is a fire hazard, the Contractor must observe the following precautions and procedures (when possible, work should be done in a non-combustible area):

A) No sprinkler impairments are allowed during "Special Work" and while the fire watch is in place. The sprinkler impairment restriction is for the floor the "Special Work" is taking place on and the floor above and the floor below.

B) Smoke Detectors in the work area should be de-activated by the Building Manager for the duration of the work. The Property Manager will re-activate smoke detectors when the work is complete.

C) Combustible materials shall be located at least fifty (50) feet from hot work operations and shall be covered with non-combustible materials.

D) All flammable liquids and other hazards must be removed.

E) All floor and wall openings must be covered with non-combustible material.

F) Containers, tanks, ducts, etc. must be cleaned and purged of flammable vapors, liquids, dusts etc.

G) A minimum of one multipurpose ABC rated portable fire extinguisher must be provided within ten (10) feet of the work area. The extinguisher should be fully charged and have been properly serviced within the last year. It is the responsibility of the contractor to provide fire extinguishers. Building extinguishers should not be used. A standpipe hose should also be readily available.

H) A fire watch should be maintained on the floor levels where the work was conducted plus the next two floors below for at least one hour after welding or burning has ceased. The fire watch shall consist of a member of the Lexington Fire Department. If there is a chance that slag could enter into a utility or elevator shaft, then the fire watch should cover the base of the shaft as well as the intermediate floors.

I) If determined, a member of the Lexington Fire Department shall be on site, at Tenant cost, for any “Special Work”.

Exhibit D

Tenant Work Insurance Schedule

Tenant shall, at its own expense, maintain and keep in force, or cause to be maintained and kept in force by any general contractors, sub-contractors or other third party entities where required by contract, throughout any period of alterations to the Premises or the Building by Tenant, the following insurance coverages:

(1) Property Insurance. "All-Risk" or "Special" Form property insurance, and/or Builders Risk coverage for major renovation projects, including, without limitation, coverage for fire, earthquake and flood; boiler and machinery (if applicable); sprinkler damage; vandalism; malicious mischief coverage on all equipment, furniture, fixtures, fittings, tenants work, improvements and betterments, business income, extra expense, merchandise, inventory/stock, contents, and personal property located on or in the Premises. Such insurance shall be in an amount equal to the full replacement cost of the aggregate of the foregoing and shall provide coverage comparable to the coverage in the standard ISO "All-Risk" or "Special" form, when such coverage is supplemented with the coverages required above. Property policy shall also include coverage for Plate Glass, where required by written contract.

Builders Risk insurance coverage may be provided by the general contractor on a blanket builders risk policy with limits adequate for the project, and evidencing the additional insureds as required in the Lease.

(2) Liability Insurance. General Liability, Umbrella/Excess Liability, Workers Compensation and Auto Liability coverage as follows:

(a) General Liability	$1,000,000 per occurrence
	$1,000,000 personal & advertising injury
	$2,000,000 products/completed operations aggregate
	$2,000,000 general aggregate

The General Contractor is required to maintain, during the construction period and up to 3 years after project completion, a General Liability insurance policy, covering bodily injury, personal injury, property damage, completed operations, with limits to include a $1,000,000 limit for blanket contractual liability coverage and adding Landlord as additional insured as respects the project during construction and for completed operations up to 3 years after the end of the project. Landlord requires a copy of the ISO 20 10 11 85 Additional Insured endorsement, showing Landlord as an additional insured to the GC's policy.

(b) Auto Liability $1,000,000 combined single limit (Any Auto) for bodily injury and property damage, hired and non-owned cover.

(c) Workers Compensation	Statutory Limits
Employers Liability	$1,000,000 each accident
	$1,000,000 each employee
	$1,000,000 policy limit

General Contractor shall ensure that any and all sub-contractors shall maintain equal limits of coverage for Workers Compensation/EL and collect insurance certificates verifying same.

(d) Umbrella/Excess Liability	$3,000,000 per occurrence
	$3,000,000 aggregate

(e) Environmental Insurance – To the extent required by Landlord Contractors' commercial general liability/umbrella insurance policy(ies) shall include Landlord and Landlord's designees as additional insureds', and shall include a primary non-contributory provision. Liability policy shall contain a clause that the insurer may not cancel or materially change coverage without first giving Landlord thirty (30) days prior written notice, except cancellation for non-payment of premium, in which ten (10) days prior written notice shall be required.

(3) Deductibles. If any of the above insurances have deductibles or self-insured retentions, the Tenant and/or contractor (policy Named Insured) shall be responsible for the deductible amount.

All of the insurance policies required in this Exhibit D shall be written by insurance companies which are licensed to do business in the State where the property is located, or obtained through a duly authorized surplus lines insurance agent or otherwise in conformity with the laws of such state, with an A.M. Best rating of at least A and a financial size category of not less than VII. Tenant shall provide Landlord with certificates of insurance upon request, prior to commencement of the Tenant/contractor work, or within thirty (30) days of coverage inception and subsequent renewals or rewrites/replacements of any cancelled/non-renewed policies.

Exhibit E

Plans and Specifications for Initial Tenant Improvements

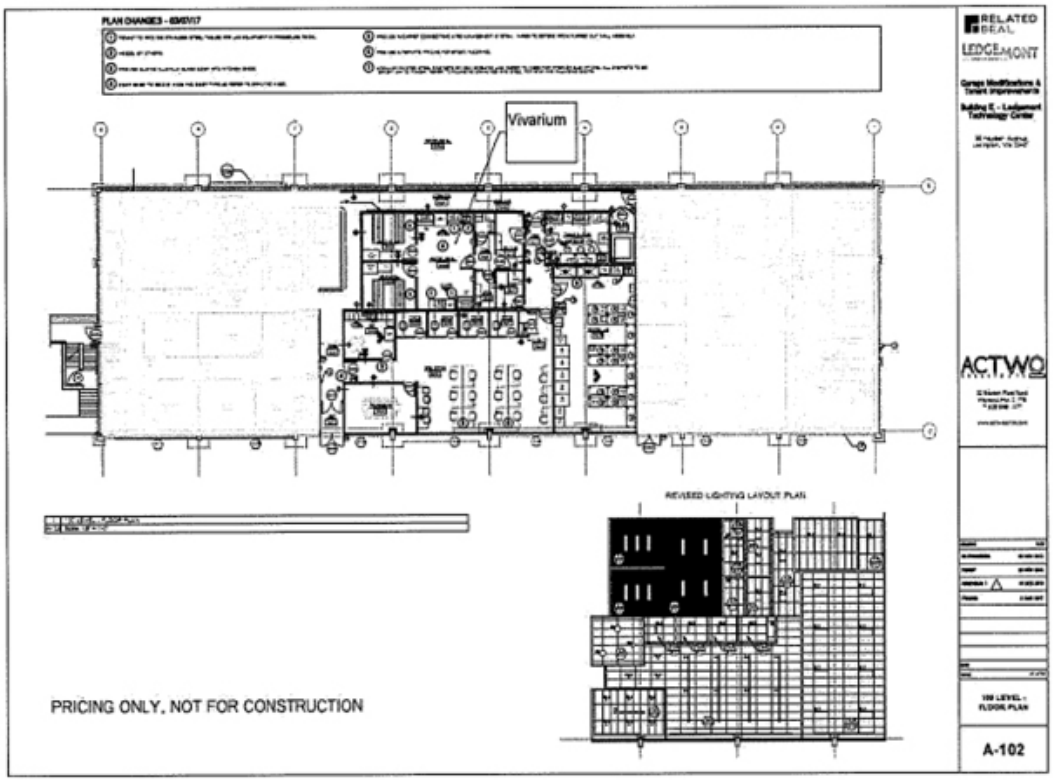


Exhibit E-1
Vivarium Plans and Specifications

[To be attached to Lease once completed but not later than March 30, 2017]

Exhibit F

Construction Documents

1. Preparation of Construction Documents. The Construction Documents shall include all architectural, mechanical, electrical and structural drawings and detailed specifications for the Tenant Work and shall show all work necessary to complete the Tenant Work including all cutting, fitting, and patching and all connections to the mechanical and electrical systems and components of the Building. Tenants leasing partial floors shall design entrances, doors and any other elements which visually integrate with the elevator lobbies and common areas in a manner and with materials and finishes which are compatible with the common area finishes for such floor. Landlord reserves the right to reject Construction Documents which in its reasonable opinion fail to comply with this provision. The Construction Documents shall include:

(a) Major Work Information: A list of any items or matters which might require structural modifications to the Building, including the following:

(i) Location and details of special floor areas exceeding 150 pounds of live load per square foot;

(ii) Location and weights of storage files, batteries, HVAC units and technical areas;

(iii) Location of any special soundproofing requirements;

(iv) Existence of any extraordinary HVAC requirements necessitating perforation of structural members; and

(v) Existence of any requirements for heavy loads, dunnage or other items affecting the structure.

(b) Plans Submission: Two (2) blackline drawings and one (1) CAD disk showing all architectural, mechanical and electrical systems, including cutsheets, specifications and the following:

CONSTRUCTION PLANS:

(1) All partitions shall be shown; indicate ratings of all partitions; indicate all non-standard construction and details referenced;

(2) Dimensions for partition shall be shown to face of stud; critical tolerances and ± dimensions shall be clearly noted;

(3) All doors shall be shown on and shall be numbered and scheduled on door schedule; indicate ratings of all doors;

(4) All non-standard construction, non-standard materials and/or installation shall be explicitly noted; equipment and finishes shall be shown and details referenced; and

(5) All plumbing fixtures or other equipment requirements and any equipment requiring connection to Building plumbing systems shall be noted.

REFLECTED CEILING PLAN:

(1) Layout suspended ceiling grid pattern in each room, describing the intent of the ceiling working point, origin and/or centering; and

(2) Locate all ceiling-mounted lighting fixtures and air handling devices including air dampers, fan boxes, etc., lighting fixtures, supply air diffusers, wall switches, down lights, special lighting fixtures, special return air registers, special supply air diffusers, and special wall switches.

TELECOMMUNICATIONS AND ELECTRICAL EQUIPMENT PLAN:

(1) All telephone outlets required;

(2) All electrical outlets required; note non-standard power devices and/or related equipment;

(3) All electrical requirements associated with plumbing fixtures or equipment; append product data for all equipment requiring special power, temperature control or plumbing considerations;

(4) Location of telecommunications equipment and conduits; and

(5) Components and design of the Antennas (including associated equipment) as installed, in sufficient detail to evaluate weight, bearing requirements, wind-load characteristics, power requirements and the effects on Building structure, moisture resistance of the roof membrane and operations of pre-existing telecommunications equipment.

DOOR SCHEDULE:

(1) Provide a schedule of doors, sizes, finishes, hardware sets and ratings; and

(2) Non-standard materials and/or installation shall be explicitly noted.

HVAC:

(1) Areas requiring special temperature and/or humidity control requirements;

(2) Heat emission of equipment (including catalogue cuts), such as CRTs, copy machines, etc.;

(3) Special exhaust requirements—conference rooms, pantry, toilets, etc.; and

(4) Any extension of system beyond demised space.

ELECTRICAL:

(1) Special lighting requirements;

(2) Power requirements and special outlet requirements of equipment;

(3) Security requirements;

(4) Supplied telephone equipment and the necessary space allocation for same; and

(5) Any extensions of tenant equipment beyond demised space.

PLUMBING:

(I) Remote toilets;

(2) Pantry equipment requirements;

(3) Remote water and/or drain requirements such as for sinks, ice makers, etc.; and

(4) Special drainage requirements, such as those requiring holding or dilution tanks.

ROOF:

Detailed plan of any existing and proposed roof equipment showing location and elevations of all equipment.

SITE:

Detailed plan, including fencing, pads, conduits, landscaping and elevations of equipment.

SPECIAL SERVICES:

Equipment cuts, power requirements, heat emissions, raised floor requirements, fire protection requirements, security requirements, and emergency power.

2. Plan Requirements. The Construction Documents shall be fully detailed and fully coordinated with each other and with existing field conditions, shall show complete dimensions, and shall have designated thereon all points of location and other matters, including special construction details and finish schedules. All drawings shall be uniform size and shall incorporate the standard electrical and plumbing symbols and be at a scale of 1/8" = 1'0" or larger. Materials and/or installation shall be explicitly noted and adequately specified to allow for Landlord review, building permit application, and construction. All equipment and installations shall be made in accordance with standard materials and procedures unless a deviation outside of industry standards is shown on the Construction Documents and approved by Landlord. To the extent practicable, a concise description of products, acceptable substitutes, and installation procedures and standards shall be provided. Product cuts must be provided and special mechanical or electrical loads noted. Landlord's approval of the plans, drawings, specifications or other submissions in respect of any work, addition, alteration or improvement to be undertaken by or on behalf of Tenant shall create no liability or responsibility on the part of Landlord for their completeness, design sufficiency or compliance with requirements of any applicable laws, rules or regulations of any governmental or quasi-governmental agency, board or authority.

3. Drawing and Document Production. Landlord shall provide Tenant with two (2) blackline drawings and one (1) CAD disk showing the Building and site outline, core walls and columns, together with corridor and demising wall location plans.

4. Change Orders. The Construction Documents shall not be materially changed or modified by Tenant after approval by Landlord without the further approval in writing by Landlord, which approval shall not be unreasonably withheld or delayed. Landlord shall not be obligated to approve any change or modification of the Construction Documents which in Landlord's sole opinion shall cause any additional cost or expense to Landlord for which Tenant has not agreed to reimburse Landlord.

Exhibit G

List of Environmental Substances

Chemical	Quantity	Unit	Class	Rating
(+)-Sodium L-ascorbate	0.22	pounds	Non-flammable solid	
(2R,3R)-(+)-Tartaric acid	0.001	gallons	Non-flammable liquid	
1,4-Dithioerythritol	0.001	gallons	Non-flammable liquid	
1.0N SODIUM HYDROXIDE 1L	0.26	gallons	Non-flammable liquid	
10X TBS	1.59	gallons	Flammable liquid	1A
10X TGS	0.26	gallons	Non-flammable liquid	
1-Propanol	0.03	gallons	Flammable liquid	1B
2-Mercaptobenzoic acid	0.22	pounds	Non-flammable solid	
2-Mercaptoethanol	0.03	gallons	Combustible liquid	3A
2-propanol	0.26	gallons	Flammable liquid	1B
Acetic Acid	0.13	gallons	Non-flammable liquid	
Acetic acid sodium salt	0.55	pounds	Non-flammable solid	
Acetic anhydride	0.06	pounds	Flammable solid	
ACETONE 10 X 1 GRAM EA=1BX	0.02	pounds	Flammable solid	
Acetonitrile	0.66	gallons	Flammable liquid	1B
AGAROSE 100G	0.22	pounds	Non-flammable solid	
AMMONIUM ACETATE 500GM	1.1	pounds	Flammable solid	
Ammonium carbonate	1.1	pounds	Non-flammable solid	
AMMONIUM CHLORIDE AR 500G	1.1	pounds	Non-flammable solid	
Ammonium ferric citrate	0.22	pounds	Non-flammable solid	
Ammonium formate	0.22	pounds	Flammable solid	
Ammonium heptamolybdate tetrahydrate	0.01	gallons	Non-flammable liquid	
Ammonium hydrogen carbonate	2.2	pounds	Non-flammable solid	
AMMONIUM SULFATE AR 2.5K	5.51	pounds	Non-flammable solid	

Chemical	Quantity	Unit	Class	Rating
bacto agar	1	pound	Non-flammable solid	
BDH CALCIUM CHLORIDE USP 2.5KG	5.5	pounds	Non-flammable solid	
BUTYL ALCOHOL ACS REAGENT500ML	0.13	gallons	Flammable liquid	1B
CaC12 2H20	1.1	pounds	Non-flammable solid	
Calcium carbonate	0.22	pounds	Non-flammable solid	
Calcium chloride	0.26	gallons	Non-flammable liquid	
CALCIUM CHLORIDE DIHY AR 500G	1.1	pounds	Non-flammable solid	
Calcium fluoride	0.01	pounds	Non-flammable solid	
CHLOROFOAM-D 50GM	0.11	pounds	Non-flammable solid	
chloroform	0.13	gallons	Non-flammable liquid	
Citric acid	0.13	gallons	Combustible liquid	3B
Dextrose	1.1	pounds	Non-flammable solid	
DL-Dithiothreitol	0.01	pounds	Flammable solid	
Ethanol	0.03	gallons	Flammable liquid	1B
Formaldehyde solution	0.13	gallons	Flammable liquid	3A
Glucose	1.1	pounds	Non-flammable solid	
Glycerol	0.26	gallons	Combustible liquid	3B
Guanidine hydrochloride	2.2	pounds	Non-flammable solid	
HEPES	0.55	pounds	Non-flammable solid	
Hydrochloric Acid	0.13	gallons	Non-flammable liquid	
HYDROGEN PEROX 30% SOL 500ML	0.13	gallons	Non-flammable liquid	
MES	0.11	pounds	Non-flammable solid	
Methanol	1.06	gallons	Flammable liquid	1B
MgCl 6H20	0.22	pounds	Non-flammable solid	
MOPS	0.55	pounds	Flammable solid	

Chemical	Quantity	Unit	Class	Rating
NaH2PO4 H2O	1.1	pounds	Non-flammable solid	
NaHCO3	1.1	pounds	Non-flammable solid	
NITRIC ACID OMNITRACE 500ML	0.13	gallons	Non-flammable liquid	
PBS	50	TABLETS	Non-flammable solid	
POT PHOSDIBASIC ANHYD AR 100LB	1.1	pounds	Non-flammable solid	
potassium chloride	1.1	pounds	Non-flammable solid	
Potassium hydroxide	5.51	pounds	Non-flammable solid	
POTASSIUM PHOSPHATE MONO 500G	1.1	pounds	Non-flammable solid	
RNA grade H2O	0.26	gallons	Non-flammable liquid	
SOD PHOSPHATE DIBASIC AN 125G	0.28	pounds	Non-flammable solid	
sodium acetate	1.1	pounds	Non-flammable solid	
SODIUM ACETATE RE ANHYD 500GM	1.1	pounds	Non-flammable solid	
Sodium bicarbonate	6.6	pounds	Non-flammable solid	
Sodium carbonate	1.1	pounds	Non-flammable solid	
Sodium Chloride	1.1	pounds	Non-flammable solid	
sodium chloride	2.2	pounds	Non-flammable solid	
Sodium hydroxide	1.1	pounds	Non-flammable solid	
Sodium phosphate monobasic	0.22	pounds	Non-flammable solid	
Sodium Phosphate Monobasic Anhydrous	2.2	pounds	Non-flammable solid	
Sodium sulfate	0.06	pounds	Non-flammable solid	
Sucrose	1.1	pounds	Non-flammable solid	
Tris base	1.1	pounds	Non-flammable solid	

Chemical	Quantity	Unit	Class	Rating
Triton(R) X-100	0.13	gallons	Combustible liquid	3B
Trizol (phenol and guanidinium isothiocyanate)	0.026	gallons	Non-flammable liquid	
TWEEN(R) 20	0.026	gallons	Non-flammable liquid	
TWEEN(R) 80	0.13	gallons	Non-flammable liquid	
Xylenes	1	gallons	Flammable liquid	1C

Exhibit H

Form of Term Commencement Date Agreement

COMMENCEMENT DATE AGREEMENT

_____ ("Tenant") hereby certifies that it has entered into a lease with 128 Spring Street Lexington, LLC ("Landlord") dated as of _____ ____ 20__ and verifies the following information as of the _____ day of _____, 20___:

Address of Building:	99 Hayden Avenue/128 Spring Street, Lexington, Massachusetts
Number of Rentable Square Feet in Premises:	_____
Commencement Date:	_____
Rent Commencement Date:	_____
Lease Termination Date:	_____
Tenant's Pro Rata Share:	_____
Billing Address for Tenant:	_____
Attention:	_____
Telephone Number:	(_____) _____
Federal Tax I.D. No.:	_____

Tenant acknowledges and agrees that all improvements Landlord is obligated to make to the Premises, if any, have been completed to Tenant's satisfaction, that Tenant has accepted possession of the Premises, and that as of the date hereof, there exist no offsets or defenses to the obligations of Tenant under the Lease.

TENANT:

_____

By:_____

Name:_____

Title:_____

Hereunto duly authorized

LANDLORD:

128 Spring Street Lexington, LLC

By: _____
Name: _____
Title: _____
Hereunto duly authorized

Exhibit I

Form of Letter of Credit

IRREVOCABLE STANDBY LETTER OF CREDIT NO.

DATE:

BENEFICIARY:

128 SPRING STREET LEXINGTON, LLC
c/o Related Beal, LLC
177 Milk Street
Boston, Massachusetts 02109

AS “LANDLORD”

APPLICANT:

_____

_____

_____

AS “TENANT”

AMOUNT: US $_____ (_____ AND 00/100 U.S. DOLLARS)

EXPIRATION DATE:_____

LOCATION: AT OUR COUNTERS IN BOSTON, MASSACHUSETTS

DEAR SIR/MADAM:

WE HEREBY ESTABLISH OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. _____ IN YOUR FAVOR AVAILABLE BY YOUR DRAFT DRAWN ON US AT SIGHT IN THE FORM OF EXHIBIT “B” ATTACHED AND ACCOMPANIED BY THE FOLLOWING DOCUMENTS:

1. THE ORIGINAL OF THIS LETTER OF CREDIT AND ALL AMENDMENT(S), IF ANY.

2. A DATED CERTIFICATION FROM THE BENEFICIARY SIGNED BY AN AUTHORIZED OFFICER OR AGENT, FOLLOWED BY ITS DESIGNATED TITLE, STATING THE FOLLOWING:

(A) “THE AMOUNT REPRESENTS FUNDS DUE AND OWING TO US FROM APPLICANT PURSUANT TO THAT CERTAIN LEASE BY AND BETWEEN BENEFICIARY, AS LANDLORD, AND APPLICANT, AS TENANT.”

OR

(B) “WE HEREBY CERTIFY THAT WE HAVE RECEIVED NOTICE FROM _____ BANK THAT LETTER OF CREDIT NO._____ WILL NOT BE RENEWED, AND THAT WE HAVE NOT RECEIVED A REPLACEMENT OF THIS LETTER OF CREDIT FROM APPLICANT SATISFACTORY TO US AT LEAST THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE OF THIS LETTER OF CREDIT.”

THE LEASE AGREEMENT MENTIONED ABOVE IS FOR IDENTIFICATION PURPOSES ONLY AND IT IS NOT INTENDED THAT SAID LEASE AGREEMENT BE INCORPORATED HEREIN OR FORM PART OF THIS LETTER OF CREDIT.

OUR OBLIGATION UNDER THIS CREDIT SHALL NOT BE AFFECTED BY ANY CIRCUMSTANCES, CLAIM OR DEFENSE, REAL OR PERSONAL, OF ANY PARTY AS TO THE ENFORCEABILITY OF THE LEASE BETWEEN YOU AND TENANT, IT BEING UNDERSTOOD THAT OUR OBLIGATION SHALL BE THAT OF A PRIMARY OBLIGOR AND NOT THAT OF A SURETY, GUARANTOR OR ACCOMMODATION MAKER. IF YOU DELIVER THE WRITTEN CERTIFICATE REFERENCED ABOVE TO US, (I) WE SHALL HAVE NO OBLIGATION TO DETERMINE WHETHER ANY OF THE STATEMENTS THEREIN ARE TRUE, (II) OUR OBLIGATIONS HEREUNDER SHALL NOT BE AFFECTED IN ANY MANNER WHATSOEVER IF THE STATEMENTS MADE IN SUCH CERTIFICATE ARE UNTRUE IN WHOLE OR IN PART, AND (III) OUR OBLIGATIONS HEREUNDER SHALL NOT BE AFFECTED IN ANY MANNER WHATSOEVER IF TENANT DELIVERS INSTRUCTIONS OR CORRESPONDENCE TO WHICH EITHER (A) DENIES THE TRUTH OF THE STATEMENT SET FORTH IN THE CERTIFICATE REFERRED TO ABOVE, OR (B) INSTRUCTS US NOT TO PAY BENEFICIARY ON THIS CREDIT FOR ANY REASON WHATSOEVER.

PARTIAL AND MULTIPLE DRAWS ARE ALLOWED. EXCEPT AS EXPRESSLY SET FORTH HEREIN, THIS LETTER OF CREDIT MUST ACCOMPANY ANY DRAWINGS HEREUNDER FOR ENDORSEMENT OF THE DRAWING AMOUNT AND WILL BE RETURNED TO THE BENEFICIARY UNLESS IT IS FULLY UTILIZED.

DRAFT(S) AND DOCUMENTS MUST INDICATE THE NUMBER AND DATE OF THIS LETTER OF CREDIT.

THIS LETTER OF CREDIT SHALL BE AUTOMATICALLY EXTENDED FOR AN ADDITIONAL PERIOD OF ONE YEAR, WITHOUT AMENDMENT, FROM THE PRESENT OR EACH FUTURE EXPIRATION DATE UNLESS AT LEAST SIXTY (60) DAYS PRIOR TO THE THEN CURRENT EXPIRATION DATE WE NOTIFY YOU BY REGISTERED MAIL/OVERNIGHT COURIER SERVICE AT THE ABOVE ADDRESSES THAT THIS LETTER OF CREDIT WILL NOT BE EXTENDED BEYOND THE CURRENT EXPIRATION DATE. IN NO EVENT SHALL THIS LETTER OF CREDIT BE AUTOMATICALLY EXTENDED BEYOND NINETY (90) DAYS BEYOND LEASE EXPIRATION.

THIS LETTER OF CREDIT MAY BE TRANSFERRED WITHOUT COST TO THE BENEFICIARY, ONE OR MORE TIMES BUT IN EACH INSTANCE TO A SINGLE BENEFICIARY WHO BECOMES THE SUCCESSOR LANDLORD UNDER THE LEASE REFERENCED ABOVE AND ONLY IN THE FULL AMOUNT AVAILABLE TO BE DRAWN UNDER THE LETTER OF CREDIT AT THE TIME OF THE TRANSFER AND ONLY BY THE ISSUING BANK UPON OUR RECEIPT OF THE ATTACHED "EXHIBIT A" DULY COMPLETED AND EXECUTED BY THE BENEFICIARY AND ACCOMPANIED BY THE ORIGINAL LETTER OF CREDIT AND ALL AMENDMENTS, IF ANY.

ALL DEMANDS FOR PAYMENT SHALL BE MADE BY PRESENTATION OF THE ORIGINAL APPROPRIATE DOCUMENTS PRIOR TO 10:00 A.M. E.S.T. TIME, ON A BUSINESS DAY AT OUR OFFICE (THE "BANK'S OFFICE") AT: _____, ATTENTION: _____ OR BY FACSIMILE TRANSMISSION AT: (617) ____-_____; AND SIMULTANEOUSLY UNDER TELEPHONE ADVICE TO: (617) ____-_____, ATTENTION: _____ WITH ORIGINALS TO FOLLOW BY OVERNIGHT COURIER SERVICE.

PAYMENT AGAINST CONFORMING PRESENTATIONS HEREUNDER SHALL BE MADE BY BANK DURING NORMAL BUSINESS HOURS OF THE BANK'S OFFICE WITHIN ONE (1) BUSINESS DAY AFTER PRESENTATION.

WE HEREBY AGREE WITH THE DRAWERS, ENDORSERS AND BONAFIDE HOLDERS THAT THE DRAFTS DRAWN UNDER AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS LETTER OF CREDIT SHALL BE DULY HONORED UPON PRESENTATION TO THE DRAWEE, IF NEGOTIATED ON OR BEFORE THE EXPIRATION DATE OF THIS CREDIT.

THIS LETTER OF CREDIT IS SUBJECT TO THE UNIFORM CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS (2007 REVISION), INTERNATIONAL CHAMBER OF COMMERCE, PUBLICATION NO. 600.

_____	_____
AUTHORIZED SIGNATURE	AUTHORIZED SIGNATURE

EXHIBIT “A”

DATE:

TO:

RE: STANDBY LETTER OF CREDIT

NO. ISSUED BY

ATTN: L/C AMOUNT:

LADIES AND GENTLEMEN:

FOR VALUE RECEIVED, THE UNDERSIGNED BENEFICIARY HEREBY IRREVOCABLY TRANSFERS TO:

(NAME OF TRANSFEREE)

(ADDRESS)

ALL RIGHTS OF THE UNDERSIGNED BENEFICIARY TO DRAW UNDER THE ABOVE LETTER OF CREDIT UP TO ITS AVAILABLE AMOUNT AS SHOWN ABOVE AS OF THE DATE OF THIS TRANSFER.

BY THIS TRANSFER, ALL RIGHTS OF THE UNDERSIGNED BENEFICIARY IN SUCH LETTER OF CREDIT ARE TRANSFERRED TO THE TRANSFEREE. TRANSFEREE SHALL HAVE THE SOLE RIGHTS AS BENEFICIARY THEREOF, INCLUDING SOLE RIGHTS RELATING TO ANY AMENDMENTS, WHETHER INCREASES OR EXTENSIONS OR OTHER AMENDMENTS, AND WHETHER NOW EXISTING OR HEREAFTER MADE. ALL AMENDMENTS ARE TO BE ADVISED DIRECT TO THE TRANSFEREE WITHOUT NECESSITY OF ANY CONSENT OF OR NOTICE TO THE UNDERSIGNED BENEFICIARY.

THE ORIGINAL OF SUCH LETTER OF CREDIT IS RETURNED HEREWITH, AND WE ASK YOU TO ENDORSE THE TRANSFER ON THE REVERSE THEREOF, AND FORWARD IT DIRECTLY TO THE TRANSFEREE WITH YOUR CUSTOMARY NOTICE OF TRANSFER.

SINCERELY,

_____

(BENEFICIARY’S NAME)

_____

SIGNATURE OF BENEFICIARY

SIGNATURE AUTHENTICATED

_____

(NAME OF BANK)

_____

AUTHORIZED SIGNATURE

EXHIBIT “B”

DATE: _____ REF. NO. _____

AT SIGHT OF THIS DRAFT

PAY TO THE ORDER OF _____ US$_____

USDOLLARS_____

_____

DRAWN UNDER _____ BANK, _____, _____, STANDBY

LETTER OF CREDIT NUMBER NO. _____ DATED _____

TO: _____ BANK

_____

_____, MA

_____

(BENEFICIARY’S NAME)\

_____

Authorized Signature

FIRST AMENDMENT TO LEASE

This First Amendment to Lease ("First Amendment") is executed as of the 1st day of July, 2019, by and between **128 Spring Street Lexington, LLC**, as landlord ("Landlord") and **Keros Therapeutics, Inc.**, as tenant ("Tenant").

B A C K G R O U N D:

A. Reference is made to a certain Lease between, Landlord and Tenant dated March 20, 2017 (the "Lease") pursuant to which Tenant is currently leasing from Landlord approximately 5,420 rentable square feet of space (the "Premises") on portions of the 100 level of Building E located at 99 Hayden Avenue, Lexington, Massachusetts. Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Pursuant to Section 11.09 of the Lease, Tenant agreed to pay $196,864.00 towards the cost of the vivarium portion of the Initial Tenant Improvements (the "Vivarium Contribution") and had the option to amortize such payment over the Initial Term, as more particularly set forth therein.

D. Landlord and Tenant desire to amend the Lease in certain respects as provided herein to establish a new method for Tenant to pay to Landlord the Vivarium Contribution.

A G R E E M E N T S:

NOW, THEREFORE, in consideration of the agreements set forth herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree, and amend the Lease, as follows:

1. Payment of the Vivarium Contribution. Notwithstanding any provision to the contrary in Section 11.09 of the Lease, Tenant shall pay the Vivarium Contribution to Landlord in the amount of $5,389.54 on the first (1st) day of every calendar month from and including July 1, 2019 through December 1, 2022, in accordance with the payment schedule set forth in Exhibit A, attached hereto and incorporated herein.

2. Conflicts. To the extent the terms and conditions of the Lease expressly conflict with or are expressly inconsistent with this First Amendment, the terms and conditions of this First Amendment shall control.

3. Miscellaneous. Except as expressly modified herein, the Lease shall remain unmodified and in full force and effect. The provisions of this First Amendment shall be binding upon and shall inure to the benefit of Landlord and Tenant and their respective legal representatives, successors and assigns. Any signature delivered by a party by facsimile or electronic transmission shall be deemed to be an original signature to this First Amendment.

[Signature Page to Follow]

IN WITNESS WHEREOF the parties hereto have executed this Fifth Amendment to Lease in multiple copies, each to be considered an original hereof, as a sealed instrument on the date first written above.

LANDLORD:

128 Spring Street Lexington, LLC

By: /s/ Stephen N. Faber
Name: Stephen n. Faber
Title: Its Authorized Signatory

TENANT:

Keros Therapeutics, Inc.

By: /s/ Jasbir S. Seemru
Name: Jasbir S. Seemru
Title: President & CEO
Hereunto Duly Authorized

Exhibit A

PAYMENT SCHEDULE

[see attached schedule]

LOAN AMORTIZATION SCHEDULE

ENTER VALUES	
Loan amount	$196,864,00
Annual interest rate	8.00%
Loan period in years	3.50
Number of payments per year	12
Start date of loan	7/1/2019
Optional extra payments	$ 0.00

LOAN SUMMARY	
Scheduled payment	$5,389.54
Scheduled number of payments	42
Actual number of payments	42
Total early payments	$0.00
Total Interest	$29,496.70
LENDER NAME	Keros Vivarium Amortization

PMT. NO.	PAYMENT DATE	BEGINNING BALANCE	SCHEDULED PAYMENT	EXTRA PAYMENT	TOTAL PAYMENT	PRINCIPAL	INTEREST	ENDING BALANCE	CUMULATIVE INTEREST
1	7/1/2019	$196,864.00	$ 5,389.54	$ 0.00	$5,389.54	$ 4,077.11	$ 1,312.43	$ 192,786.89	$ 1,312.43
2	8/1/2019	$192,786.89	$ 5,389.54	$ 0.00	$5,389.54	$ 4,104.29	$ 1,285.25	$ 188,682.59	$ 2,597.67
3	9/1/2019	$188,682.59	$ 5,389.54	$ 0.00	$5,389.54	$ 4,131.66	$ 1,257.88	$ 184,550.94	$ 3,855.56
4	10/11/2019	$184,550.94	$ 5,389.54	$ 0.00	$5,389.54	$ 4,159.20	$ 1,230.34	$ 180,391.73	$ 5,085.90
5	11/1/2019	$180,391.73	$ 5,389.54	$ 0.00	$5,389.54	$ 4,186.93	$ 1,202.61	$ 176,204.81	$ 6,288.51
6	12/1/2019	$176,204.81	$ 5,389.54	$ 0.00	$5,389.54	$ 4,214.84	$ 1,174.70	$ 171,989.96	$ 7,463.21
7	1/1/2020	$171,989.96	$ 5,389.54	$ 0.00	$5,389.54	$ 4,242.94	$ 1,146.60	$ 167,747.02	$ 8,609.81
8	2/1/2020	$167,747.02	$ 5,389.54	$ 0.00	$5,389.54	$ 4,271.23	$ 1,118.31	$ 163,475.80	$ 9,728.12
9	3/1/2020	$163,475.80	$ 5,389.54	$ 0.00	$5,389.54	$ 4,299.70	$ 1,089.84	$ 159,176.09	$ 10,817.96
10	4/1/2020	$159,176.09	$ 5,389.54	$ 0.00	$5,389.54	$ 4,328.37	$ 1,061.17	$ 154,847.73	$ 11,879.13
11	5/1/2020	$154,847.73	$ 5,389.54	$ 0.00	$5,389.54	$ 4,357.22	$ 1,032.32	$ 150,490.51	$ 12,911.45
12	6/1/2020	$150,490.51	$ 5,389.54	$ 0.00	$5,389.54	$ 4,386.27	$ 1,003.27	$ 146,104.24	$ 13,914.72
13	7/1/2020	$146,104.24	$ 5,389.54	$ 0.00	$5,389.54	$ 4,415.51	$ 974.03	$ 141,688.72	$ 14,888.75
14	8/1/2020	$141,688.72	$ 5,389.54	$ 0.00	$5,389.54	$ 4,444.95	$ 944.59	$ 137,243.77	$ 15,833.34
15	9/1/2020	$137,243.77	$ 5,389.54	$ 0.00	$5,389.54	$ 4,474.58	$ 914.96	$ 132,769.19	$ 16,748.30
16	10/1/2020	$132,769.19	$ 5,389.54	$ 0.00	$5,389.54	$ 4,504.41	$ 885.13	$ 128,264.78	$ 17,633.43
17	11/1/2020	$128,264.78	$ 5,389.54	$ 0.00	$5,389.54	$ 4,534.44	$ 855.10	$ 123,730.34	$ 18,488.53
18	12/1/2020	$123,730.34	$ 5,389.54	$ 0.00	$5,389.54	$ 4,564.67	$ 824.87	$ 119,165.67	$ 19,313.39
19	1/1/2021	$119,165.67	$ 5,389.54	$ 0.00	$5,389.54	$ 4,595.10	$ 794.44	$ 114,570.56	$ 20,107.83
20	2/1/2021	$114,570.56	$ 5,389.54	$ 0.00	$5,389.54	$ 4,625.74	$ 763.80	$ 109,944.83	$ 20,871.64
21	3/1/2021	$109,944.83	$ 5,389.54	$ 0.00	$5,389.54	$ 4,656.57	$ 732.97	$ 105,288.25	$ 21,604.60
22	4/1/2021	$105,288.25	$ 5,389.54	$ 0.00	$5,389.54	$ 4,687.62	$ 701.92	$ 100,600.63	$ 22,306.52
23	5/1/2021	$100,600.63	$ 5,389.54	$ 0.00	$5,389.54	$ 4,718.87	$ 670.67	$ 95,881.77	$ 22,977.19
24	6/1/2021	$ 95,881.77	$ 5,389.54	$ 0.00	$5,389.54	$ 4,750.33	$ 639.21	$ 91,131.44	$ 23,616.41
25	7/1/2021	$ 91,131.44	$ 5,389.54	$ 0.00	$5,389.54	$ 4,782.00	$ 607.54	$ 86,349.44	$ 24,223.95
26	8/1/2021	$ 86,349.44	$ 5,389.54	$ 0.00	$5,389.54	$ 4,813.88	$ 575.66	$ 81,535.56	$ 24,799.61
27	9/1/2021	$ 81,535.56	$ 5,389.54	$ 0.00	$5,389.54	$ 4,845.97	$ 543.57	$ 76,689.59	$ 25,343.18
28	10/1/2021	$ 76,689.59	$ 5,389.54	$ 0.00	$5,389.54	$ 4,878.28	$ 511.26	$ 71,811.32	$ 25,854.45
29	11/1/2021	$ 71,811.32	$ 5,389.54	$ 0.00	$5,389.54	$ 4,910.80	$ 478.74	$ 66,900.52	$ 26,333.19
30	12/1/2021	$ 66,900.52	$ 5,389.54	$ 0.00	$5,389.54	$ 4,943.54	$ 446.00	$ 61,956.98	$ 26,779.19
31	1/1/2022	$ 61,956.98	$ 5,389.54	$ 0.00	$5,389.54	$ 4,976.49	$ 413.05	$ 56,980.49	$ 27,192.24
32	2/1/2022	$ 56,980.49	$ 5,389.54	$ 0.00	$5,389.54	$ 5,009.67	$ 379.87	$ 51,970.82	$ 27,572.11
33	3/1/2022	$ 51,970.82	$ 5,389.54	$ 0.00	$5,389.54	$ 5,043.07	$ 346.47	$ 46,927.75	$ 27,918.58
34	4/1/2022	$ 46,927.75	$ 5,389.54	$ 0.00	$5,389.54	$ 5,076.69	$ 312.85	$ 41,851.06	$ 28,231.43
35	5/1/2022	$ 41,851.06	$ 5,389.54	$ 0.00	$5,389.54	$ 5,110.53	$ 279.01	$ 36,740.53	$ 28,510.44
36	6/1/2022	$ 36,740.53	$ 5,389.54	$ 0.00	$5,389.54	$ 5,144.60	$ 244.94	$ 31,595.92	$ 28,755.38
37	7/1/2022	$ 31,595.92	$ 5,389.54	$ 0.00	$5,389.54	$ 5,178.90	$ 210.64	$ 26,417.02	$ 28,966.01

PMT. NO.	PAYMENT DATE	BEGINNING BALANCE	SCHEDULED PAYMENT	EXTRA PAYMENT	TOTAL PAYMENT	PRINCIPAL	INTEREST	ENDING BALANCE	CUMULATIVE INTEREST
38	8/1/2022	$ 26,417.02	$ 5,389.54	$ 0.00	$ 5,389.54	$ 5,213.43	$ 176.11	$ 21,203.59	$ 29,142.13
39	9/1/2022	$ 21,203.59	$ 5,389.54	$ 0.00	$ 5,389.54	$ 5,248.18	$ 141.36	$ 15,955.41	$ 29,283.49
40	10/1/2022	$ 15,955.41	$ 5,389.54	$ 0.00	$ 5,389.54	$ 5,283.17	$ 106.37	$ 10,672.24	$ 29,389.86
41	11/1/2022	$ 10,672.24	$ 5,389.54	$ 0.00	$ 5,389.54	$ 5,318.39	$ 71.15	$ 5,353.85	$ 29,461.00
42	12/1/2022	$ 5,353.85	$ 5,389.54	$ 0.00	$ 5,353.85	$ 5,318.16	$ 35.69	$ 0.00	$ 29,496.70

SECOND AMENDMENT TO LEASE

This Second Amendment to Lease ("Second Amendment") is executed as of the 8th day of August, 2019, by and between **128 Spring Street Lexington, LLC**, as landlord ("Landlord") and **Keros Therapeutics, Inc.**, as tenant ("Tenant").

BACKGROUND:

A. Reference is made to a certain Lease between, Landlord and Tenant dated March 20, 2017, as amended by that certain First Amendment to Lease dated as of July 1, 2019 (collectively, the "Lease") pursuant to which Tenant is currently leasing from Landlord approximately 5,420 rentable square feet of space (the "Premises" and the "Original Premises") on portions of the 100 Level of Building E located at 99 Hayden Avenue, Lexington, Massachusetts. Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant desire to amend the Lease in certain respects as provided herein.

AGREEMENTS:

NOW, THEREFORE, in consideration of the agreements set forth herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree, and amend the Lease, as follows:

1. Premises. Notwithstanding any provision in the Lease to the contrary, the Original Premises is located on the 100 Level of Building E. As of September 1, 2019 (the "Expansion Commencement Date"), (i) approximately 4,997 rentable square feet on the 400 Level of Building C (the "Expansion Premises"), as more particularly shown on the attached Exhibit A, shall be added to the Premises (ii) the Premises shall consist of a total of approximately 10,417 rentable square feet, and (iii) Tenant's Pro Rata Share shall be increased to 5.55% (subject to Section 4.06 of the Lease); *provided*, *however*, that:

(a) the Permitted Uses with respect to the Expansion Premises shall be limited to general office and laboratory use (including research and development, but not as a vivarium or for the testing of animals) to the extent permitted by applicable zoning ordinances; and

(b) Tenant shall continue to have the appurtenant rights to use Building E as set forth in 2.01(b) of the Lease; *provided however*, that the use of the Generator, Shared Generator, and pH System shall not be appurtenant to the Expansion Premises. Tenant shall have the non-exclusive right, as appurtenant to and for the benefit of the Expansion Premises only, to use (i) up to 12.5 kw of capacity from the emergency generator that serves the Expansion Premises in common with other tenants in Building C (the "Expansion Shared Generator") and (ii) the shared pH neutralization system in Building C (the "Expansion pH System"); and shall pay to Landlord, as additional rent, its pro rata share of the maintenance, repair, replacement and operating costs for the Expansion Shared Generator and Expansion pH System as billed by Landlord in common with other tenants having shared use of the Expansion Shared Generator and Expansion pH System.

Except as specifically set forth in this Second Amendment, the Expansion Premises shall be deemed part of the Premises for all purposes, including, but not limited to, the Term set forth in Section 3.01 of the Lease and the Right to Extend set forth in Section 3.03 of the Lease.

2. Delivery. Tenant shall accept the Expansion Premises in their condition as of the Expansion Commencement Date "as is". Landlord shall deliver the Expansion Premises with the roof and all Core Building Systems (i) in good working condition and (ii) suitable for laboratory use. Tenant acknowledges that except as expressly set forth herein, neither Landlord nor any person acting under Landlord has made any representation as to the condition of the Property or the suitability of the Property for Tenant's intended use. By occupying the Expansion Premises, Tenant shall be deemed to have accepted the Expansion Premises in their condition as of the date of such occupancy and Landlord shall be deemed to have completed all of its obligations under this Section 2.

3. Base Rent. Tenant shall continue to pay Base Rent for the Premises to Landlord in the manner and at the times set forth in Section 4.01 of the Lease, in advance, without demand, notice, deduction or set off, (i) with respect to the Original Premises at the rates set forth in Article 1 of the Lease and (ii) with respect to the Expansion Premises, at the following rates:

Period	Annual Base Rent	Monthly Installment
September 1, 2019 — September 30, 2020 (inclusive)	$242,354.50	$20,196.21*
October 1, 2020 — September 30, 2021 (inclusive)	$249,625.14	$20,802.10
October 1, 2021 — September 30, 2022 (inclusive)	$257,113.89	$21,426.16
October 1, 2022 — December 31, 2022 (inclusive)	$264,827.31	$22,068.94

* *provided, however*, that so long as Tenant is not then in default of any of its obligations under the Lease, the monthly installment of Base Rent (but not Additional Rent), with respect to the Expansion Premises only, for the period from and including September 1, 2019 through September 30, 2019, shall be abated.

4. Additional Rent. Tenant shall continue to pay Additional Rent, including, without limitation, Tenant's Pro Rata Share of Taxes, Utilities, Insurance premiums, and Operating Expenses; *provided, however*, that from and after the Expansion Commencement Date, Tenant's Pro Rata Share shall be as set forth in Section 1, above.

5. Security Deposit. On or before the Expansion Commencement Date, Tenant shall decrease the Letter of Credit Amount from $130,930.94 to $115,017.00 by providing Landlord with either (i) a substitute letter of credit in the decreased amount in exchange for the existing letter(s) of credit which Landlord is then holding or (ii) an amendment to the existing letter(s) of credit then held by Landlord, in either case in form and substance reasonably acceptable to Landlord and which is accepted by Landlord in writing. Except as expressly set forth in this Second Amendment, such letter(s) of credit shall be subject to Article 15 of the Lease. Notwithstanding any provision to the contrary in said Article 15, the Letter of Credit Amount shall not be subject to any automatic reductions, but Landlord agrees to discuss future reductions with Tenant, in good faith, following Tenant securing material additional funding.

6. Signage. Landlord shall provide Tenant with identification on existing multi-tenant signs or directories in Building C and on other existing common area signage, as appropriate. Such signs will be consistent with standard Building signage and will conform to local regulations.

7. Parking. Tenant's appurtenant right to use unreserved parking spaces pursuant to Section 2.01(d) of the Lease, shall be increased from thirteen (13) unreserved parking spaces to twenty-five (25) unreserved parking spaces.

8. Roof Rights. Tenant shall have the same license and rights and obligations with respect to the roof of Building C as are set forth in Section 2.02 of the Lease.

9. Successors; Conflicts. This Second Amendment shall be binding upon the parties and their respective successors and assigns. To the extent the terms and conditions of the Lease expressly conflict with or are expressly inconsistent with this Second Amendment, the terms and conditions of this Second Amendment shall control.

10. Brokers. Tenant represents and warrants to Landlord that it has not directly or indirectly dealt, with respect to this Second Amendment, with any broker or had its attention called to the Expansion Premises or other space to let at the Property, etc. by anyone other than CBRE and JLL. Tenant agrees to defend, exonerate and save harmless and indemnify Landlord and anyone claiming by, through or under Landlord against any claims for a commission arising out of the execution and delivery of this Second Amendment or out of negotiations between Landlord and Tenant with respect to the leasing of other space at the Property. Landlord is responsible for paying all commissions to CBRE and JLL pursuant to separate agreement(s) therewith.

11. Miscellaneous. Except as expressly modified herein, the Lease shall remain unmodified and in full force and effect. The provisions of this Second Amendment shall be binding upon and shall inure to the benefit of Landlord and Tenant and their respective legal representatives, successors and assigns. Any signature delivered by a party by facsimile or electronic transmission shall be deemed to be an original signature to this Second Amendment.

[Signature Page to Follow]

IN WITNESS WHEREOF the parties hereto have executed this Second Amendment to Lease in multiple copies, each to be considered an original hereof, as a sealed instrument on the date first written above

LANDLORD:

128 Spring Street Lexington, LLC

By: /s/ Stephen Faber
Name: Stephen Faber
Title: Its Authorized Signatory

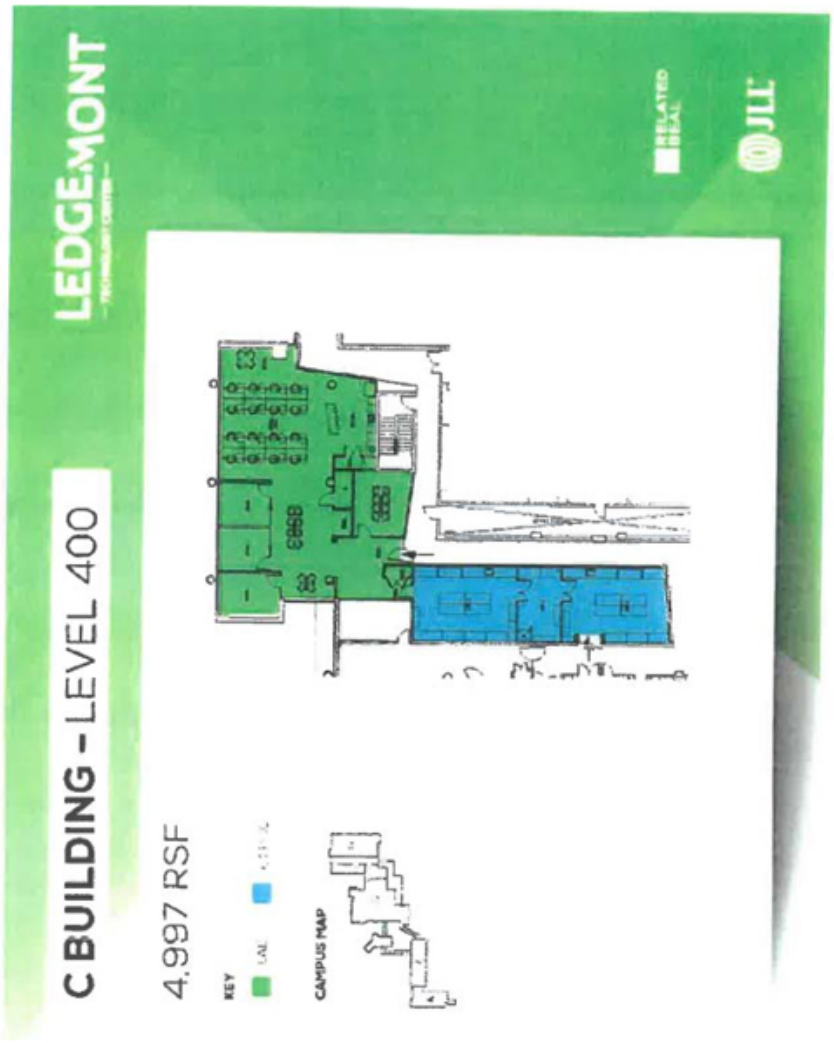
TENANT:

Keros Therapeutics, Inc.

By: /s/ Jasbir S. Seehra
Name: Jasbir S. Seehra, Ph.D.
Title: President and CEO
Hereunto Duly Authorized

Exhibit A

PLAN SHOWING THE EXPANSION PREMISES



This plan is to show the location of the Expansion Premises only and may not depict the current condition of the Expansion Premises. Any furniture shown hereon is for illustrative purposes only and shall not be included with delivery of the Expansion Premises.

Exhibit 21.1

Subsidiaries of Keros Therapeutics, Inc.

Name of Subsidiary	Jurisdiction of Organization
Keros Therapeutics Australia, Pty Ltd	Australia