As confidentially submitted to the Securities and Exchange Commission on December 19, 2019
as Amendment No. 1 to the Draft Registration Statement

Registration No. 333-

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

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Lyra Therapeutics, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**3841**	**84-1700838**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

480 Arsenal Way
Watertown, MA 02472
(617) 393-4600
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Maria Palasis, Ph.D.
President and Chief Executive Officer
Lyra Therapeutics, Inc.
480 Arsenal Way
Watertown, MA 02472
(617) 393-4600
(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, 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 statement 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, a 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 pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities To Be Registered	**Proposed Maximum Aggregate Offering Price(1)**	**Amount of Registration Fee(2)**
Common Stock, $0.001 par value per share	$	$

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended. Includes the aggregate offering price of additional shares that the underwriters have the option to purchase.

(2) Calculated pursuant to Rule 457(o) 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 which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

Table of Contents

The information in this 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 prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion
Preliminary Prospectus dated , 2020

PROSPECTUS

Shares

Common Stock

This is Lyra Therapeutics, Inc.'s initial public offering. We are selling shares of our common stock.

We expect the public offering price to be between $ and $ per share. Currently, no public market exists for the shares. After pricing of the offering, we expect that the shares will trade on the Nasdaq Global Market under the symbol "LYRA."

We are an emerging growth company under the federal securities laws and are subject to reduced public company disclosure standards. See "Prospectus Summary—Implications of Being an Emerging Growth Company."

Investing in the common stock involves risks that are described in the "Risk Factors" section beginning on page 11 of this prospectus.

	Per Share	Total
Public offering price	$	$
Underwriting discount(1)	$	$
Proceeds, before expenses, to us	$	$

(1) We refer you to "Underwriting" beginning on page 170 of this prospectus for additional information regarding underwriting compensation.

The underwriters may also exercise their option to purchase up to an additional shares from us, at the public offering price, less the underwriting discount, for 30 days after the date of this prospectus.

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

The shares will be ready for delivery on or about , 2020.

Joint Book-Running Managers

BofA Securities **Jefferies** **William Blair**

Co-Manager

BTIG

The date of this prospectus is , 2020.

TABLE OF CONTENTS

Neither we nor the underwriters have authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We 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 or in 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.

We have proprietary rights to trademarks, trade names and service marks appearing in this prospectus that are important to our business. Solely for convenience, the trademarks, trade names and service marks may appear in this prospectus without the ® and ™ symbols, but any such references are not intended to indicate, in any way, that we forgo or will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensors to these trademarks, trade names and service marks. All trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners.

For investors outside the United States: Neither we nor the underwriters have 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.

PRESENTATION OF FINANCIAL INFORMATION

Pursuant to the applicable provisions of the Fixing America's Surface Transportation Act, we are not required to file our financial information for the historical 2017 annual period or for any interim period for 2018 or 2019 because we plan to file our financial information for the year ended December 31, 2019 in the first public filing of our registration statement. While the 2017 annual financial information and 2018 and 2019 interim financial information is otherwise required by Regulation S-X, we believe that it will not be required to be included in our registration statement at the time of the first public filing.

PROSPECTUS SUMMARY

This summary highlights, and is qualified in its entirety by, the more detailed information and financial statements included elsewhere in this prospectus. This summary does not contain all of the information that may be important to you in making your investment decision. You should read this entire prospectus carefully, especially the "Risk Factors" section beginning on page 11 and our consolidated financial statements and the related notes appearing at the end of this prospectus, before deciding to invest in our common stock.

As used in this prospectus, unless the context otherwise requires, references to "we," "us," "our" and "Lyra" refer to the consolidated operations of Lyra Therapeutics, Inc. and its subsidiary.

Overview

We are a clinical-stage therapeutics company focused on the development and commercialization of novel integrated drug and delivery solutions for the localized treatment of patients with ear, nose and throat, or ENT, diseases. Our proprietary technology platform, XTreo, is designed to precisely and consistently deliver medicines directly to the affected tissue for sustained periods with a single administration. Our initial product candidates, LYR-210 and LYR-220, are bioresorbable polymeric matrices designed to be administered in a brief, non-invasive, in-office procedure and intended to deliver up to six months of continuous drug therapy to the sinonasal passages for the treatment of chronic rhinosinusitis, or CRS. The therapeutic embedded within LYR-210 and LYR-220 is mometasone furoate, or MF, which is the active ingredient in various U.S. Food and Drug Administration, or FDA, approved drugs and has a well-established efficacy and safety profile. CRS is an inflammatory disease of the paranasal sinuses which leads to debilitating symptoms and significant morbidities and affects approximately 13 million people in the United States. We are advancing LYR-210 as a potential preferred alternative to surgery in an ongoing Phase 2 clinical trial for CRS patients who have failed medical management, and we expect to report topline data in . In our Phase 1 clinical trial, LYR-210 met its primary safety endpoint, and we observed that patients generally experienced significant and rapid, clinically meaningful and durable improvement in SNOT-22 scores, an established patient symptom severity scale, through week 25, which was the end of the trial. We are also developing LYR-220 for use in CRS patients who have an enlarged nasal cavity due to sinus surgery but continue to require treatment to manage CRS symptoms, and we intend to initiate a proof-of-concept clinical trial for LYR-220 in . Beyond CRS, we believe our XTreo platform has potential applications in other disease areas, which we are actively exploring to further broaden its therapeutic potential.

Chronic Rhinosinusitis: A Prevalent Disease with High Unmet Medical Needs

CRS has been described in the literature as an "unrecognized epidemic" due to its high prevalence, its substantial impact on patient quality of life and the significant limitations of currently available treatment options. We estimate that sinusitis, which includes both CRS and acute rhinosinusitis, impacts approximately 12% of the adult population in the United States, or approximately 30 million people, making it the fifth most common condition in people under the age of 65 and more prevalent than diabetes or heart disease. Of this population, we estimate that approximately 13 million people are affected with CRS. Moreover, we estimate that approximately 8 million people are treated for CRS by physicians annually, of which approximately 4 million fail medical management every year. In the United States, over $60 billion is spent annually in direct treatment costs for sinusitis, including approximately $5 billion on sinus surgeries.

Current Treatments and Their Limitations

Current treatments are directed towards managing the symptoms of CRS through a combination of medical management and surgical intervention techniques. The first line of therapy is medical management involving nasal saline irrigation, intranasal corticosteroidal sprays, oral steroids and antibiotics for patients with an active sinus infection. However, these treatments have significant limitations. Topical steroid sprays have

poor efficacy due to their limited ability to reach the site of the disease, fast clearance of drug from the site of delivery and poor patient compliance. Prolonged use of oral steroids may lead to systemic complications which limit their use to short courses. Based on published medical literature, we estimate that about 60% of CRS patients who are seen by ENT physicians and receive medical management remain symptomatic.

Patients whose symptoms persist despite medical management are generally recommended to undergo functional endoscopic sinus surgery (or FESS) or balloon sinus dilation (or BSD), or both. FESS is a highly invasive surgery performed in the operating room, under full anesthesia, to open the blocked sinus pathways by removing inflamed tissue and bone using surgical tools. BSD is a less severe form of endoscopic sinus surgery, often used in combination with FESS, in which small balloon catheters are inserted and inflated to drain the large nasal sinuses. Although FESS and BSD can improve symptoms and quality of life, limitations remain. Neither correct the underlying cause of the inflammation, and patients who undergo either or both procedures often experience significant pain and require continued post-operative medical therapy to maintain improvements, with a high incidence of repeat surgeries.

CRS has two phenotypes: CRS with nasal polyps and CRS without nasal polyps, with the non-polyp form representing approximately 70%-to-90% of all CRS patients. For patients with nasal polyps who remain symptomatic following surgery, who we refer to as refractory patients, there are non-surgical options, such as a steroid-eluting stent and a monoclonal antibody. However, the steroid-eluting stent has only a three month elution profile and has been approved only as an addition to intranasal steroid sprays. In addition, the antibody treatment is reserved for only the most refractory patients, has an unknown long-term systemic safety profile and is priced at a significant premium even when compared to surgical options. Currently, there are no FDA-approved drug therapies for CRS for non-polyp patients, although some drugs approved for nasal polyps are used off-label in this population.

Our XTreo Platform

XTreo, our innovative and proprietary drug delivery platform, is designed to locally and continuously deliver small molecule drugs to the affected tissue over a sustained period of time from a single administration. The platform is comprised of three interrelated technology components:

- a biocompatible mesh scaffold, which is designed to maximize surface area for drug release while maintaining underlying tissue function;
- an engineered elastomeric matrix, which means a polymeric matrix composed of polymers having elastic characteristics, which has advanced physical properties resulting in implants with “shape memory” that dynamically adapt to nasal anatomy; and
- a versatile polymer-drug complex, which can be customized for the treatment of various chronic diseases treatable with ENT delivery to achieve the desired drug dose and drug elution rate.

Our Solution for CRS

LYR-210 is an anti-inflammatory implantable drug matrix based on our XTreo platform that is designed to consistently and locally elute MF to the inflamed mucosal tissue for up to six months in surgically-naïve CRS patients who fail medical management. MF, the active ingredient in various FDA-approved drugs, has a well-established efficacy and safety profile, which we believe will support the development process for LYR-210. LYR-210 is designed to enable sustained drug delivery at difficult-to-access nasal inflammation sites without the need for patient compliance, while avoiding systemic side effects associated with oral steroids. LYR-210 is designed to be administered in a brief, non-invasive, in-office procedure by an ENT physician under endoscopic visualization via a single-use applicator.

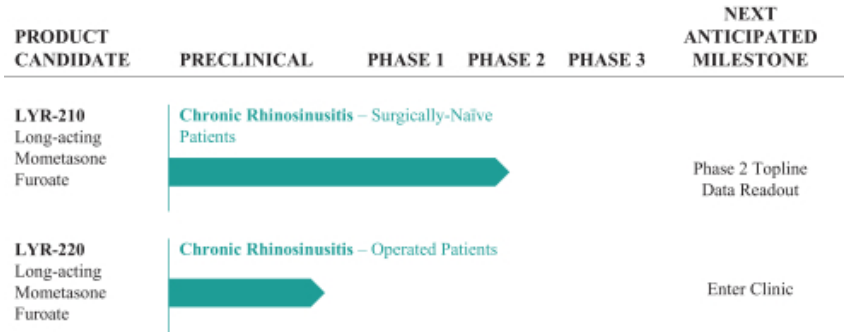
LYR-210 is currently being studied in a Phase 2 randomized, sham procedure-controlled, patient-blinded clinical trial, evaluating the safety and efficacy in surgically-naïve CRS patients who have failed previous medical management. The trial was initiated in May 2019 at sites in New Zealand, Australia and Europe. We expect to report topline data from the Phase 2 clinical trial in . LYR-210 was previously studied in an open-label, Phase 1 clinical trial with 20 patients in New Zealand and Australia and achieved its primary endpoint of safety at week 4. In the Phase 1 trial, we observed that patients generally experienced significant and rapid, clinically meaningful and durable improvement in SNOT-22 scores. Significant reduction in SNOT-22 scores was observed at week 1, and this reduction persisted through week 25, which was the end of the trial.

We are developing our second pipeline product candidate, LYR-220, for use in CRS patients who continue to require treatment to manage CRS symptoms despite having had sinus surgery. LYR-220 is also designed to utilize MF, but will employ an oversized matrix designed for patients whose nasal cavity is enlarged due to sinus surgery. LYR-220 is designed as a potential preferred alternative to revision sinus surgery and post-surgical medical management. We expect to initiate a proof-of-concept clinical trial for LYR-220 in .

We believe that the key potential benefits of our current investigational product portfolio, LYR-210 and LYR-220, include ***clinical activity, patient compliance, patient experience, physician experience, localized delivery, patient applicability and pharmacoeconomic impact***. We believe LYR-210 and LYR-220, if approved, would be the only products able to deliver up to six months of continuous topical treatment in a single administration to treat the entire spectrum of CRS patients who fail medical management, including pre- and post-surgery patients and those with and without nasal polyps.

Our Pipeline

The current status of our product candidates is summarized below.



Our Strategy

Our mission is to transform the ENT treatment paradigm by utilizing our proprietary drug delivery platform, XTreo, to develop safe and effective therapies for the treatment of debilitating diseases treatable with ENT delivery. We intend to achieve this through the following strategies:

- Complete the development and secure FDA approval of LYR-210 for the treatment of CRS.
- Advance our second product candidate, LYR-220, into the clinic to provide a comprehensive solution for CRS patients who have failed medical management and surgery.

- Build a commercialization infrastructure in the U.S. market for LYR-210 and LYR-220.
- Maximize the value of our XTreo platform and expand our product pipeline.
- Seek strategic collaborative relationships.

Intellectual Property and Barriers to Entry

We own all the material intellectual property rights related to our platform and product candidate portfolio. As of November 1, 2019, our product and product candidate portfolio is protected by 21 issued and 27 pending patents worldwide with claims directed to composition of matter, drug delivery and method of use, which, exclusive of possible patent term adjustments or extensions or other forms of exclusivity, are projected to expire between 2030 and 2037.

Management Team and Investors

Our management team has extensive drug development, manufacturing and commercialization experience across a broad spectrum of disease areas, for both drug and drug-device combination products, with a successful track record in large pharmaceutical, medical device and biotech companies. Additionally, our management team has been involved in the development of successfully approved and commercialized products such as Taxus (drug-eluting stent), Renagel Tablets, AvoneX, Arikayce and Pangematin.

Further, we are supported by a leading group of biotech investors including, among others, Arrowmark Partners, Intersouth Partners, North Bridge Venture Partners, Perceptive Advisors, Polaris Venture Partners, RA Capital and Soleus Capital.

Risk Factors

Our business is subject to a number of risks of which you should be aware before making an investment decision. You should carefully consider all of the information set forth in this prospectus and, in particular, should evaluate the specific factors set forth under “Risk Factors” in deciding whether to invest in our common stock. These risks include the following:

- we have a limited operating history and a history of escalating operating losses, which may make it difficult to evaluate the prospects for our future viability;
- we have incurred significant losses since inception and expect to incur significant additional losses for the foreseeable future, and we may never achieve profitability;
- even if this offering is successful, we will need significant additional funding in order to complete development of and obtain regulatory approval for our product candidates and commercialize our products, if approved;
- our business is highly dependent on the success of our most advanced product candidate, LYR-210, which will require significant additional clinical testing before we can seek regulatory approval and potentially launch commercial sales, and if LYR-210 does not receive regulatory approval or is not successfully commercialized, or is significantly delayed in doing so, our business will be harmed;
- clinical trials required for our product candidates are expensive and time-consuming, their outcome is uncertain, and if our clinical trials do not meet safety or efficacy endpoints in these evaluations, or if we experience significant delays in these trials, our ability to commercialize our product candidates and our financial position will be impaired;

- developments by competitors may render our products or technologies obsolete or non-competitive or may reduce the size of our markets;
- the successful commercialization of our product candidates will depend in part on the extent to which governmental authorities and health insurers establish coverage, adequate reimbursement levels and pricing policies, and the failure to obtain or maintain coverage and adequate reimbursement for our product candidates, if approved, could limit our ability to market those products and decrease our ability to generate revenue;
- even if either LYR-210 or LYR-220 receives marketing approval, it may fail to achieve market acceptance by physicians, patients, third-party payors or others in the medical community necessary for commercial success;
- we will rely on third parties for the manufacture of materials for our research programs, pre-clinical studies and clinical trials and we do not have long-term contracts with any of these parties, which increases the risk that we will not have sufficient quantities of such materials, product candidates, or any therapies that we may develop and commercialize, or that such supply will not be available to us at an acceptable cost, which could delay, prevent, or impair our development or commercialization efforts;
- we rely on third parties to conduct our pre-clinical studies and clinical trials, and any failure by a third party to conduct the clinical trials according to GCPs and in a timely manner may delay or prevent our ability to seek or obtain regulatory approval for or commercialize our product candidates;
- if we are unable to obtain, maintain or adequately protect our intellectual property rights, we may not be able to compete effectively in our markets; and
- if we lose key management or scientific personnel, cannot recruit qualified employees, directors, officers or other significant personnel or experience increases in our compensation costs, our business may materially suffer.

Implications of Being an Emerging Growth Company

As a company with less than $1.07 billion in revenue during our last fiscal year, we qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or JOBS Act. An “emerging growth company” may take advantage of reduced reporting requirements that are otherwise applicable to public companies. These provisions include, but are not limited to:

- the option to present only two years of audited financial statements and only two years of related “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this prospectus;
- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements;

- reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and

- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We may take advantage of these provisions until the last day of our fiscal year following the fifth anniversary of the completion of this offering. However, if prior to the end of such five-year period, (i) our annual gross revenue exceeds $1.07 billion, (ii) we issue more than $1.0 billion of non-convertible debt in any three-year period or (iii) we become a "large accelerated filer" (as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, or the Exchange Act), then we will cease to be an emerging growth company prior to the end of such five-year period. We will be deemed to be a "large accelerated filer" at such time that we (a) have an aggregate worldwide market value of common equity securities held by non-affiliates of $700.0 million or more as of the last business day of our most recently completed second fiscal quarter, (b) have been required to file annual and quarterly reports under the Exchange Act, for a period of at least 12 months and (c) have filed at least one annual report pursuant to the Exchange Act. 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 reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements.

We have elected to take advantage of certain of the reduced disclosure obligations in the registration statement of which this prospectus is a part and may elect to take advantage of other reduced reporting requirements in future filings. As a result, the information that we provide to our stockholders may be different than you might receive from other public reporting companies in which you hold equity interests.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards.

Corporate Information

We were incorporated under the laws of the state of Delaware in November 2005 under the name WMR Biomedical, Inc. In July 2018, we changed our name to Lyra Therapeutics, Inc. Our principal executive offices are located at 480 Arsenal Way, Watertown, MA 02472 and our telephone number is (617) 393-4600. Our website address is *www.lyratherapeutics.com*. The information contained in, or accessible through, our website does not constitute a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

The Offering

Common stock offered by us	shares
Common stock to be outstanding after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full).
Option to purchase additional shares	The underwriters have a 30-day option to purchase up to additional shares of our common stock at the public offering price less estimated underwriting discounts and commissions.
Use of proceeds	We estimate that the net proceeds from this offering will be approximately $ million (or approximately $ million if the underwriters exercise in full their option to purchase additional shares of common stock), at an assumed public offering price of $ per share (the midpoint of the price range set forth on the cover page of this prospectus), after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us. We anticipate that we will use the net proceeds of this offering, together with our existing cash and cash equivalents, to fund the clinical development and pre-commercialization expenses for LYR-210 through ; to fund the development of LYR-220 through ; and the remainder, if any, for platform development and other research and development expenses for our pipeline, and for working capital and general corporate purposes. See “Use of Proceeds” beginning on page 77 for additional information.
Risk factors	You should carefully read the “Risk Factors” beginning on page 11 and the other information included in this prospectus for a discussion of factors you should consider carefully before deciding to invest in our common stock.
Proposed Nasdaq Global Market symbol	“LYRA”

The number of shares of our common stock to be outstanding after this offering is based on shares of our common stock outstanding as of December 31, 2019, and excludes:

- shares of common stock issuable upon exercise of stock options outstanding under our 2016 Equity Incentive Plan, or our 2016 Plan, as of December 31, 2019, at a weighted-average exercise price of $ per share;
- shares of common stock issuable upon exercise of stock options outstanding under our 2005 Equity Incentive Plan, or our 2005 Plan, as of December 31, 2019, at a weighted-average exercise price of $ per share;
- shares of our common stock issuable upon the exercise of stock options granted after December 31, 2019 pursuant to our 2016 Plan;

- shares of our common stock reserved for future issuance under our 2020 Incentive Award Plan, or our 2020 Plan, which will become effective in connection with this offering, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under our 2020 Plan; and

- shares of our common stock that will become available for future issuance under our 2020 Employee Stock Purchase Plan, or our 2020 ESPP, which will become effective in connection with this offering, and shares of our common stock that become available pursuant to provisions in the 2020 ESPP that automatically increase the share reserve under our 2020 ESPP.

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

- a -for- stock split of our common stock, which will become effective prior to the effectiveness of the registration statement of which this prospectus forms a part;

- the automatic conversion of all outstanding shares of our Series A-1 preferred stock, Series A-2 preferred stock, Series A-3 preferred stock, Series A-4 preferred stock and Series B preferred stock into an aggregate of shares of our common stock upon the closing of this offering;

- no exercise of outstanding options after December 31, 2019;

- no exercise by the underwriters of their option to purchase additional shares of our common stock; and

- the filing of our restated certificate of incorporation, which will occur upon the closing of this offering.

Summary Consolidated Financial Data

The following tables set forth our summary consolidated financial data as of, and for the periods ended on, the dates indicated. We have derived the consolidated statements of operations data for the years ended December 31, 2018 and 2019 and the consolidated balance sheet data as of December 31, 2019 from our audited consolidated financial statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that should be expected for any future period. You should read the following summary consolidated financial data together with the more detailed information contained in "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 included elsewhere in this prospectus.

	Years Ended December 31,	
	2018	2019
	(in thousands, except share and per share data)	
Consolidated Statement of Operations Data:		
Grant revenues	$ 1,244	$
Operating expenses:		
Research and development	4,975	
General and administrative	3,528	
Total operating expenses	8,503	
Loss from operations	(7,259)	
Other income:		
Interest income (expense), net	36	
Other income, net	10	
Change in fair value of tranche liability	1,184	
Total other income, net	1,230	
Net loss	$ (6,029)	$
Net loss per share attributable to common stockholders—basic and diluted(1)	$ (1.07)	$
Weighted-average common shares outstanding—basic and diluted(1)	5,728,033	
Pro forma net loss per share attributable to common stockholders—basic and diluted (unaudited)(1)		$
Pro forma weighted-average common shares outstanding—basic and diluted (unaudited)(1)		

(1) See Note 2 to our to audited consolidated financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma basic and diluted net loss per common share and the weighted average number of shares used in the computation of the per share amounts.

	As of December 31, 2019		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)(3)
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash and cash equivalents	$	$	$
Working capital(4)			
Total assets			
Total liabilities			
Redeemable convertible preferred stock			
Additional paid-in capital			
Accumulated deficit			
Total stockholders' (deficit) equity			

(1) The pro forma consolidated balance sheet data gives effect to the automatic conversion of all outstanding shares of our Series A-1 preferred stock, Series A-2 preferred stock, Series A-3 preferred stock, Series A-4 preferred stock and Series B preferred stock into an aggregate of shares of common stock, which will occur upon the closing of this offering.

(2) Reflects the pro forma adjustments described in footnote (1) and the issuance and 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 the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(3) Each $1.00 increase (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 (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets, additional paid-in capital and total stockholders' equity by $ 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 and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us at the assumed initial public offering price would increase (decrease) each of cash and cash equivalents, working capital, total assets, additional paid-in capital and total stockholders' equity by $ million. The pro forma information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of our initial public offering determined at pricing.

(4) We define working capital as current assets less current liabilities. See our consolidated financial statements for further details regarding our current assets and current liabilities.

RISK FACTORS

You should carefully consider the risks and uncertainties described below and the other information in this prospectus before making an investment in our common stock. Our business, financial condition, results of operations, or prospects could be materially and adversely affected if any of these risks occurs, and as a result, the market price of our common stock could decline and you could lose all or part of your investment. This prospectus also contains forward-looking statements that involve risks and uncertainties. See "Special Note Regarding Forward-Looking Statements." Our actual results could differ materially and adversely from those anticipated in these forward-looking statements as a result of certain factors, including those set forth below.

Risks Related to Our Financial Position and Need for Additional Capital

We have a limited operating history and a history of escalating operating losses, which may make it difficult to evaluate the prospects for our future viability.

We are a clinical-stage therapeutics company established in November 2005. Our operations to date have been limited to financing and staffing our company, developing our technology and identifying and developing our product candidates. Our prospects must be considered in light of the uncertainties, risks, expenses, and difficulties frequently encountered by companies in their early stages of operations. We have not yet demonstrated an ability to obtain marketing approval, manufacture a commercial scale product, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization. Consequently, 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, obtaining marketing approval for and commercializing CRS treatments.

In addition, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown obstacles. We will eventually need to transition from a company with a research and development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

As we continue to build our business, we expect our financial condition and operating results may fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. Accordingly, you should not rely upon the results of any particular quarterly or annual period as indications of future operating performance.

We have incurred significant losses since inception and expect to incur significant additional losses for the foreseeable future. We may never achieve or maintain profitability.

We have incurred significant operating losses since our inception, including operating losses of approximately $6.0 million and $ million for the fiscal years ended December 31, 2018 and December 31, 2019, respectively. In addition, we have not commercialized any products and have never generated any revenue from product sales. We have devoted almost all of our financial resources to research and development, including our pre-clinical development activities.

In addition, we expect to continue to incur significant additional operating losses for the foreseeable future as we seek to advance product candidates through pre-clinical and clinical development, expand our research and development activities, develop new product candidates, complete pre-clinical studies and clinical trials, seek regulatory approval and, if we receive FDA approval, commercialize our products. In order to obtain FDA approval of any product candidate, we must submit to the FDA an NDA demonstrating that the product candidate is safe for humans and effective for its intended use. This demonstration requires significant research and animal tests, which are referred to as non-clinical or pre-clinical studies, as well as human tests, which are referred to as clinical trials. Furthermore, the costs of advancing product candidates into each succeeding clinical phase tend to increase substantially over time. The total costs to advance any of our product candidates to

marketing approval in even a single jurisdiction would be substantial. Because of the numerous risks and uncertainties associated with ENT disease treatment product development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to begin generating revenue from the commercialization of products or achieve or maintain profitability. Our expenses will also increase substantially if and as we:

- continue additional clinical trials of our most advanced product candidate, LYR-210, including the Phase 2 trial, which commenced in May 2019 and one or more planned pivotal Phase 3 clinical trials of LYR-210;
- advance the development of LYR-220;
- continue to discover and develop additional product candidates;
- establish manufacturing and supply chain capacity sufficient to provide commercial quantities of any product candidates for which we may obtain marketing approval;
- seek regulatory and marketing approvals for product candidates that successfully complete clinical trials, if any;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain regulatory approval in geographies in which we plan to commercialize our products ourselves;
- maintain, expand and protect our intellectual property portfolio;
- hire additional staff, including clinical, scientific, technical, regulatory, operational, financial, commercial and support personnel, to execute our business plan;
- add clinical, scientific operational, financial and management information systems and personnel to support our product development and potential future commercialization efforts, and as to enable us to operate as a public reporting company;
- utilize external vendors for support with respect to research, development, commercialization, regulatory, pharmacovigilance and other functions;
- acquire or in-license other commercial products, product candidates and technologies;
- expand internationally;
- make royalty, milestone or other payments under current and any future in-license agreements;
- implement additional internal systems and infrastructure; and
- operate as a public company.

Furthermore, our ability to successfully develop, commercialize and license our products and generate product revenue is subject to substantial additional risks and uncertainties. Each of our product candidates will require additional pre-clinical and/or clinical development, potential regulatory approval in multiple jurisdictions, the securing of manufacturing supply, capacity and expertise, the use of external vendors, the building of a commercial organization, substantial investment and significant marketing efforts before we generate any revenue from product sales. As a result, we expect to continue to incur net losses and negative cash flows for the foreseeable future. These net losses and negative cash flows have had, and will continue to have, an adverse effect on our stockholders' equity and working capital.

The amount of future losses and when, if ever, we will achieve profitability are uncertain. We have no products that have generated any commercial revenue, do not expect to generate revenues from the commercial sale of products in the foreseeable future, and might never generate revenues from the sale of products. Our ability to generate revenue and achieve profitability will depend on, among other things, successful completion of the clinical development of our product candidates; obtaining necessary regulatory approvals from the FDA and international regulatory agencies; establishing manufacturing, sales, market acceptance of our products and marketing infrastructure to commercialize our product candidates for which we obtain approval; and raising sufficient funds to finance our activities. We might not succeed at any of these undertakings. If we are unsuccessful at some or all of these undertakings, our business, prospects, and results of operations may be materially adversely affected.

Even if this offering is successful, we will need significant additional funding in order to complete development of and obtain regulatory approval for our product candidates and commercialize our products, if approved. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.

Even after the consummation of this offering, we will continue to need additional capital beyond the proceeds of this offering, which we may raise through equity offerings, debt financings, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements or other sources. Additional sources of financing might not be available on favorable terms, if at all. If we do not succeed in raising additional funds on acceptable terms, we might be unable to complete planned clinical trials or obtain approval of any of our product candidates from the FDA, or any foreign regulatory authorities, and could be forced to discontinue product development. In addition, attempting to secure additional financing may divert the time and attention of our management from day-to-day activities and harm our product candidate development efforts.

We will require substantial funds to further develop, obtain approval for and commercialize our product candidates, including LYR-210, which is currently in Phase 2 clinical development. We will also require substantial funds to further develop, obtain approval for and commercialize our other product candidate, LYR-220, which is in pre-clinical development.

Based on our current operating plan, we believe that the anticipated net proceeds from this offering and our current cash and cash equivalents will be sufficient to enable us to fund our operating expenses and capital expenditure requirements until . This estimate is based on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. Changing circumstances could cause us to consume capital significantly faster than we currently anticipate, and we may need to spend more than currently expected because of circumstances beyond our control. Because the length of time and activities associated with successful development of LYR-210 and LYR-220 is highly uncertain, we are unable to estimate the actual funds we will require for development, approval and any approved marketing and commercialization activities. Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the scope and results of our pre-clinical studies and clinical trials;
- the timing of, and the costs involved in, obtaining regulatory approvals for LYR-210 and LYR-220;
- the costs and timing of changes in the regulatory environment and enforcement rules;
- the costs and timing in changes in pharmaceutical pricing and reimbursement infrastructure;
- the costs involved in preparing, filing, prosecuting, maintaining and enforcing patent claims and other patent-related costs, including any litigation costs and the results of such litigation;

- the effect of competing technological and market developments;
- the extent to which we in-license or acquire other products and technologies;
- the cost of establishing sales, marketing and distribution capabilities for our product candidates in regions where we choose to commercialize our products; and
- the initiation, progress, timing and results of our commercialization of LYR-210 and LYR-220, if approved for commercial sale.

Depending on our business performance, the economic climate and market conditions, we may be unable to raise additional funds through any sources. If we are unable to obtain adequate funding on a timely basis, we may be required to curtail or discontinue one or more of our development programs for LYR-210 or LYR-220, or to reduce our operations. If we raise additional funds by issuing equity securities, our then-existing stockholders will experience dilution and the terms of any new equity securities may have preference over those of our existing common stock.

Raising additional capital may cause dilution to our stockholders, including purchasers of 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 revenue, we may finance our cash needs through a combination of equity offerings, debt financings, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans.

To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our operations, our ability to take specific actions, such as incurring additional debt, making capital expenditures, declaring dividends, redeeming our stock, making certain investments and engaging in certain merger, consolidation or asset sale transactions, among other restrictions. If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may be required to relinquish valuable rights to our technologies, future revenue streams or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Our recurring losses from operations could continue to raise substantial doubt regarding our ability to continue as a going concern. Our ability to continue as a going concern requires that we obtain sufficient funding to finance our operations.

We have incurred significant operating losses since our inception and have never generated product revenue, and it is possible we will never generate product revenue or profit. Meaningful revenues will likely not be available until and unless any future product candidates are approved by the FDA or comparable regulatory agencies in other countries and successfully marketed, either by us or a partner, an outcome which may not occur. Accordingly, we have concluded that substantial doubt exists regarding our ability to continue as a going concern. Our audited financial statements appearing at the end of this prospectus have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of

business. These financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of these uncertainties related to our ability to operate on a going concern basis. In its report on our financial statements for the year ended December 31, 2018, our independent registered public accounting firm included an explanatory paragraph stating that our recurring losses from operations and negative cash flows since inception and our need to raise additional funding to finance our operations raise substantial doubt about our ability to continue as a going concern. The perception that we may not be able to continue as a going concern may cause others to choose not to deal with us due to concerns about our ability to meet our contractual obligations.

Our ability to continue as a going concern requires that we obtain sufficient funding to finance our operations. If we are unable to obtain sufficient funding, our business, prospects, financial condition and results of operations will be materially and adversely affected and we may be unable to continue as a going concern. If we are unable to continue as a going concern, we may have to liquidate our assets and may receive less than the value at which those assets are carried on our audited financial statements, and it is likely that investors will lose all or a part of their investment. If we seek additional financing to fund our business activities in the future and there remains substantial doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding to us on commercially reasonable terms or at all.

We have no approved products.

To date, we have no approved product on the market and have generated no product revenues. Unless we receive approval from the FDA or other regulatory authorities for our product candidates, we will not have product revenues. Therefore, for the foreseeable future, we will have to fund all of our operations and capital expenditures from the net proceeds of this offering, cash on hand, and licensing fees and grants, if any.

Our product candidates are in various stages of development.

We are a therapeutics company focused on the development and commercialization of novel integrated drug and drug delivery solutions for the localized treatment of patients with ENT diseases. Our product candidates are at stages of pre-clinical or clinical development, and favorable results in pre-clinical or early stage clinical trials may not be predictive of success in later clinical trials and may not lead to commercially viable products for any of several reasons. For example, our product candidates may fail to be safe and effective in current or future clinical trials or pre-clinical studies, or we may have inadequate financial or other resources to pursue discovery and development efforts for new product candidates. Our product candidates will require significant additional development, clinical trials, regulatory clearances and additional investment by us before they can be commercialized.

Our business is highly dependent on the success of our most advanced product candidate, LYR-210, which will require significant additional clinical testing before we can seek regulatory approval and potentially launch commercial sales. If LYR-210 does not receive regulatory approval or is not successfully commercialized, or is significantly delayed in doing so, our business will be harmed.

A substantial portion of our business and future success depends on our ability to develop, obtain regulatory approval for and successfully commercialize our most advanced product candidate, LYR-210. We currently have no products that are approved for commercial sale and have not completed the development of any product candidates, and may never be able to develop marketable products. We expect that a substantial portion of our efforts and expenditures over the next few years will be devoted to LYR-210, which will require additional clinical development and potential additional pre-clinical development, management of clinical, medical affairs and manufacturing activities, regulatory approval in multiple jurisdictions, the securing of manufacturing supply, the building of a commercial organization, substantial investment and significant marketing efforts before we can generate any revenues from any commercial sales. We cannot be certain that LYR-210 will be successful in

ongoing or future clinical trials, receive regulatory approval or be successfully commercialized even if we receive regulatory approval. Even if we receive approval to market LYR-210 from the FDA or other regulatory bodies, we cannot be certain that our product candidates will be successfully commercialized, widely accepted in the marketplace or more effective than other commercially available alternatives. Nor can we be certain that, if and when approved, the safety and efficacy profile of LYR-210 or our other product candidates will be consistent with the profiles observed in clinical trials.

If the required regulatory approvals for LYR-210 are not obtained or are significantly delayed, or any approved products are not commercially successful, our business, financial condition and results of operations may be materially harmed.

LYR-210 is our most advanced product candidate, and if we experience regulatory or developmental issues with respect to LYR-210, our development plans and business could be significantly harmed. Moreover, if we experience similar regulatory or developmental issues with our other pipeline product candidates, our development plans and business could be significantly harmed. Further, our competitors may be developing products with similar mechanisms of action and may experience problems with their products that could identify problems that would potentially harm our business.

We may not be successful in our efforts to identify and successfully commercialize additional product candidates.

Part of our strategy involves identifying novel product candidates. The process by which we identify product candidates may fail to yield product candidates for clinical development for a number of reasons, including those discussed in these risk factors and also:

- we may not be able to assemble sufficient resources to acquire or discover additional product candidates;
- competitors may develop alternatives that render our potential product candidates obsolete or less attractive;
- potential product candidates we develop may nevertheless be covered by third parties' patents or other exclusive rights;
- potential product candidates may, on further study, be shown to have harmful side effects, toxicities or other characteristics that indicate that they are unlikely to be products that will receive marketing approval or achieve market acceptance;
- potential product candidates may not be effective in treating their targeted diseases or symptoms;
- the market for a potential product candidate may change so that the continued development of that product candidate is no longer reasonable;
- a potential product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all; or
- the regulatory pathway for a potential product candidate is highly complex and difficult to navigate successfully or economically.

In addition, we may choose to focus our efforts and resources on a potential product candidate that ultimately proves to be unsuccessful, or to license or purchase a marketed product that does not meet our financial expectations. As a result, we may fail to capitalize on viable commercial products or profitable market

opportunities, be required to forego or delay pursuit of opportunities with other product candidates or other diseases that may later prove to have greater commercial potential, or relinquish valuable rights to such product candidates through collaboration, licensing or other royalty arrangements in cases in which it would have been advantageous for us to retain sole development and commercialization rights. If we are unable to identify and successfully commercialize additional suitable product candidates, this would adversely impact our business strategy and our financial position.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we focus on research programs and product candidates that we identify for specific indications. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to timely capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Risks Related to Discovery, Development, Clinical Testing, Manufacturing and Regulatory Approval

Clinical trials required for our product candidates are expensive and time-consuming, their outcome is uncertain, and if our clinical trials do not meet safety or efficacy endpoints in these evaluations, or if we experience significant delays in these trials, our ability to commercialize our product candidates and our financial position will be impaired.

We began dosing patients outside of the United States in a Phase 2 clinical trial of our most advanced product, LYR-210, in May 2019. Our other product candidate, LYR-220, is in pre-clinical development. It is impossible to predict when or if either of our product candidates will prove effective and safe in humans or if we will receive regulatory approval for any of our product candidates, and the risk of failure through the development process is high. Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete pre-clinical development and then conduct extensive clinical trials to demonstrate the safety and efficacy of our product candidates in humans.

Clinical development is a long, expensive and uncertain process that is subject to significant delays. Due to known or unknown circumstances beyond our control, it may take us several years to complete our testing, and failure can occur at any stage of testing. The outcome of pre-clinical testing and early clinical trials may not be predictive of the results of later clinical trials, and interim results of a clinical trial do not necessarily predict final results. We cannot assure you that any clinical trial that we are conducting, or may conduct in the future, will demonstrate consistent or adequate efficacy and safety to obtain regulatory approval to market our product candidates. Moreover, pre-clinical and clinical data are often susceptible to varying interpretations and analysis, and many companies that have believed their product candidates performed satisfactorily in pre-clinical studies and clinical trials have nonetheless failed to obtain marketing approval of their products.

Delays associated with products for which we are directly conducting pre-clinical studies or clinical trials may cause us to incur additional operating expenses. The commencement and rate of completion of pre-clinical studies or clinical trials may be delayed by, or terminated because of, many factors, including:

- the FDA or comparable foreign regulatory authorities disagreeing as to the design or implementation of our pre-clinical studies or clinical trials;

- failure to obtain regulatory approval to commence a trial;
- failure to reach, or delays in reaching, an 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;
- slower than expected rates of recruitment of patients or failure to recruit a sufficient number of patients;
- modification of pre-clinical studies or clinical trial protocols;
- changes in regulatory requirements for pre-clinical studies or clinical trials;
- the impact of unusual placebo effects;
- the lack of effectiveness during pre-clinical studies or clinical trials;
- the emergence of unforeseen safety issues or undesirable side effects;
- failure to obtain institutional review board, or the IRB, approval at each site;
- delays, suspension, or termination of clinical trials by the IRB responsible for overseeing the trial at a particular trial site;
- failure of patients in completing a trial or returning for post-treatment follow-up;
- clinical sites deviating from trial protocol, dropping out of a trial or failing to comply with regulatory requirements;
- failure to address patient safety concerns that arise during the course of a trial;
- failure to manufacture sufficient quantities of product candidate for use in clinical trials; and
- government, IRB or other regulatory delays or “clinical holds” requiring suspension or termination of the trials.

We may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to receive marketing approval or commercialize our product candidates or significantly increase the cost of such trials, including:

- we may receive feedback from regulatory authorities that requires us to modify the design of our clinical trials;
- clinical trials of our product candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon development programs;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate or participants may drop out of these clinical trials or fail to return for post-treatment follow-up at a higher rate than we anticipate;

- we may be unable to enroll a sufficient number of patients in our clinical trials to ensure adequate statistical power to detect any statistically significant treatment effects;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- regulators, IRBs or independent ethics committees, or IECs, may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site or may require that we or our investigators suspend or terminate clinical trials of our product candidates for various reasons, including non-compliance with regulatory requirements, a finding that our product candidates have undesirable side effects or other unexpected characteristics, or a finding that the participants are being exposed to unacceptable health risks;
- we may experience delays in reaching or fail to reach agreement on acceptable pre-clinical study or clinical trial contracts or pre-clinical study or clinical trial protocols with prospective trial sites;
- the cost of pre-clinical studies or clinical trials of our product candidates may be greater than we anticipate and we may not have funds to cover the costs;
- the supply or quality of our product candidates or other materials necessary to conduct pre-clinical studies or clinical trials of our product candidates may be insufficient or inadequate;
- regulators may revise the requirements for approving our product candidates, or such requirements may not be as we anticipate; and
- any current or future collaborators that conduct pre-clinical studies or clinical trials may face any of the above issues, and may conduct pre-clinical studies or clinical trials in ways they view as advantageous to them but that are suboptimal for us.

If we are required to extend the duration of current pre-clinical studies or clinical trials or to conduct additional pre-clinical studies or clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete pre-clinical studies or clinical trials of our product candidates or other testing, if the results of these trials, studies or tests are not positive or are only modestly positive, if there are safety concerns or if we determine that the observed safety or efficacy profile would not be competitive in the marketplace, we may:

- incur unplanned costs;
- be delayed in obtaining marketing approval for our product candidates or not obtain marketing approval at all;
- obtain marketing approval in some countries and not in others;
- obtain marketing approval for indications or patient populations that are not as broad as intended or desired;
- obtain marketing approval with labeling that includes significant use or distribution restrictions or safety warnings, including boxed warnings;
- be subject to additional post-marketing testing requirements; or
- have the product removed from the market after obtaining marketing approval.

We could encounter delays if a clinical trial is materially modified, suspended or terminated by us, by the IRBs of the institutions in which such trials are being conducted, by the Data Safety Monitoring Board, or DSMB, for such trial or by the FDA or other regulatory authorities. Such authorities may impose such a material modification, suspension or termination 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 other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects for our product candidates, or other products or product candidates in the same drug class, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. Furthermore, we may rely on CROs and clinical trial sites to ensure the proper and timely conduct of clinical trials and while we would have agreements governing their committed activities, we would have limited influence over their actual performance, as described in "—Risks Related to Our Dependence on Third Parties."

Our most advanced product candidate, LYR-210, is in clinical development and will require the completion of clinical testing before we are prepared to submit an NDA for regulatory approval. We cannot predict if or when we might complete the development of LYR-210 and submit an NDA or whether any such NDA will be approved by the FDA. We may also seek feedback from the FDA or other regulatory authorities on our clinical development programs, and the FDA or such regulatory authorities may not provide such feedback on a timely basis, or such feedback may not be favorable, which could further delay our development programs. If the results of ongoing and future clinical trials for LYR-210 are positive, we plan to submit an NDA in the United States. However, no assurance can be given that we will be successful in the near term, obtain regulatory approval or have any commercial sales of LYR-210.

Any clinical test may fail to produce results satisfactory to the FDA or foreign regulatory authorities. Pre-clinical and clinical data can be interpreted in different ways by different reviewers and regulators, which could delay, limit or prevent regulatory approval. Drug-related adverse events during a pre-clinical study or clinical trial could cause us to repeat a trial or study, perform an additional trial or study, expand the size and/or duration of a trial or study, terminate a trial or study or even cancel a pre-clinical or clinical program. The failure of pre-clinical studies or clinical trials to demonstrate safety and effectiveness for the desired indications could harm the development of that product candidate and other product candidates. This failure could cause us to abandon a product candidate and could delay development of other product candidates. Any delay in, or termination of, our clinical trials would delay the filing of our NDAs with the FDA and, ultimately, our ability to commercialize our product candidates and generate product revenues. A number of companies in the biotechnology and pharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials. Even if our future and ongoing pre-clinical studies and clinical trials are completed as planned, we cannot be certain that their results will support the safety and effectiveness of LYR-210, LYR-220 and/or any future product candidate.

If we experience delays in the commencement or completion of, or have to extend or expand, our pre-clinical studies or clinical trials, or if we terminate a pre-clinical study or clinical trial prior to completion, the commercial prospects of LYR-210, LYR-220 or any future product candidate could be harmed, and our ability to generate revenues from LYR-210, LYR-220 or any future product candidate may be delayed. In addition, any delays in our pre-clinical studies or clinical trials could increase our costs, slow down the development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may harm our business, financial condition and results of operations. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of pre-clinical studies or clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates.

Our pre-clinical studies and clinical trials may fail to demonstrate adequately the safety and efficacy of any of our product candidates and the development of our product candidates may be delayed or unsuccessful, which could prevent or delay regulatory approval and commercialization.

Both of our current product candidates are in clinical or pre-clinical development stages. Notwithstanding the data obtained to date with respect to LYR-210 and LYR-220 in CRS, LYR-210 and LYR-220 will require additional clinical and non-clinical development, regulatory review and approval in multiple jurisdictions, substantial investment, access to sufficient commercial manufacturing capacity and significant marketing efforts before we can generate any revenue from our product sales. In addition, if we encounter safety or efficacy problems, developmental delays or regulatory issues or other problems, our developmental plans and business could be significantly harmed.

If the development of LYR-210, LYR-220 or any other future product candidate is unsuccessful, our ability to generate revenues will be adversely affected. Our development of current and future product candidates is subject to the risks of failure and delay inherent in the development of new products and product candidates, including:

- delays in product development, pre-clinical or clinical testing or manufacturing;
- unplanned expenditures in product development, pre-clinical or clinical testing or manufacturing;
- failure to receive regulatory approvals;
- failure to secure rights from third parties for new technology;
- failure to achieve market acceptance; and
- emergence of superior or equivalent products.

In addition, product candidates in later stages of clinical trials may fail to show the desired safety profiles and efficacy results despite having progressed through pre-clinical studies and initial clinical trials. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials. Based upon negative or inconclusive results, we may decide, or regulators may require us, to conduct additional clinical trials or pre-clinical studies. In addition, data obtained from trials and studies are susceptible to varying interpretations, and regulators may not interpret our data as favorably as we do, which may delay, limit or prevent regulatory approval.

Additionally, we have not conducted, nor do we believe we are required to conduct, any head-to-head trials comparing LYR-210 to other approved or experimental treatments for CRS. Any such head-to-head trial, if conducted, may show that LYR-210 is not more effective than any of such other drugs. Material adverse differences in the relative efficacy of LYR-210 could significantly harm the adoption of LYR-210 and our business prospects.

Because of these risks, our research and development efforts may not result in any commercially viable products. If a significant portion of these development efforts are not successfully completed, required regulatory approvals are not obtained, or any approved products are not commercially successful, our business, financial condition and results of operations may be materially harmed.

Success in pre-clinical or earlier clinical trials may not be indicative of results in future clinical trials.

Success in pre-clinical studies and early clinical trials does not ensure that later clinical trials will generate the same results or otherwise provide adequate data to demonstrate the efficacy and safety of a product

candidate. Pre-clinical studies and Phase 1 and Phase 2 clinical trials are primarily designed to test safety, to study pharmacokinetics and pharmacodynamics and to understand the side effects of product candidates at various doses and schedules. Success in pre-clinical studies and early clinical trials does not ensure that later, large-scale efficacy trials will be successful nor does it predict final results. Our product candidates may fail to show the desired safety and efficacy in clinical development despite positive results in pre-clinical studies or having successfully advanced through initial clinical trials.

In addition, the design of a clinical trial can determine whether its results will support approval of a product, and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced. As an organization, we have limited experience designing clinical trials and may be unable to design and execute a clinical trial to support regulatory approval. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials even after achieving promising results in pre-clinical studies and earlier-stage clinical trials. Data obtained from pre-clinical and clinical activities are subject to varying interpretations, which may delay, limit or prevent regulatory approval. In addition, we may experience regulatory delays or rejections as a result of many factors, including changes in regulatory policy during the period of our product candidate development. Any such delays could negatively impact our business, financial condition, results of operations and prospects.

If the FDA does not conclude that certain of our product candidates satisfy the requirements for the Section 505(b)(2) regulatory approval pathway, or if the requirements for such product candidates under Section 505(b)(2) are not as we expect, the approval pathway for those product candidates may likely take significantly longer, cost significantly more and entail significantly greater complications and risks than anticipated, and in either case may not be successful.

We intend to seek FDA approval for our current product candidates, LYR-210 and LYR-220, and we may seek FDA approval for future product candidates, through the Section 505(b)(2) regulatory pathway. The Drug Price Competition and Patent Term Restoration Act of 1984, also known as the Hatch-Waxman Amendments, added Section 505(b)(2) to the Federal Food, Drug and Cosmetic Act, or FDCA. Section 505(b)(2) permits the filing of an NDA where at least some of the information required for approval comes from trials that were not conducted by or for the applicant and for which the applicant has not obtained a right of reference. Section 505(b)(2), if applicable to us under the FDCA, would allow an NDA we submit to the FDA to rely in part on data in the public domain or the FDA's prior conclusions regarding the safety and effectiveness of approved drugs, which could expedite the development program for our product candidates by potentially decreasing the amount of clinical data that we would need to generate in order to obtain FDA approval. If the FDA does not allow us to pursue the Section 505(b)(2) regulatory pathway as we anticipate, we may need to conduct additional clinical trials, provide additional data and information and meet additional standards for regulatory approval. If this were to occur, the time and financial resources required to obtain FDA approval for our product candidates, and complications and risks associated with the development of our product candidates, would likely substantially increase. Moreover, inability to pursue the Section 505(b)(2) regulatory pathway could result in competitive products reaching the market before our product candidates, which could impact our competitive position and prospects. Even if we are allowed to pursue the Section 505(b)(2) regulatory pathway, we cannot assure you that our product candidates will receive the requisite approvals for commercialization, or that a competitor would not obtain approval first along with subsequent market exclusivity from the FDA, thereby delaying potential approval of our product.

In addition, the pharmaceutical industry is highly competitive, and Section 505(b)(2) NDAs are subject to special requirements designed to protect the patent rights of sponsors of previously approved drugs that are referenced in a Section 505(b)(2) NDA. These requirements may give rise to patent litigation and mandatory delays in approval of our NDAs for up to 30 months or longer depending on the outcome of any litigation. It is not uncommon for a manufacturer of an approved product to file a citizen petition with the FDA seeking to delay approval of, or impose additional approval requirements for, pending competing products. If successful, such petitions can significantly delay, or even prevent, the approval of the new product. However, even if the FDA

ultimately denies such a petition, the FDA may substantially delay approval while it considers and responds to the petition. In addition, even if we are able to utilize the Section 505(b)(2) regulatory pathway, there is no guarantee this would ultimately lead to accelerated product development or earlier approval.

Moreover, even if our product candidates are approved under Section 505(b)(2), the approval may be subject to limitations on the indicated uses for which the products may be marketed or to other conditions of approval, or may contain requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the products.

We have conducted, are conducting and in the future, we may conduct clinical trials for our product candidates in sites outside the United States, and the FDA may not accept data from trials conducted in foreign locations.

We have conducted and are conducting clinical trials for LYR-210 outside the United States, specifically in Europe, Australia and New Zealand, and we may in the future choose to conduct other clinical trials outside the United States for LYR-210, LYR-220 or any of our other future product candidates. Although the FDA may accept data from clinical trials conducted outside the United States, acceptance of this data is subject to certain conditions imposed by the FDA. For example, the clinical trial must be well designed and conducted and performed by qualified investigators in accordance with good clinical practice, or GCP, including review and approval by an IEC and receipt of informed consent from subjects. In general, the patient population for any clinical trials conducted outside of the United States must be representative of the population for which we intend to seek approval for the product in the United States. In addition, while these clinical trials are subject to the applicable local laws, FDA acceptance of the data will be dependent upon its determination that the trials also complied with all applicable U.S. laws and regulations. There can be no assurance the FDA will accept data from trials conducted outside of the United States. If the FDA does not accept the data from our clinical trials of our product candidates, it would likely result in the need for additional trials, which would be costly and time-consuming and delay or permanently halt our development of our product candidates.

In addition, there are risks inherent in conducting clinical trials in multiple jurisdictions, inside and outside of the United States, such as:

- regulatory and administrative requirements of the jurisdiction where the trial is conducted that could burden or limit our ability to conduct our clinical trials;
- foreign exchange fluctuations;
- manufacturing, customs, shipment and storage requirements;
- cultural differences in medical practice and clinical research; and
- the risk that the patient populations in such trials are not considered representative as compared to the patient population in the target markets where approval is being sought.

Interim 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 or preliminary data from our clinical trials. Interim data from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Interim or 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, interim and preliminary data should be viewed with caution until the final data are available. Differences between interim or preliminary data and final data could significantly harm our business prospects.

LYR-210 and LYR-220 are drug-device combinations, which may result in additional regulatory and other risks.

LYR-210 and LYR-220 are drug-device combination products. We may experience delays in obtaining regulatory approval of these product candidates given the increased complexity of the review process when approval of a drug and a delivery device is sought under a single marketing application. Both LYR-210 and LYR-220 will be regulated as drug-device combination products, which require coordination within the FDA and similar foreign regulatory agencies for review of the product candidates' device and drug components. The determination whether a combination product requires a single marketing application or two separate marketing applications for each component is made by the FDA on a case-by-case basis. Although we believe a single marketing application for the approval of a combination product would be successful, there can be no assurance that the FDA will not determine that separate marketing applications are necessary. This determination could significantly increase the resources and time required to bring a particular combination product to market. Although the FDA and similar foreign regulatory agencies have systems in place for the review and approval of combination products such as ours, we may experience delays in the development and commercialization of our product candidates due to regulatory timing constraints and uncertainties in the product development and approval process, as well as coordination between two different centers within FDA responsible for review of the different components of the combination product.

Failure to successfully develop or supply the device component, delays in or failure of the studies conducted by us, our collaborators, or third-party providers, or failure of our Company, our collaborators, or third-party providers to obtain or maintain regulatory approval or clearance of the device component of LYR-210 or LYR-220, as appropriate, could result in increased development costs, delays in or failure to obtain regulatory approval, and associated delays in these product candidates reaching the market. Further, failure to successfully develop or supply the device, or to gain or maintain its approval, could adversely affect sales of LYR-210 and LYR-220.

If we fail to obtain the necessary U.S. regulatory approvals to commercialize any product candidate, we will not be able to generate revenue in the U.S. market.

We cannot assure you that we will receive the approvals necessary to commercialize our product candidates, or any product candidate we acquire or develop in the future. We will need FDA approval to commercialize our product candidates in the United States and approvals from equivalent regulatory authorities in foreign jurisdictions to commercialize our product candidates in those jurisdictions. Satisfaction of the FDA's regulatory requirements typically takes many years, depends upon the type, complexity and novelty of the product candidate and requires substantial resources for research, development and testing. We cannot predict whether our research and clinical efforts will result in drugs that the FDA will determine are safe for humans and effective for their intended uses. The FDA has substantial discretion in the drug approval process and may require us to conduct additional pre-clinical and clinical testing, perform post-marketing studies, address manufacturing concerns, or otherwise limit or impose conditions on any approval we obtain. The approval process may also be delayed by changes in government regulation, future legislation or administrative action or changes in FDA policy that occur prior to or during our regulatory review. Delays in obtaining regulatory approvals may:

- delay commercialization of, and our ability to derive product revenues from, our product candidates;
- impose costly procedures on us; and
- diminish any competitive advantages that we may otherwise enjoy.

Even if we receive approval of an NDA or comparable foreign regulatory filing for our product candidates, the FDA or the applicable foreign regulatory body may approve our product candidates for a more

limited indication than we originally requested, and the FDA may not approve the labeling that we believe is necessary or desirable for the successful commercialization of our product candidates.

Even if we comply with all FDA requests, the FDA may ultimately reject one or more of our NDAs. We cannot be sure that we will ever obtain regulatory clearance for our product candidates. Failure to obtain FDA approval of our product candidates will severely undermine our business by leaving us without a commercially available product, and therefore without any source of revenues, until another product candidate can be developed or obtained and ultimately approved. There is no guarantee that we will ever be able to develop or acquire another product candidate or that we will be able to obtain FDA approval to commercialize such product candidate.

Even if we obtain FDA approval for our product candidates in the United States, we may never obtain approval for or commercialize them in any other jurisdiction, which would limit our ability to realize its full market potential.

We intend either on our own or through collaborations or partnerships, to market our products in international markets. In order to market any products in the European Union and many other foreign jurisdictions, we must establish and comply with numerous and varying regulatory requirements on a country-by-country basis regarding safety and efficacy. Approval by the FDA in the United States does not ensure approval by regulatory authorities in other countries or jurisdictions. However, the failure to obtain approval in one jurisdiction may negatively impact our ability to obtain approval elsewhere. In addition, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not guarantee regulatory approval in any other country.

Approval processes vary among countries and can involve additional product testing and validation and additional administrative review periods. Seeking foreign regulatory approval could result in difficulties and increased costs for us and require additional pre-clinical studies or clinical trials which could be costly and time consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our products in those countries. We do not have any product candidates approved for sale in any jurisdiction, including in international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approvals in international markets are delayed, our target market will be reduced and our ability to realize the full market potential of any product we develop will be unrealized.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, costly, 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. We cannot predict when or if, and in which territories, we, or any of our potential future collaborators, will obtain marketing approval to commercialize a product candidate.

The time required to obtain approval by the FDA and comparable foreign 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, 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 neither LYR-210, LYR-220 nor any future product candidates we may seek to develop in the future will ever obtain regulatory approval. Neither we nor any future collaborator is permitted to market any of our product candidates in the United States until we receive regulatory approval of an NDA from the FDA. It is possible that the FDA may refuse to accept for substantive review any NDAs that we submit for our product candidates or may conclude after review of our data that our application is insufficient to obtain marketing approval of our product candidates.

Prior to obtaining approval to commercialize a product candidate in the United States or abroad, we or our collaborators must demonstrate with substantial evidence from well-controlled clinical trials, and to the satisfaction of the FDA or foreign regulatory agencies, that such product candidates are safe and effective for their intended uses in patients. Results from non-clinical studies and clinical trials can be interpreted in different ways. Even if we believe the non-clinical or clinical data for our product candidates are promising, such data may not be sufficient to support approval by the FDA and other regulatory authorities. The FDA may also require us to conduct additional pre-clinical studies or clinical trials for our product candidates either prior to or post-approval, or it may object to elements of our clinical development program. Depending on the extent of these or any other FDA-required studies, approval of any NDA or other application that we submit may be delayed by several years, or may require us to expend significantly more resources than we have available.

Of the large number of potential products in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy and costly approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market our product candidates, which would significantly harm our business, results of operations and prospects.

Moreover, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services. Under certain circumstances, we may be required to report some of these relationships to the FDA or comparable foreign regulatory authorities. The FDA or comparable foreign regulatory authorities may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the study. The FDA or comparable foreign regulatory authorities may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA or comparable foreign regulatory authorities, as the case may be, and may ultimately lead to the denial of marketing approval of one or more of our product candidates.

If we encounter delays or difficulties enrolling patients in our clinical trials, our clinical development activities and receipt of regulatory approvals could be delayed or otherwise adversely affected.

The timely completion of clinical trials in accordance with their protocols depends, among other things, on our ability to enroll a sufficient number of patients who remain in the trial until its conclusion. Trials may be subject to delays as a result of patient enrollment taking longer than anticipated or patient withdrawal. We may encounter delays in enrolling, or be unable to enroll, a sufficient number of patients to complete any of our clinical trials, and even once enrolled we may be unable to retain a sufficient number of patients to complete any of our trials. We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. We cannot predict how successful we will be at enrolling subjects in future clinical trials. The enrollment of patients depends on many factors, including:

- the patient eligibility criteria defined in the protocol;
- the size of the patient population required for analysis of the trial’s primary endpoints;
- the proximity of patients to trial sites;
- the design of the trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- clinicians’ and patients’ perceptions as to the potential advantages of the product candidate being studied in relation to other available therapies, including any new products that may be approved for the indications we are investigating;

- the perceived risks and benefits of the product candidate in the trial;
- the availability of alternative therapies;
- our ability to obtain and maintain patient consents; and
- the risk that patients enrolled in clinical trials will drop out of the trials before completion.

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 or failures in planned patient enrollment or retention may result in increased costs, program delays or both, which could have a harmful effect on our ability to develop LYR-210, LYR-220 and/or any other future product candidates, or could render further development impossible.

Our product candidates may cause serious adverse events or undesirable side effects including injury and death or have other properties which may delay or prevent their regulatory approval, limit the commercial profile of an approved label, or, result in significant negative consequences following marketing approval, if any. If any of our product candidates receives marketing approval and we, or others, later discover that the drug is less effective than previously believed or causes undesirable side effects that were not previously identified, our ability, or that of any potential future collaborators, to market the drug could be compromised.

Before obtaining regulatory approvals for the commercial sale of our product candidates, we must demonstrate through lengthy, complex and expensive pre-clinical testing and clinical trials that our product candidates are both safe and effective for use in each target indication, and failures can occur at any stage of testing. Clinical trials often fail to demonstrate safety and efficacy of the product candidate studied for the target indication. Serious adverse events, or SAEs, or undesirable side effects 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 other comparable foreign authorities. Results of our clinical trials or pre-clinical studies could reveal a high and unacceptable severity and prevalence of side effects, toxicities or unexpected characteristics, including death. For example, in our Phase 1 clinical trial for our most advanced product candidate, LYR-210, there has been one SAE in the active group (acute myocardial infarction), which was considered not related to LYR-210. For more information, see "Business—LYR-210 for the Treatment of CRS—Overview of Clinical Development."

In addition, subjects treated with LYR-210 have experienced adverse events, including facial pain, nasopharyngitis, sinusitis, upper respiratory tract infection, procedural headache, nasal discomfort and nasal odor, among others.

If unacceptable side effects arise in the development of our product candidates, we, the FDA, the IRBs at the institutions in which our studies are conducted or DSMB, could materially modify, suspend or terminate our clinical trials or the FDA or comparable foreign regulatory authorities could order us to cease pre-clinical studies or clinical trials, require us to conduct additional animal or human studies regarding the safety and efficacy of our product candidates which we have not planned or anticipated, or deny approval of our product candidates for any or all targeted indications. Many product candidates that initially showed promise in early stage testing have later been found to cause side effects that prevented further development of the product candidate. Treatment-related side effects could also affect patient recruitment or the ability of enrolled patients to

complete the trial or result in potential product liability claims. In addition, these side effects may not be appropriately recognized or managed by the treating medical staff. We currently train and expect to have to train medical personnel using our product candidates to understand the side effect profiles for our clinical trials and upon any commercialization of any of our product candidates. Inadequate training in recognizing or managing the potential side effects of our product candidates could result in patient injury or death. Any of these occurrences may harm our business, financial condition and prospects significantly.

If any of our product candidates receives marketing approval, and we or others later identify undesirable side effects caused by any such product, including during any long-term follow-up observation period recommended or required for patients who receive treatment using our products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw approvals of such product;
- we may be required to recall a product or change the way such product is administered to patients;
- additional restrictions may be imposed on the marketing of the particular product or the manufacturing processes for the product;
- regulatory authorities may require additional warnings on the label, such as a “black box” warning or contraindication;
- regulatory authorities may require long-term patient registries for the product;
- we may be required to implement a Risk Evaluation and Mitigation Strategy, or REMS, or create a medication guide outlining the risks of such side effects for distribution to patients;
- the product could become less competitive;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

There can be no assurance that we will resolve any issues related to any product-related adverse events to the satisfaction of the FDA or any regulatory agency in a timely manner or at all. Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, results of operations and prospects.

Changes in methods of product candidate manufacturing or formulation may result in additional costs or delay.

As product candidates proceed through pre-clinical studies to late-stage clinical trials towards potential approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods and formulation, are altered along the way in an effort to optimize processes and results. Such changes carry the risk that they will not achieve these intended objectives. Any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with the altered materials. Such changes may also require additional testing, FDA notification or FDA approval. This could delay completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidates and jeopardize our ability to commence sales and generate revenue.

Our insurance policies are expensive and protect us only from some business risks, which leaves us exposed to significant uninsured liabilities.

We do not carry insurance for all categories of risk that our business may encounter. Some of the policies we currently maintain include general liability, employment practices liability, property, auto, workers' compensation, umbrella, and directors' and officers' insurance.

Any additional product liability insurance coverage we acquire in the future, may not be sufficient to reimburse us for any expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive and in the future we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. If we obtain marketing approval for LYR-210 and/or LYR-220, we intend to acquire insurance coverage to include the sale of commercial products; however, we may be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. A successful product liability claim or series of claims brought against us could cause our share price to decline and, if judgments exceed our insurance coverage, could adversely affect our results of operations and business, including preventing or limiting the development and commercialization of any product candidates we develop. We do not carry specific biological or hazardous waste insurance coverage, and our property, casualty and general liability insurance policies specifically exclude coverage for damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, in the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical trials or regulatory approvals could be suspended.

We also expect that operating as a public company will make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be more difficult for us to attract and retain qualified people to serve on our board of directors, our board committees or as executive officers. We do not know, however, if we will be able to maintain existing insurance with adequate levels of coverage. Any significant uninsured liability may require us to pay substantial amounts, which would adversely affect our cash position and results of operations.

Our employees and independent contractors, including principal investigators, CROs, consultants, vendors, and any third parties we may engage in connection with research, development, regulatory, manufacturing, quality assurance and other pharmaceutical functions and commercialization may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have a material adverse effect on our business.

Misconduct by our employees and independent contractors, including principal investigators, CROs, consultants, vendors, and any third parties we may engage in connection with research, development, regulatory, manufacturing, quality assurance and other pharmaceutical functions and commercialization, could include intentional, reckless or negligent conduct or unauthorized activities that violate: (i) the laws and regulations of the FDA, the European Medicines Agency, or the EMA, and other similar regulatory authorities, including those laws that require the reporting of true, complete and accurate information to such authorities; (ii) manufacturing standards; (iii) data privacy, security, fraud and abuse and other healthcare laws and regulations; or (iv) laws that require the reporting of true, complete and accurate financial information and data. Specifically, 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 could also involve the improper use or misrepresentation of information obtained in the course of pre-clinical studies or clinical trials, creation of fraudulent data in pre-clinical studies or clinical trials or illegal misappropriation of drug product, which could result in regulatory sanctions and cause serious harm to our reputation. 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 such laws or regulations. Additionally, we are subject to the risk that a person or government 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 and results of operations, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgements, possible exclusion from participation in Medicare, Medicaid, other U.S. federal healthcare programs or healthcare programs in other jurisdictions, integrity oversight and reporting obligations to resolve allegations of non-compliance, individual imprisonment, other sanctions, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations.

Our business and operations would suffer in the event of system failures.

Our computer systems, as well as those of our CROs and other contractors and consultants, are vulnerable to damage from computer viruses, unauthorized access, natural disasters (including hurricanes), terrorism, war and telecommunication and electrical failures. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our product candidate development programs. For example, the loss of pre-clinical studies or clinical trial data from completed, ongoing or planned trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. 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 personal, confidential or proprietary information, we could incur liability and the further development of LYR-210 or any other product candidate could be delayed.

In the ordinary course of our business, we directly or indirectly collect and store sensitive data, including intellectual property, confidential information, pre-clinical and clinical trial data, proprietary business information, personal data and personally identifiable health information of our clinical trial subjects and employees, in our data centers and on our networks, or on those of third parties. The secure processing, maintenance and transmission of this information is critical to our operations. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or internal bad actors, or breached due to employee error, a technical vulnerability, malfeasance or other disruptions. Although, to our knowledge, we have not experienced any such material security breach to date, any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, significant regulatory penalties, and such an event could disrupt our operations, damage our reputation, and cause a loss of confidence in us and our ability to conduct clinical trials, which could adversely affect our reputation and delay our clinical development of our product candidates.

Risks Related to Healthcare Laws and Other Legal Compliance Matters

We will be subject to extensive and costly government regulation.

Product candidates employing our technology will be subject to extensive and rigorous domestic government regulation including regulation by the FDA, the Centers for Medicare and Medicaid Services, or CMS, other divisions of the United States Department of Health and Human Services, the United States Department of Justice, state and local governments, and their respective equivalents outside of the United States. The FDA regulates the research, development, pre-clinical and clinical testing, manufacture, safety, effectiveness, record-keeping, reporting, labeling, packaging, storage, approval, advertising, promotion, sale, distribution, import, and export of pharmaceutical products. If products employing our technologies are marketed abroad, they will also be subject to extensive regulation by foreign governments, whether or not they have obtained FDA approval for a given product and its uses. Such foreign regulation may be equally or more demanding than corresponding United States regulation.

Government regulation substantially increases the cost and risk of researching, developing, manufacturing, and selling our products. The regulatory review and approval process, which includes pre-clinical testing and clinical trials of each product candidate, is lengthy, expensive, and uncertain. We or our collaborators must obtain and maintain regulatory authorization to conduct pre-clinical studies and clinical trials. We or our collaborators must obtain regulatory approval for each product we intend to market, and the manufacturing facilities used for the products must be inspected and meet legal requirements. Securing regulatory approval requires the submission of extensive pre-clinical and clinical data and other supporting information for each proposed therapeutic indication in order to establish the product's safety and efficacy, potency and purity, for each intended use. The development and approval process takes many years, requires substantial resources, and may never lead to the approval of a product.

Even if we are able to obtain regulatory approval for a particular product, the approval may limit the indicated medical uses for the product, may otherwise limit our ability to promote, sell, and distribute the product, may require that we conduct costly post-marketing surveillance, and/or may require that we conduct ongoing post-marketing studies. Material changes to an approved product, such as, for example, manufacturing changes or revised labeling, may require further regulatory review and approval. Once obtained, any approvals may be withdrawn, including, for example, if there is a later discovery of previously unknown problems with the product, such as a previously unknown safety issue.

If we, our collaborators, consultants, contract manufacturers, CROs or other vendors, fail to comply with applicable regulatory requirements at any stage during the regulatory process, such noncompliance could result in, among other things, delays in the approval of applications or supplements to approved applications; refusal of a regulatory authority, including the FDA, to review pending market approval applications or supplements to approved applications; warning letters; fines; import and/or export restrictions; product recalls or seizures; injunctions; total or partial suspension of production; civil penalties; withdrawals of previously approved marketing applications or licenses; recommendations by the FDA or other regulatory authorities against governmental contracts; and/or criminal prosecutions.

Enacted and future healthcare legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our product candidates and could adversely affect our business.

In the United States, the EU 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 prevent or delay marketing approval of our products in development, restrict or regulate post-approval activities involving any product candidates for which we obtain marketing approval, impact pricing and reimbursement and impact our ability to sell any such products profitably. 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. In addition, new regulations and interpretations of existing healthcare statutes and regulations are frequently adopted.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively 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 Medicare Part D coverage gap discount program, in which manufacturers must agree to offer point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D;

- new requirements to report certain financial arrangements with physicians and teaching hospitals, including reporting "transfers of value" made or distributed to prescribers and other healthcare providers and reporting investment interests held by physicians and their immediate family members;

- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded and generic drugs, respectively;

- 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;

- extension of a manufacturer's Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;

- 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 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 Innovation at 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 and Congressional 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, the creation of the Independent Payment Advisory Board, which had been included as part of the provisions of the ACA, was repealed in February 2018. The current presidential administration and Congress will likely continue to seek to modify, repeal, or otherwise invalidate all, or certain provisions of, the ACA. It is uncertain the extent to which any such changes may impact our business or financial condition.

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 resulted in aggregate reductions of Medicare payments to providers of 2% per fiscal year, which 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 healthcare 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. Further, the Trump administration released a "Blueprint", or plan, to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase drug 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 has already started the process of soliciting feedback on some of these measures and, at the same, is immediately implementing others under its existing authority. While any proposed measures will require authorization through additional legislation 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 the EU, similar political, economic and regulatory developments may affect our ability to profitably commercialize our product candidates, if approved. In addition to continuing pressure on prices and cost containment measures, legislative developments at the EU or member state level may result in significant additional requirements or obstacles that may increase our operating costs. The delivery of healthcare in the EU, including the establishment and operation of health services and the pricing and reimbursement of medicines, is almost exclusively a matter for national, rather than EU, law and policy. National governments and health service providers have different priorities and approaches to the delivery of healthcare and the pricing and reimbursement of products in that context. In general, however, the healthcare budgetary constraints in most EU member states have resulted in restrictions on the pricing and reimbursement of medicines by relevant health service providers. Coupled with ever-increasing EU and national regulatory burdens on those wishing to develop and market products, this could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to commercialize our product candidates, if approved.

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

In addition, legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA's regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action in the United States, the EU 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.

Even if we receive regulatory approval of our product candidates, 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 our product candidates.

Any product candidate for which we obtain marketing approval, along with the manufacturing processes, post-approval clinical data, labeling, packaging, distribution, adverse event reporting, storage, recordkeeping, export, import, advertising and promotional activities for such product, among other things, will be subject to extensive and ongoing requirements of and review by the FDA, the EMA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, establishment registration and drug listing requirements, continued compliance with current good manufacturing practice, or cGMP, requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping and GCP requirements for any clinical trials that we conduct post-approval. In addition, the sponsor of an approved NDA is subject to periodic inspections and other FDA monitoring and reporting obligations, including obligations to monitor and report adverse events and other information such as the failure of a product to meet the specifications in the NDA. NDA sponsors must submit new or supplemental applications and obtain FDA approval for certain changes to the approved product, product labeling, or manufacturing process. Application holders must also submit advertising and other promotional material to the FDA and report on ongoing clinical trials. The FDA may require changes in the labeling of already approved drug products and require that sponsors conduct post-marketing studies. 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.

Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the requirement to implement a REMS, which could include requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk mitigation tools. If any of our product candidates receives marketing approval, the accompanying label may limit the approved use of our product, which could limit sales of the product.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of our approved products. In addition, advertising and promotional materials must comply with FDA rules in addition to other potentially applicable federal and state laws. The FDA closely regulates the post-approval marketing and promotion of drugs to ensure they are marketed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use, and if we market our products outside of their approved indications, we may be subject to enforcement action for off-label marketing. Violations of the FDA's restrictions relating to the promotion of prescription products may also lead to investigations alleging violations of federal and state health care fraud and abuse laws, as well as state consumer protection laws.

The distribution of product samples to physicians must comply with the requirements of the FDCA. NDA sponsors must obtain FDA approval for product, manufacturing, and labeling changes, depending on the nature of the change. Depending on the circumstances, failure to meet these post-approval requirements can

result in criminal prosecution, fines, injunctions, consent decrees of permanent injunction, recall or seizure of products, total or partial suspension of production, denial or withdrawal of pre-marketing product approvals, or refusal to allow us to enter into supply contracts, including government contracts.

In addition, later discovery of previously unknown adverse events or other problems with our products, manufacturers or manufacturing processes, 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 yield various results, including:

- restrictions on manufacturing such products;
- restrictions on the labeling or marketing of a product;
- restrictions on product distribution or use;
- requirements to conduct post-marketing studies or clinical trials;
- warning letters or holds on clinical trials;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- fines, restitution or disgorgement of profits or revenues;
- suspension or withdrawal of marketing approvals;
- refusal to permit the import or export of our products;
- product seizure or detention; or
- injunctions or the imposition of civil or criminal penalties.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response, and could generate negative publicity. Any failure to comply with ongoing regulatory requirements may significantly and adversely affect our ability to commercialize and generate revenues. If regulatory sanctions are applied or if regulatory approval is withheld or withdrawn, the value of our company and our operating results will be adversely affected.

The FDA's policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of LYR-210, LYR-220 and/or any other future product candidate. 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 which would adversely affect our business, prospects and ability to achieve or sustain profitability.

We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. For example, certain policies of the Trump administration may impact our business and industry. Namely, the Trump administration has taken several executive actions, including the issuance of a number of Executive Orders, that could impose

significant burdens on, or otherwise materially delay, the FDA's ability to engage in routine regulatory and oversight activities such as implementing statutes through rulemaking, issuance of guidance, and review and approval of marketing applications. It is difficult to predict how these requirements will be implemented, and the extent to which they will impact the FDA's ability to exercise its regulatory authority. If these executive actions impose constraints on FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted.

Changes in funding for the FDA and other government agencies could hinder their ability to hire and retain key leadership and other personnel, or otherwise prevent new products and services from being developed or commercialized in a timely manner, 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 other government agencies 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, over the last several years, including for 35 days beginning on December 22, 2018, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have 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.

Our business operations and current and future relationships with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers will 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, among other things, impose criminal and civil penalties, including through civil whistleblower or qui tam actions, against individuals or entities for 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 False Claims Act;

- the federal civil monetary penalties laws, which impose civil fines for, among other things, the offering or transfer of remuneration to a Medicare or state healthcare program beneficiary if the person knows or should know it is likely to influence the beneficiary's selection of a particular provider, practitioner, or supplier of services reimbursable by Medicare or a state healthcare program, unless an exception applies;

- the U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil 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 its implementing regulations, which also imposes 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 healthcare providers as well as their business associates 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. Physician Payments Sunshine Act and its implementing regulations, which requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to the government information related to certain payments and other transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by the physicians described above and their immediate family members;

- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers;

- 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 laws and regulations that require drug manufacturers to file reports relating to 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; and

- similar healthcare laws and regulations in the EU and other jurisdictions, including reporting requirements detailing interactions with and payments to healthcare providers and laws governing the privacy and security of certain protected information, such as the General Data Protection Regulation, or the GDPR, which imposes obligations and restrictions on the collection and use of personal data relating to individuals located in the EU (including health data).

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, including our relationships with physicians and other healthcare providers, some of whom are compensated in the form of stock options for consulting services provided, may 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, individual 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.

We are subject to governmental regulation and other legal obligations, particularly related to privacy, data protection and information security, and we are subject to consumer protection laws that regulate our marketing practices and prohibit unfair or deceptive acts or practices. Our actual or perceived failure to comply with such obligations could harm our business.

We are subject to diverse laws and regulations relating to data privacy and security, including, in the United States, HIPAA and, in the EU and the European Economic Area, or EEA, Regulation 2016/679, known as the GDPR. New privacy rules are being enacted in the United States and globally, and existing ones are being updated and strengthened. For example, on June 28, 2018, California enacted the California Consumer Privacy Act, or CCPA, which takes effect on January 1, 2020. The CCPA creates individual privacy rights for California consumers and increases the privacy and security obligations of entities handling certain personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. Complying with these numerous, complex and often changing regulations is expensive and difficult, and failure to comply with any privacy laws or data security laws or any security incident or breach involving the misappropriation, loss or other unauthorized use or disclosure of sensitive or confidential patient or consumer information, whether by us, one of our business associates or another third-party, could adversely affect our business, financial condition and results of operations, including but not limited to: investigation costs, material fines and penalties; compensatory, special, punitive and statutory damages; litigation; consent orders regarding our privacy and security practices; requirements that we provide notices, credit monitoring services and/or credit restoration services or other relevant services to impacted individuals; adverse actions against our licenses to do business; and injunctive relief. Furthermore, these rules are constantly changing; for example, the GDPR came into force in May 2018 changing the European regime. Before that, the US-EU Safe Harbor framework was declared invalid in 2015 and replaced with the EU-U.S. Privacy Shield framework which, along with other methods which permit transfer under European privacy law, are under ongoing review and subject to challenge.

The privacy laws in the EU have been significantly reformed. On May 25, 2018, the GDPR entered into force and became directly applicable in all EU member states. The GDPR implements more stringent operational

requirements than its predecessor legislation. For example, the GDPR requires us to make more detailed disclosures to data subjects, requires disclosure of the legal basis on which we can process personal data, makes it harder for us to obtain valid consent for processing, will require the appointment of data protection officers when sensitive personal data, such as health data, is processed on a large scale, provides more robust rights for data subjects, introduces mandatory data breach notification through the EU, imposes additional obligations on us when contracting with service providers and requires us to adopt appropriate privacy governance including policies, procedures, training and data audit. If we do not comply with our obligations under the GDPR, we could be exposed to fines of up to the greater of €20 million or up to 4% of our total global annual revenue in the event of a significant breach. In addition, we may be the subject of litigation and/or adverse publicity, which could adversely affect our business, results of operations and financial condition.

We cannot assure you that our third-party service providers with access to our or our customers', suppliers', trial patients' and employees' personally identifiable and other sensitive or confidential information in relation to which we are responsible will not breach contractual obligations imposed by us, or that they will not experience data security breaches or attempts thereof, which could have a corresponding effect on our business, including putting us in breach of our obligations under privacy laws and regulations and/or which could in turn adversely affect our business, results of operations and financial condition. We cannot assure you that our contractual measures and our own privacy and security-related safeguards will protect us from the risks associated with the third-party processing, storage and transmission of such information.

We face potential liability related to the privacy of health information we obtain from clinical trials sponsored by us.

Most healthcare providers, including research institutions from which we obtain patient health information, are subject to privacy and security regulations promulgated under HIPAA, as amended by the HITECH. We are not currently classified as a covered entity or business associate under HIPAA and thus are not subject to its requirements or penalties. However, any person may be prosecuted under HIPAA's criminal provisions either directly or under aiding-and-abetting or conspiracy principles. Consequently, depending on the facts and circumstances, we could face substantial criminal penalties if we knowingly receive individually identifiable health information from a HIPAA-covered healthcare provider or research institution that has not satisfied HIPAA's requirements for disclosure of individually identifiable health information. In addition, we may maintain sensitive personally identifiable information, including health information, that we receive throughout the clinical trial process, in the course of our research collaborations, and directly from individuals (or their healthcare providers) who enroll in our patient assistance programs. As such, we may be subject to state laws requiring notification of affected individuals and state regulators in the event of a breach of personal information, which is a broader class of information than the health information protected by HIPAA. Our clinical trial programs outside the United States may implicate international data protection laws, including the EU Data Protection Directive and legislation of the EU member states implementing it.

Our activities outside the United States impose additional compliance requirements and generate additional risks of enforcement for noncompliance. Failure by our CROs and other third-party contractors to comply with the strict rules on the transfer of personal data outside of the European Union into the United States may result in the imposition of criminal and administrative sanctions on such collaborators, which could adversely affect our business. Furthermore, certain health privacy laws, data breach notification laws, consumer protection laws and genetic testing laws may apply directly to our operations and/or those of our collaborators and may impose restrictions on our collection, use and dissemination of individuals' health information. Moreover, patients about whom we or our collaborators obtain health information, as well as the providers who share this information with us, may have statutory or contractual rights that limit our ability to use and disclose the information. We may be required to expend significant capital and other resources to ensure ongoing compliance with applicable privacy and data security laws. Claims that we have violated individuals' privacy rights 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.

If we or third-party CMOs, CROs or other contractors or consultants fail to comply with applicable federal, state or local regulatory requirements, we could be subject to a range of regulatory actions that could affect our or our contractors' ability to develop and commercialize our product candidates and could harm or prevent sales of any affected products that we are able to commercialize, or could substantially increase the costs and expenses of developing, commercializing and marketing our products. Any threatened or actual government enforcement action could also generate adverse publicity and require that we devote substantial resources that could otherwise be used in other aspects of our business. Increasing use of social media could give rise to liability, breaches of data security or reputational damage.

We are subject to environmental, health and safety laws and regulations, and we may become exposed to liability and substantial expenses in connection with environmental compliance or remediation activities.

Our operations, including our development, testing and manufacturing activities, are subject to numerous environmental, health and safety laws and regulations. These laws and regulations govern, among other things, the controlled use, handling, release and disposal of and the maintenance of a registry for, hazardous materials and biological materials, such as chemical solvents, human cells, carcinogenic compounds, mutagenic compounds and compounds that have a toxic effect on reproduction, laboratory procedures and exposure to blood-borne pathogens. If we fail to comply with such laws and regulations, we could be subject to fines or other sanctions.

As with other companies engaged in activities similar to ours, we face a risk of environmental liability inherent in our current and historical activities, including liability relating to releases of or exposure to hazardous or biological materials. Environmental, health and safety laws and regulations are becoming more stringent. We may be required to incur substantial expenses in connection with future environmental compliance or remediation activities, in which case, the production efforts of our third-party manufacturers or our development efforts may be interrupted or delayed.

We and our employees are increasingly utilizing social media tools as a means of communication both internally and externally.

Despite our efforts to monitor evolving social media communication guidelines and comply with applicable rules, there is risk that the use of social media by us or our employees to communicate about our product candidates or business may cause us to be found in violation of applicable requirements. In addition, our employees may knowingly or inadvertently make use of social media in ways that may not comply with our policies and other legal or contractual requirements, which may give rise to liability, lead to the loss of trade secrets or other intellectual property or result in public exposure of personal information of our employees, clinical trial patients, customers and others. Furthermore, negative posts or comments about us or our product candidates in social media could seriously damage our reputation, brand image and goodwill. Any of these events could have a material adverse effect on our business, prospects, operating results and financial condition and could adversely affect the price of our common stock.

Risks Related to Commercialization

Developments by competitors may render our products or technologies obsolete or non-competitive or may reduce the size of our markets.

Our industry has been characterized by extensive research and development efforts, rapid developments in technologies, intense competition and a strong emphasis on proprietary products. We face potential competition from many different sources, including pharmaceutical, biotechnology and specialty pharmaceutical companies either marketing or developing therapeutics to treat CRS. Academic research institutions, governmental agencies, as well as public and private institutions are also potential sources of competitive products and technologies. Our competitors may have or may develop superior technologies or approaches,

which may provide them with competitive advantages. Our potential products may not compete successfully. If these competitors access the marketplace before we do with better or less expensive therapeutics, our product candidates, if approved for commercialization, may not be profitable to sell or worthwhile to continue to develop. Technology in the pharmaceutical industry has undergone rapid and significant change, and we expect that it will continue to do so. Any compounds, products or processes that we develop may become obsolete or uneconomical before we recover any expenses incurred in connection with their development. The success of our product candidates will depend upon factors such as product efficacy, safety, reliability, availability, timing, scope of regulatory approval, acceptance and price, among other things. Other important factors to our success include speed in developing product candidates, completing clinical development and laboratory testing, obtaining regulatory approvals and manufacturing and selling commercial quantities of potential products.

Our product candidates are intended to compete directly or indirectly with existing products and treatments. Even if approved and commercialized, our product candidates may fail to achieve market acceptance with hospitals, physicians or patients. Hospitals, physicians or patients may conclude that our potential products are less safe or effective or otherwise less attractive than these existing drugs. If our product candidates do not receive market acceptance for any reason, our revenue potential would be diminished, which would materially adversely affect our ability to become profitable.

Significant competition exists in the treatment of CRS. We will need to compete with all currently available or future therapies within the indications where our development is focused. LYR-210, if approved and commercialized, will face significant competition. The main classes of marketed products that are available for the treatment of CRS include nasal saline irrigation, intranasal corticosteroidal sprays and antibiotics, as well as surgical intervention. In addition, one company is currently marketing, and several companies are also currently developing, biologic monoclonal antibodies, or mAbs, for the treatment of nasal polyps. If these biologic mAbs are successfully developed and approved for marketing, they could represent competition for LYR-220 for the segment of patients that have polyps. Finally, one company is developing an oral DP-2 antagonist currently in Phase 2 clinical trials for CRS patients that could represent competition across the spectrum of CRS patients.

There are a number of companies developing or marketing therapies for the treatment and management of CRS that may compete with our current product candidates, including many major pharmaceutical and biotechnology companies. These companies include, among others: Hoffman-La Roche, GlaxoSmithKline, Gossamer Bio, AnaptysBio, Regeneron, OptiNose and Intersect ENT.

Most of our competitors, including many of those listed above, have substantially greater capital resources, robust product candidate pipelines, established presence in the market and expertise in research and development, manufacturing, pre-clinical and clinical testing, obtaining regulatory approvals and reimbursement and marketing approved products than we do. As a result, our competitors may achieve product commercialization or patent protection earlier than we can. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified clinical, regulatory, scientific, sales, marketing and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Our commercial opportunity could be reduced or eliminated 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 or that would render any products that we may develop obsolete or noncompetitive.

The successful commercialization of our product candidates will depend in part on the extent to which governmental authorities and health insurers establish coverage, adequate reimbursement levels and pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for our product candidates, if approved, could limit our ability to market those products and decrease our ability to generate revenue.

The availability of coverage and adequacy of reimbursement by governmental healthcare programs such as Medicare and Medicaid, private health insurers and other third-party payors are essential for most patients to be able to afford medical services and pharmaceutical products such as our product candidates, assuming FDA approval. Our ability to achieve acceptable levels of coverage and reimbursement for our products or procedures using our products by governmental authorities, private health insurers and other organizations will have an effect on our ability to successfully commercialize our product candidates. Obtaining coverage and adequate reimbursement for our products may be particularly difficult because of the higher prices often associated with drugs administered under the supervision of a physician. Separate reimbursement for the product itself or the treatment or procedure in which our product is used may not be available. A decision by a third-party payor not to cover or separately reimburse for our products or procedures using our products, could reduce physician utilization of our products once approved. Assuming there is coverage for our product candidates or procedures using our product candidates by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. Patients are unlikely to use our product candidates unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our product candidates. Similarly, our product candidates are physician-administered treatments and as such, separate reimbursement for the product itself may or may not be available. Instead, the hospital or administering physician may be reimbursed only for providing the treatment or procedure in which our product is used. To the extent separate coverage and reimbursement should become available for LYR-210, we anticipate that it will be sold to physicians on a “buy and bill” basis. Buy and bill products must be purchased by healthcare providers before they can be administered to patients. Healthcare providers subsequently must seek reimbursement for the product from the applicable third-party payor, such as Medicare or a health insurance company. Healthcare providers may be reluctant to administer our product candidates, if approved, because they would have to fund the purchase of the product and then seek reimbursement, which may be lower than their purchase price, or because they do not want the additional administrative burden required to obtain reimbursement for the product.

Further, the status of reimbursement codes for any of our product candidates, if approved, could also affect reimbursement. J-Codes and Q-Codes are reimbursement codes maintained by the Centers for Medicare and Medicaid Services, or CMS, that are a component of the Healthcare Common Procedure Coding System and are typically used to report injectable drugs that ordinarily cannot be self-administered. We currently do not have a specific J-Code or Q-Code for any of our product candidates. If our product candidates are approved, we may apply for one but cannot guarantee that a J-Code or Q-Code will be granted. To the extent separate coverage or reimbursement is available for any product candidate, if approved, and a specific J-Code or Q-Code is not available, physicians would need to use a non-specific miscellaneous J-Code to bill third-party payors for these physician-administered drugs. Because miscellaneous J-Codes may be used for a wide variety of products, health plans may have more difficulty determining the actual product used and billed for the patient. These claims must often be submitted with additional information and manually processed, which can delay claims processing times as well as increase the likelihood for claim denials and claim errors. We cannot be sure that coverage and reimbursement in the United States, the EU or elsewhere will be available for our product candidates or any product that we may develop, and any reimbursement that may become available may not be adequate or may be decreased or eliminated in the future.

Third-party payors increasingly are challenging prices charged for pharmaceutical products and services, and many third-party payors may refuse to provide coverage and reimbursement for particular drugs and biologics when an equivalent generic drug, biosimilar or a less expensive therapy is available. It is possible that a third-party payor may consider our product candidates as substitutable and only offer to reimburse patients for the less expensive product. Even if we show improved efficacy or improved convenience of administration

with our product candidates, pricing of existing third-party therapeutics may limit the amount we will be able to charge for our product candidates. These payors may deny or revoke the reimbursement status of a given product or establish prices for new or existing marketed products at levels that are too low to enable us to realize an appropriate return on our investment in our product candidates. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize our product candidates, and may not be able to obtain a satisfactory financial return on our product candidates.

There is significant uncertainty related to the insurance coverage and reimbursement of newly-approved products. In the United States, third-party payors, including private and governmental payors, such as the Medicare and Medicaid programs, play an important role in determining the extent to which new drugs and biologics will be covered. The Medicare and Medicaid programs increasingly are used as models in the United States for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs and biologics. Some third-party payors may require pre-approval of coverage for new or innovative drug therapies before they will reimburse healthcare providers who use such therapies. We cannot predict at this time what third-party payors will decide with respect to the coverage and reimbursement for our product candidates.

No uniform policy for coverage and reimbursement for products exists among third-party payors in the United States. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. 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. Furthermore, rules and regulations regarding reimbursement change frequently, in some cases on short notice, and we believe that changes in these rules and regulations are likely.

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 the EU and other jurisdictions have and will continue to put pressure on the pricing and usage of our product candidates. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. Other countries allow companies to fix their own prices for medical 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 product candidates may be reduced compared with the United States and may be insufficient to generate commercially-reasonable revenue and profits.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our product candidates. We expect to experience pricing pressures in connection with the sale of our product candidates due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, particularly prescription drugs and biologics and surgical procedures and other treatments, has become intense. As a result, increasingly high barriers are being erected to the entry of new products.

Our clinical studies were designed to demonstrate the safety and efficacy of LYR-210 based on FDA requirements and may not be seen as compelling to physicians or patients.

Our success depends on the medical community's acceptance of LYR-210, if approved, as a treatment for CRS patients. LYR-210 was previously studied in an open-label, Phase 1 clinical trial with 20 patients in New Zealand and Australia, which achieved its primary endpoint of safety at week 4. In the Phase 1 trial, we also observed that patients generally experienced significant and rapid, clinically meaningful and durable improvement in SNOT-22 scores. Significant reduction in SNOT-22 scores was observed at week 1, and this

reduction persisted through week 25, which was the end of the trial. While the results of this early clinical trial suggest a favorable safety and efficacy profile, the study design and results, and the design and results of future clinical trials we conduct, may not be viewed as compelling to our physician customers or patients. If physicians do not find our data compelling, even if LYR-210 receives marketing approval they may choose not to use our products or limit their use. We cannot assure you that any data that we or others generate will be consistent with that observed in the Phase 1 clinical trial of LYR-210, nor that results will be maintained beyond the time points studied. We also cannot assure you that any data that may be collected will be compelling to the medical community because the data may not be clinically meaningful and may not demonstrate that LYR-210 is an attractive procedure when compared against data from alternative treatments.

Even if either LYR-210 or LYR-220 receives marketing approval, it may fail to achieve market acceptance by physicians, patients, third-party payors or others in the medical community necessary for commercial success.

If either LYR-210 or LYR-220 receives marketing approval, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. If it does not achieve an adequate level of acceptance, we may not generate significant product revenues or become profitable. The degree of market acceptance of LYR-210 or LYR-220, if approved for commercial sale, will depend on a number of factors, including but not limited to:

- perceptions by members of the healthcare community, including physicians, about the safety and effectiveness of our platform;
- the perception by members of the healthcare community, including physicians, or patients that the process of administering LYR-210 or LYR-220, is not unduly cumbersome;
- the efficacy and potential advantages compared to alternative treatments;
- effectiveness of sales and marketing efforts;
- the cost of treatment in relation to alternative treatments;
- our ability to offer our products for sale at competitive prices;
- the convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support;
- the timing of market introduction of competitive products;
- the availability of third-party coverage and adequate reimbursement;
- product labeling or product insert requirements of the FDA, the EMA or other regulatory authorities, including any limitations or warnings contained in a product's approved labeling;
- the prevalence and severity of any side effects; and
- any restrictions on the use of our product together with other medications.

If our product candidates are approved, but do not achieve an adequate level of acceptance by physicians, healthcare payors, and patients, we may not generate sufficient revenue from these products, and we

may not be able to achieve or sustain profitability. Our efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may never be successful. In addition, our ability to successfully commercialize our product candidates will depend on our ability to manufacture our products through third-party manufacturers, differentiate our products from competing products and defend the intellectual property of our products.

Because we expect sales of LYR-210, if approved, to generate substantially all of our product revenues for a substantial period, the failure of this product to find market acceptance would harm our business and could require us to seek additional financing.

If physicians or patients are not willing to change current practices and adopt our office-based administration procedure for LYR-210 and LYR-220, our products may fail to gain market acceptance, and our business will be harmed.

Our initial product candidates, LYR-210 and LYR-220, are bioresorbable polymeric matrices designed to be administered in a brief, non-invasive, in-office procedure by an ENT physician under endoscopic visualization via a single-use applicator. While we believe ENT physicians will be able to administer our product candidates, if successfully developed and approved, in conjunction with an endoscopy procedure, thereby making the placement aligned with the existing care continuum for CRS patients and eliminating the need for ENT physicians to schedule separate surgical time, ENT physicians may not adopt our in-office procedure for a number of reasons, including:

- lack of significant experience with the placement procedure via a single-use applicator;
- lack of availability of adequate insurance coverage or reimbursement for the placement procedure;
- perceived inadequacy of evidence supporting clinical benefits or cost-effectiveness of the placement procedure and/or our products in general over existing alternatives;
- a perception that patients may be unable to tolerate the placement procedure in the physician office setting; and
- liability risks generally associated with the use of new products and procedures.

If ENT physicians do not adopt the placement procedure for any reason, including those listed above, our ability to grow our business would be impaired, even if LYR-210 and LYR-220 receive marketing approval.

We believe recommendations and support of our products by notable ENT physicians could influence market acceptance and adoption. If we do not receive support from influential ENT physicians, our ability to achieve broad market acceptance for our products may be impaired.

In addition, if patient receptivity toward treatment in an ENT physician office setting becomes less favorable in the future, this shift could negatively impact market acceptance of our products. Any negative change due to patient receptivity could also be compounded by patients reporting to physicians or other patients through word-of-mouth or social media.

Additionally, while it is currently more cost-effective to the healthcare system for providers to perform the placement procedure in an ENT physician’s office than a FESS procedure in an operating room, healthcare economics are subject to change. If the use of our products were to cease being more cost-effective than FESS due to changes in reimbursement economics, our products may fail to gain market acceptance, our future growth would be limited and our business may be adversely affected.

If we are unable to establish sales, marketing and distribution capabilities either on our own or in collaboration with third parties, we may not be successful in commercializing LYR-210 or LYR-220, if approved, and we may not be able to generate any revenue.

We do not have any infrastructure for the sales, marketing or distribution of our products, and the cost of establishing and maintaining such an organization may exceed the cost-effectiveness of doing so.

We expect to build our own focused sales, distribution and marketing infrastructure to market LYR-210 and LYR-220 in the United States, if approved. There are significant expenses and risks involved with establishing our own sales, marketing and distribution capabilities, including our ability to hire, retain and appropriately incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel, and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities could delay any product launch, which would adversely impact the commercialization of LYR-210. Additionally, if the commercial launch of LYR-210 or LYR-220 for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, 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 product candidates on our own include:

- our inability to recruit and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future products;
- our inability to equip medical and sales personnel with effective materials, including medical and sales literature to help them educate physicians and other healthcare providers regarding applicable diseases and our future 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;
- our inability to develop or obtain sufficient operational functions to support our commercial activities; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

We do not anticipate having the resources in the foreseeable future to allocate to the sales and marketing of LYR-210, LYR-220 or any future product candidates in markets outside of the United States. Therefore, our future sales in these markets will largely depend on our ability to enter into and maintain collaborative relationships for such capabilities, the collaborator's strategic interest in the product and such collaborator's ability to successfully market and sell the product. We intend to selectively pursue collaborative arrangements regarding the sale and marketing of LYR-210, if approved, for certain markets outside of the United States; however, we cannot assure that we will be able to establish or maintain such collaborative arrangements, or if able to do so, that they will have effective sales forces.

If we are unable to build our own sales force or negotiate a collaborative relationship for the commercialization of LYR-210 or LYR-220, we may be forced to delay the potential commercialization of LYR-210 or LYR-220 or reduce the scope of our sales or marketing activities for LYR-210 or LYR-220. If we elect to increase our expenditures to fund commercialization activities ourselves, we will need to obtain

additional capital, which may not be available to us on acceptable terms, or at all. We could enter into arrangements with collaborative partners at an earlier stage than otherwise would be ideal and we may be required to relinquish rights to LYR-210 or LYR-220 or otherwise agree to terms unfavorable to us, any of which may have an adverse effect on our business, operating results and prospects.

If we are unable to establish adequate sales, marketing and distribution capabilities, either on our own or in collaboration with third parties, we will not be successful in commercializing LYR-210 or LYR-220 and may not become profitable and may incur significant additional losses. We will be competing with many companies that currently have extensive and well-funded marketing and sales operations. Without an internal team or the support of a third party to perform marketing and sales functions, we may be unable to compete successfully against these more established companies.

Our future growth may depend, in part, on our ability to penetrate foreign markets, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future profitability may depend, in part, on our ability to commercialize our product candidates in foreign markets for which we may rely on collaboration with third parties. We are evaluating the opportunities for the development and commercialization of our product candidates in foreign markets. We are not permitted to market or promote any of our product candidates before we receive regulatory approval from the applicable regulatory authority in that foreign market, and we may never receive such regulatory approval for any of our product candidates. To obtain separate regulatory approvals in other countries we may be required to comply with numerous and varying regulatory requirements of such countries regarding the safety and efficacy of our product candidates and governing, among other things, clinical trials and commercial sales, pricing and distribution of our product candidates, and we cannot predict success in these jurisdictions. If we obtain approval of our product candidates and ultimately commercialize our product candidates in foreign markets, we would be subject to additional risks and uncertainties, including:

- our customers' ability to obtain reimbursement for our product candidates in foreign markets;
- our inability to directly control commercial activities if we are relying on third parties;
- the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements;
- different medical practices and customs in foreign countries affecting acceptance in the marketplace;
- import or export licensing requirements;
- longer accounts receivable collection times;
- longer lead times for shipping;
- language barriers for technical training and the need for language translations;
- reduced protection of intellectual property rights in some foreign countries;
- the existence of additional potentially relevant third-party intellectual property rights;
- foreign currency exchange rate fluctuations; and
- the interpretation of contractual provisions governed by foreign laws in the event of a contract dispute.

Foreign sales of our product candidates could also be adversely affected by the imposition of governmental controls, political and economic instability, trade restrictions and changes in tariffs.

In some countries, particularly the countries in Europe, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a drug. 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. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed, possibly materially.

The sizes of the patient populations that our product candidates are intended to treat have not been established with precision. If the market opportunities for our product candidates are smaller than we estimate, or if any approval that we obtain is based on a narrower definition of the patient population than we anticipate, our revenue and ability to achieve profitability may be materially adversely affected.

The precise incidence and prevalence of the conditions we aim to address with our programs is unknown and cannot be precisely determined. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with our product candidates, are based on beliefs and estimates. These estimates have been derived from a variety of sources, including the scientific literature, surveys of clinics, patient foundations or market research, and may prove to be incorrect. Further, new information may change the estimated incidence or prevalence of these diseases, and the incidence or prevalence of these diseases is subject to change.

The total addressable market across all of our product candidates will ultimately depend upon, among other things, the indications and conditions of use for which the product candidates are approved and may be marketed, acceptance by the medical community and patient access, drug pricing and reimbursement. The sizes of the patient populations that our product candidates are intended to treat in the United States and other major markets and elsewhere may turn out to be smaller than expected, patients may not be otherwise amenable to treatment with our product candidates or new patients may become increasingly difficult to identify or gain access to, all of which would adversely affect our results of operations and our business. Further, even if we obtain significant market share for our product candidates, we may never achieve profitability despite obtaining such significant market share.

If we cannot compete for market share against other drug companies, we may not achieve sufficient product revenues and our business will suffer.

If our product candidates receive FDA approval, they will compete with a number of existing and future drugs and therapies developed, manufactured and marketed by other companies. Existing or future competing products may provide greater therapeutic convenience or clinical or other benefits for a specific indication than our products, or may offer comparable performance at a lower cost. If our products fail to capture and maintain market share, we may not achieve sufficient product revenues and our business will suffer.

We will compete against fully integrated pharmaceutical companies and smaller companies that are collaborating with larger pharmaceutical companies, academic institutions, government agencies and other public and private research organizations. Many of these competitors may have compounds already approved or in development in the therapeutic categories that we are targeting with our current and future product candidates. In addition, many of these competitors, either alone or together with their collaborative partners, may operate larger research and development programs or have substantially greater financial resources than we do, as well as greater experience in:

- developing product candidates;
- undertaking pre-clinical testing and clinical trials;

- obtaining NDA approval by the FDA and comparable foreign regulatory approvals of product candidates;
- formulating and manufacturing products; and
- launching, marketing and selling products.

If we obtain approval to commercialize any products outside of the United States, a variety of risks associated with international operations could materially adversely affect our business.

If either LYR-210 or LYR-220 is approved for commercialization, we intend to selectively partner with third parties to market it in certain jurisdictions outside the United States. We expect that we will be subject to additional risks related to international pharmaceutical operations, including:

- different regulatory requirements for drug approvals and rules governing drug commercialization in foreign countries;
- reduced protection for intellectual property rights;
- foreign reimbursement, pricing and insurance regimes;
- potential noncompliance with the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act 2010 and similar anti-bribery and anticorruption laws in other jurisdictions; and
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad.

We have no prior experience in these areas. In addition, there are complex regulatory, tax, labor and other legal requirements imposed by both the European Union and many of the individual countries in Europe with which we will need to comply. Many U.S.-based biotechnology companies have found the process of marketing their own products in Europe to be very challenging.

Certain legal and political risks are also inherent in foreign operations. For example, it may be more difficult for us to enforce our agreements or collect receivables through foreign legal systems. There is a risk that foreign governments may nationalize private enterprises in certain countries where we may operate. In certain countries or regions, terrorist activities and the response to such activities may threaten our operations more than in the United States. Social and cultural norms in certain countries may not support compliance with our corporate policies including those that require compliance with substantive laws and regulations. Also, changes in general economic and political conditions in countries where we may operate are a risk to our financial performance and future growth. Additionally, the need to identify financially and commercially strong partners for commercialization outside the United States who will comply with the high manufacturing and legal and regulatory compliance standards we require is a risk to our financial performance. As we operate our business globally, our success will depend, in part, on our ability to anticipate and effectively manage these and other related risks. There can be no assurance that the consequences of these and other factors relating to our international operations will not have an adverse effect on our business, financial condition or results of operations.

Potential product liability lawsuits against us could cause us to incur substantial liabilities and limit commercialization of any products that we may develop.

The use of our product candidates, including LYR-210 and LYR-220, in clinical trials and the sale of any products for which we obtain marketing approval exposes us to the risk of product liability claims. For example,

complications arising from the placement procedure for LYR-210 or LYR-220, or from the degradation or dislodgment of the LYR-210 or LYR-220 polymeric matrix within the sinuses after placement, or from foreign growth occurring in the sinus after placement, could give rise to product liability claims against us. Product liability claims might be brought against us by consumers, healthcare providers, pharmaceutical companies or others selling or otherwise coming into contact with our products. On occasion, large judgments have been awarded in class action lawsuits based on products that had unanticipated adverse effects. If we cannot successfully defend against product liability claims, we could incur substantial liability and costs, which may not be covered by insurance. In addition, regardless of merit or eventual outcome, product liability claims may result in:

- impairment of our business reputation and significant negative media attention;
- withdrawal of participants from our clinical trials;
- significant costs to defend the related litigation and related litigation;
- distraction of management's attention from our primary business;
- substantial monetary awards to patients or other claimants;
- inability to commercialize LYR-210 or LYR-220 or any other product candidate;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- decreased demand for LYR-210 or LYR-220 or any other product candidate, if approved for commercial sale; and
- loss of revenue.

Risks Related to Our Dependence on Third Parties

We will rely on third parties for the manufacture of materials for our research programs, pre-clinical studies and clinical trials and we do not have long-term contracts with any of these parties. This reliance on third parties increases the risk that we will not have sufficient quantities of such materials, product candidates, or any therapies that we may develop and commercialize, or that such supply will not be available to us at an acceptable cost, which could delay, prevent, or impair our development or commercialization efforts.

Although we currently conduct certain manufacturing operations internally, we currently have no plans to build our own clinical or commercial scale manufacturing capabilities. Instead, we expect to rely on third parties for the manufacture of our product candidates and related raw materials for future pre-clinical and clinical development, as well as for commercial manufacture if any of our product candidates receive marketing approval. We do not have a long-term agreement with any of the third-party manufacturers we currently use to provide pre-clinical and clinical drug supply, and purchase any required materials on a purchase order basis. Certain of these manufacturers are critical to our production and the loss of these manufacturers to one of our competitors or otherwise, or an inability to obtain quantities at an acceptable cost or quality, could delay, prevent or impair our ability to timely conduct pre-clinical studies or clinical trials, and would materially and adversely affect our development and commercialization efforts. The facilities used by third-party manufacturers to manufacture our product candidates must be approved by the FDA pursuant to inspections that will be conducted after we submit an NDA to the FDA. We do not control the manufacturing process of, and are completely dependent on, third-party manufacturers for compliance with cGMP requirements for manufacture of drug products and other laws and regulations. If these third-party manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or others, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities. Some of our contract

manufacturers may not have produced a commercially-approved product and therefore may not have obtained the requisite FDA approvals to do so. In addition, we have no control over the ability of third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved.

Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products. In addition, we may be unable to establish any agreements with third-party manufacturers or to do so on acceptable terms.

Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- failure of third-party manufacturers to comply with regulatory requirements and maintain quality assurance;
- breach of the manufacturing agreement by the third party;
- failure to manufacture our product according to our specifications;
- failure to manufacture our product according to our schedule or at all;
- misappropriation of our proprietary information, including our trade secrets and know-how; and
- termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us.

Our product candidates and any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us. Any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval, and any related remedial measures may be costly or time-consuming to implement. We do not currently have arrangements in place for redundant supply or a second source for all required raw materials used in the manufacture of our product candidates. If our current third-party manufacturers cannot perform as agreed, we may be required to replace such manufacturers and we may be unable to replace them on a timely basis or at all. Our current and anticipated future dependence upon others for the manufacture of our product candidates or products may adversely affect our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

We rely on third parties to conduct our pre-clinical studies and clinical trials. Any failure by a third party to conduct the clinical trials according to GCPs and in a timely manner may delay or prevent our ability to seek or obtain regulatory approval for or commercialize our product candidates.

We are dependent on third parties to conduct our pre-clinical studies and clinical trials, including our ongoing clinical trials for LYR-210, and we expect to rely on third parties to conduct any future clinical trials and pre-clinical studies for our product candidates, including LYR-220. Specifically, we have used and relied on, and intend to continue to use and rely on, medical institutions, clinical investigators, CROs and consultants to

conduct our clinical trials in accordance with our clinical protocols and regulatory requirements. These CROs, investigators and other third parties play a significant role in the conduct and timing of these trials and subsequent collection and analysis of data. While we have agreements governing the activities of our third-party contractors, we have limited influence over their actual performance. Nevertheless, we are responsible for ensuring that each of our clinical trials is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and our reliance on the CROs and other third parties does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for all of our product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs or trial sites fail to comply with applicable 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 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 clinical trials complies with GCP regulations. In addition, our clinical trials must be conducted with product produced under cGMP regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process.

There is no guarantee that any such CROs, investigators or other third parties will devote adequate time and resources to such trials or perform as contractually required. If any of these third parties fail to meet expected deadlines, adhere to our clinical protocols or meet regulatory requirements, or otherwise performs in a substandard manner, our clinical trials may be extended, delayed or terminated. In addition, 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 clinical trials or other drug development activities that could harm our competitive position. In addition, principal investigators for our clinical trials 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 trial, the integrity of the data generated at the applicable clinical trial site may be questioned, and the utility of the clinical trial itself may be jeopardized, which could result in the delay or rejection of any NDA we submit to the FDA. Any such delay or rejection could prevent us from commercializing our product candidates.

If any of our relationships with these third-parties terminate, we may not be able to enter into arrangements with alternative third parties or do so on commercially reasonable terms. Switching or adding additional CROs, investigators and other third parties involves additional cost and requires management time and focus. In addition, there is a natural transition period when a new 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 CROs, investigators and other third parties, there can be no assurance that we will not encounter 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 prospects.

We may collaborate with third parties for the development and commercialization of LYR-210, LYR-220 and any of our future product candidates. We may not succeed in establishing and maintaining collaborative relationships, which may significantly limit our ability to develop and commercialize LYR-210, LYR-220 or our future product candidates successfully, if at all.

We may seek collaborative relationships for the development and commercialization of LYR-210, LYR-220 or any future product candidates. Failure to obtain a collaborative relationship for LYR-210, LYR-220 or any future product candidates may significantly impair the potential for these product candidates. We also may need to enter into collaborative relationships to provide funding to support our other research and development

programs. The process of establishing and maintaining collaborative relationships is difficult, time-consuming and involves significant uncertainty, such as:

- a collaboration partner may shift its priorities and resources away from our product candidates due to a change in business strategies, or a merger, acquisition, sale or downsizing;
- a collaboration partner may seek to renegotiate or terminate their relationships with us due to unsatisfactory clinical results, manufacturing issues, a change in business strategy, a change of control or other reasons;
- a collaboration partner may cease development in therapeutic areas which are the subject of our strategic collaboration;
- a collaboration partner may not devote sufficient capital or resources towards our product candidates;
- a collaboration partner may change the success criteria for a product candidate, thereby delaying or ceasing development of such candidate;
- a significant delay in initiation of certain development activities by a collaboration partner will also delay payment of milestones tied to such activities, thereby impacting our ability to fund our own activities;
- a collaboration partner could develop a product that competes, either directly or indirectly, with our product candidate;
- a collaboration partner with commercialization obligations may not commit sufficient financial or human resources to the marketing, distribution or sale of a product;
- a collaboration partner with manufacturing responsibilities may encounter regulatory, resource or quality issues and be unable to meet demand requirements;
- a collaboration partner may terminate a strategic alliance;
- a dispute may arise between us and a partner concerning the research, development or commercialization of a product candidate resulting in a delay in milestones, royalty payments or termination of an alliance and possibly resulting in costly litigation or arbitration which may divert management attention and resources; and
- a partner may use our products or technology in such a way as to invite litigation from a third party.

If any collaborator fails to fulfill its responsibilities in a timely manner, or at all, our research, clinical development, manufacturing or commercialization efforts related to that collaboration could be delayed or terminated, or it may be necessary for us to assume responsibility for expenses or activities that would otherwise have been the responsibility of our collaborator. If we are unable to establish and maintain collaborative relationships on acceptable terms or to successfully transition terminated collaborative agreements, we may have to delay or discontinue further development of one or more of our product candidates, undertake development and commercialization activities at our own expense or find alternative sources of capital. Moreover, any collaborative partners we enter into agreements with in the future may shift their priorities and resources away from our product candidates or seek to renegotiate or terminate their relationships with us.

If we seek, but are not able to establish, collaborations, we may have to alter our development and commercialization plans.

Our product development programs and the potential commercialization of our product candidates will require substantial additional capital. We may decide to collaborate with pharmaceutical and biotechnology companies for the development and potential commercialization of our product candidates.

We face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our 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. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or comparable regulatory authorities outside the United States, 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 uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to 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 for our product candidate. Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.

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 such product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or 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 our product candidates or bring them to market and generate revenue.

Data provided by collaborators and others upon which we rely that has not been independently verified could turn out to be false, misleading, or incomplete.

We rely on third-party vendors, such as CROs, scientists and collaborators to provide us with significant data and other information related to our projects, pre-clinical studies or clinical trials and our business. If such third parties provide inaccurate, misleading or incomplete data, our business, prospects and results of operations could be materially adversely affected.

We do not have multiple sources of supply for some of the components used in LYR-210 or LYR-220, nor long-term supply contracts, and certain of our suppliers are critical to our production. If we were to lose a supplier, it could have a material adverse effect on our ability to complete the development of LYR-210 or LYR-220. If we obtain regulatory approval for LYR-210 or LYR-220, we would need to expand the supply of their components in order to commercialize them.

We do not have multiple sources of supply for the components used in the manufacturing of LYR-210 or LYR-220. We also do not have long-term supply agreements with any of our component suppliers. We may not be able to establish additional sources of supply for our product candidates, or may be unable to do so on acceptable terms. Manufacturing suppliers are subject to cGMP quality and regulatory requirements, covering manufacturing, testing, quality control and record keeping relating to our product candidates and subject to ongoing inspections by the regulatory agencies. Failure by any of our suppliers to comply with applicable regulations may result in long delays and interruptions in supply. Manufacturing suppliers are also subject to

local, state and federal regulations and licensing requirements. Failure by any of our suppliers to comply with all applicable regulations and requirements may result in long delays and interruptions in supply.

The number of suppliers of the raw material components of our product candidates is limited. In the event it is necessary or desirable to acquire supplies from alternative suppliers, we might not be able to obtain them on commercially reasonable terms, if at all. It could also require significant time and expense to redesign our manufacturing processes to work with another company. Additionally, certain of our suppliers are critical to our production and the loss of these suppliers to one of our competitors or otherwise would materially and adversely affect our development and commercialization efforts.

As part of any marketing approval, regulatory authorities conduct inspections that must be successful prior to the approval of the product. Failure of manufacturing suppliers to successfully complete these regulatory inspections will result in delays. If supply from the approved supplier is interrupted, there could be a significant disruption in commercial supply. An alternative vendor would need to be qualified through an NDA amendment or supplement which could result in further delay. The FDA or other regulatory agencies outside of the United States may also require additional studies if a new supplier is relied upon for commercial production. Switching vendors may involve substantial costs and is likely to result in a delay in our desired clinical and commercial timelines.

If we are unable to obtain the supplies we need at a reasonable price or on a timely basis, it could have a material adverse effect on our ability to complete the development of LYR-210 or LYR-220 or, if we obtain regulatory approval for LYR-210 or LYR-220, to commercialize them.

We may enter into collaborations, in-licensing arrangements, joint ventures, strategic alliances or partnerships with third-parties that may not result in the development of commercially viable products or the generation of significant future revenues.

In the ordinary course of our business, we may enter into collaborations, in-licensing arrangements, joint ventures, strategic alliances, partnerships or other arrangements to develop new products and to pursue new markets. Proposing, negotiating and implementing collaborations, in-licensing arrangements, joint ventures, strategic alliances or partnerships may be a lengthy and complex process. Other companies, including those with substantially greater financial, marketing, sales, technology or other business resources, may compete with us for these opportunities or arrangements. We may not identify, secure, or complete any such transactions or arrangements in a timely manner, on a cost-effective basis, on acceptable terms or at all. We have limited institutional knowledge and experience with respect to these business development activities, and we may also not realize the anticipated benefits of any such transaction or arrangement. In particular, these collaborations may not result in the development of products that achieve commercial success or result in significant revenues and could be terminated prior to developing any products.

Additionally, we may not be in a position to exercise sole decision making authority regarding the transaction or arrangement, which could create the potential risk of creating impasses on decisions, and our future collaborators may have economic or business interests or goals that are, or that may become, inconsistent with our business interests or goals. It is possible that conflicts may arise with our collaborators, such as conflicts concerning the achievement of performance milestones, or the interpretation of significant terms under any agreement, such as those related to financial obligations or the ownership or control of intellectual property developed during the collaboration. If any conflicts arise with any current or future collaborators, they may act in their self-interest, which may be adverse to our best interest, and they may breach their obligations to us. In addition, we may have limited control over the amount and timing of resources that any current or future collaborators devote to our or their future products. Disputes between us and our collaborators may result in litigation or arbitration which would increase our expenses and divert the attention of our management. Further, these transactions and arrangements will be contractual in nature and will generally be terminable under the terms of the applicable agreements and, in such event, we may not continue to have rights to the products relating to such transaction or arrangement or may need to purchase such rights at a premium.

If we enter into in-bound intellectual property license agreements, we may not be able to fully protect the licensed intellectual property rights or maintain those licenses. Future licensors could retain the right to prosecute and defend the intellectual property rights licensed to us, in which case we would depend on the ability of our licensors to obtain, maintain and enforce such licensed intellectual property. These licensors may determine not to pursue litigation against other companies or may pursue such litigation less aggressively than we would. If our licensors do not adequately protect such licensed intellectual property, competitors may be able to use such intellectual property and erode or negate any competitive advantage we may have, which could materially harm our business, negatively affect our position in the marketplace, limit our ability to commercialize our products and product candidates and delay or render impossible our achievement of profitability. Further, entering into such license agreements could impose various diligence, commercialization, royalty or other obligations on us. Future licensors may allege that we have breached our license agreement with them, and accordingly seek to terminate our license, which could adversely affect our competitive business position and harm our business prospects.

Risks Related to Our Intellectual Property

If we are unable to obtain, maintain or adequately protect our intellectual property rights, we may not be able to compete effectively in our markets.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect our intellectual property and prevent others from duplicating LYR-210, LYR-220 and any future product candidates.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal, factual and scientific questions and can be uncertain. It is possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. The patent applications that we own may fail to result in issued patents with claims that cover our product candidates in the United States or in other foreign countries. There is no assurance that all of the potentially relevant prior art relating to our patents and patent applications has been found, which can invalidate a patent or prevent a patent from issuing from a pending patent application. Even if patents do successfully issue and even if such patents cover our product candidates, third parties may challenge the inventorship, ownership, validity, enforceability or scope of such patents, which may result in such patents being narrowed or invalidated, or being held unenforceable. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property, provide exclusivity for our product candidates or prevent others from designing around our claims. In addition, no assurances can be given that third parties will not create new products or methods that achieve similar results without infringing upon our patents. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

If the patent applications we hold with respect to our programs or product candidates fail to issue, if their breadth or strength of protection is threatened, or if they fail to provide meaningful exclusivity for our product candidates, it could dissuade companies from collaborating with us to develop product candidates, and threaten our ability to commercialize future products. Several patent applications covering our product candidates have been filed recently. We cannot offer any assurances about which, if any, patents will issue, the breadth of any such patents or whether any issued patents will be found invalid or unenforceable or will be threatened by third parties. Any successful opposition to these patents or any other patents owned by us could deprive us of rights necessary for the successful commercialization of any product candidates that we may develop.

Further, if we encounter delays in regulatory approvals, the period of time during which we could market a product candidate under patent protection could be reduced. Since patent applications in the United States and most other countries are confidential for a period of time after filing, and some remain so until issued, we cannot be certain that we were the first to file any patent application related to a product candidate. Furthermore, if third parties have filed such patent applications before enactment of the Leahy-Smith Act on

March 16, 2013, an interference proceeding in the United States can be initiated by a third party to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. In addition, patents have a limited lifespan. In the United States, the expiration of a patent is generally 20 years after it is filed. Various extensions may be available; however, 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 for the patent covering a product, we may be open to competition from generic competing products.

The issuance of a patent is not conclusive as to its inventorship, ownership, scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. In addition, the issuance of a patent does not give us the right to practice the patented invention. Third parties may have blocking patents that could prevent us from marketing our product candidate, if approved, or practicing our own patented technology. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain.

In addition to the protection afforded by patents, we rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is either not patentable or that we elect not to patent, processes for which patents are difficult to enforce and any other elements of our product candidate discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. Once disclosed, we are likely to lose trade secret protection.

Although we require all of our employees and consultants to assign their inventions to us, to the extent that employees or 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. Further, although we require that all of our employees, consultants, collaborators, advisors and any third parties who have access to our proprietary know-how, information or technology enter into confidentiality agreements, we cannot provide any assurances that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently discover our trade secrets or develop substantially equivalent information and techniques. Any of these parties may breach these agreements and we may not have adequate remedies for any specific breach. Misappropriation or unauthorized disclosure of our trade secrets or other confidential proprietary information could impair our competitive position and may have a material adverse effect on our business. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. Additionally, if the steps taken to maintain our trade secrets or other confidential proprietary information are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret or other confidential proprietary information.

If we are unable to prevent material disclosure of the non-patented intellectual property related to our technologies to third parties, and there is no guarantee that we will have any such enforceable trade secret protection, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, results of operations and financial condition.

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

Our commercial success depends in part on our avoiding infringement, or allegations of infringement, of the patents and other proprietary rights of third parties. There is a substantial amount of litigation, both within

and outside the United States, involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, oppositions, reexamination, and inter partes review proceedings before the United States Patent and Trademark Office, or USPTO, and corresponding foreign patent offices. 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 pursuing development candidates. Many companies in intellectual property-dependent industries, including the biotechnology and pharmaceutical industries, have employed intellectual property litigation as a means to gain an advantage over their competitors. As the biotechnology and pharmaceutical industries expand and more patents are issued, and as we gain greater visibility and market exposure as a public company, the risk increases that our product candidates may be subject to claims of infringement of the patent rights of third parties. Some claimants may have substantially greater resources than we do and may be able to sustain the costs of complex intellectual property litigation to a greater degree and for longer periods of time than we could. In addition, patent holding companies that focus solely on extracting royalties and settlements by enforcing patent rights may target us.

Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims to composition of matter, drug delivery, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. We cannot guarantee that our technologies, products, compositions and their uses do not or will not infringe third party patent or other intellectual property rights. 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. Pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our product candidates or the use of our product candidates. After issuance, the scope of patent claims remains subject to construction as determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our product candidates. If any third-party patents were held by a court of competent jurisdiction to cover the composition of matter of any of our product candidates, the manufacturing process of any of our product candidates, the method of use for any of our product candidates, the holders of any such patents may be able to block our ability to commercialize such product candidate unless we obtained a license under the applicable patents, which may not be available or may not be available on commercially reasonable terms, or until such patents expire.

Parties making claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize one or more of our product candidates and/or harm our reputation and financial results. Defense of these claims, regardless of their merit, could involve substantial litigation expense and could be a substantial diversion of management and 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, pay royalties, redesign our infringing products, in the case of claims concerning registered trademarks, rename our product candidates, or obtain one or more licenses from third parties, which may require substantial time and monetary expenditure, and which might be impossible or technically infeasible. Furthermore, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us; alternatively or additionally it could include terms that impede or destroy our ability to compete successfully in the commercial marketplace.

We may be involved in lawsuits to protect or enforce our patents or other intellectual property, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents, trademarks, copyrights or other intellectual property. It may be difficult to detect infringers who do not advertise the components that are used in their products. Moreover, it may be difficult or impossible to obtain evidence of infringement in a competitor's or potential competitor's

product. To counter infringement or unauthorized use, we may be required to file infringement claims on a country-by-country basis, which can be expensive and time-consuming and divert the time and attention of our management and scientific personnel. There can be no assurance that we will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are concluded. Any claims we assert against perceived infringers could also provoke these parties to assert counterclaims against us alleging that we infringe their patents, in addition to counterclaims asserting that our patents are invalid or unenforceable, or both.

In addition, in an infringement proceeding, a court may decide that a patent of ours is not valid, is unenforceable and/or is not infringed, or may construe the patent's claims narrowly or 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, interpreted narrowly or held unenforceable, could put our patent applications at risk of not issuing, and could limit our ability to assert those patents against those parties or other competitors and curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks, which could materially harm our business and negatively affect our position in the marketplace.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. 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. There could also 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 material adverse effect on the price of our common stock.

Recent patent reform legislation has increased the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, and may diminish the value of patents in general.

As is the case with other biopharmaceutical companies, our commercial success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity and is therefore costly, time consuming and inherently uncertain. Recent wide-ranging patent reform legislation in the United States, including the Leahy-Smith America Invents Act, or the Leahy-Smith Act, could increase those uncertainties and costs.

The Leahy-Smith Act includes a number of significant changes to U.S. patent law, including provisions that affect the way patent applications are prosecuted and may also affect patent litigation. Under The Leahy-Smith Act, the United States transitioned from a "first-to-invent" to a "first-to-file" system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. This will require us to be cognizant going forward of the time from invention to filing of a patent application and be diligent in filing patent applications, but circumstances could prevent us from promptly filing patent applications on our inventions. The Leahy-Smith Act also enlarged the scope of disclosures that qualify as prior art, and it expanded the scope of procedures that a third party may use to challenge a U.S. patent, including post grant review and inter partes review procedures. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in U.S. federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. The Leahy-Smith 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.

In addition, recent court rulings in cases such as *Association for Molecular Pathology v. Myriad Genetics, Inc.*, *BRCA1- & BRCA2-Based Hereditary Cancer Test Patent Litigation*, and *Promega Corp. v. Life Technologies Corp.* 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 future actions by the U.S. Congress, the U.S. courts, the USPTO and the relevant law-making bodies in other countries, 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.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties or that our employees have wrongfully used or disclosed alleged trade secrets of their former employers.

We may employ individuals who were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and independent contractors 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 any of our employee's former employers 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, or our ability to hire personnel, which, in any case of the foregoing, could adversely impact our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

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.

The USPTO, European and other patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the USPTO and various governmental patent agencies outside of the United States in several stages over the lifetime of the patents and/or applications. We have systems in place to remind us to pay these fees, and we employ an outside firm and rely on our outside counsel to pay these fees due to non-U.S. patent agencies. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. We employ law firms and other professionals to help us comply, and in many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which non-compliance 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. In such an event, our competitors might be able to enter the market, which could have a material adverse effect on our business.

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

If we initiated 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 is invalid and/or unenforceable. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant

information from the USPTO, or made a misleading statement, during prosecution. 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 and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on one or more of our product candidates. Such a loss of patent protection could have a material adverse impact on our business. A defendant could also challenge our ownership of patents assigned to us. We cannot be certain that a third party would not challenge our rights to these patents and patent applications. Any legal proceeding or enforcement action can also be expensive and time-consuming.

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

The term of any individual patent depends on applicable law in the country where the patent is granted. In the United States, provided all maintenance fees are timely paid, a patent generally has a term of 20 years from its application filing date or earliest claimed non-provisional filing date. Extensions may be available under certain circumstances, but the life of a patent and, correspondingly, the protection it affords is limited. 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. For patents that are eligible for extension of patent term, we expect to seek extensions of patent terms in the United States and, if available, in other countries. In the United States, the Drug Price Competition and Patent Term Restoration Act of 1984 permits a patent term extension of up to five years beyond the normal expiration of the patent, which is limited to the approved indication (or any additional indications approved during the period of extension). We might not be granted an extension because of, for example, failure to apply within applicable periods, failure to apply prior to the expiration of relevant patents or otherwise failure to satisfy any of the numerous applicable requirements. Moreover, the applicable authorities, including the FDA and the USPTO in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. If this occurs, our competitors may be able to obtain approval of competing products following our patent expiration by referencing our clinical and pre-clinical data and launch their product earlier than might otherwise be the case. If this were to occur, it could have a material adverse effect on our ability to generate revenue.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending our intellectual property in all countries throughout the world could 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. Therefore, we may choose not to pursue or maintain protection for certain intellectual property in certain jurisdictions. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as 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. 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 enforcement is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent such competitors 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 biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. 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 lawsuit 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. In addition, many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties (for example, the patent owner has failed to "work" the invention in that country, or the third party has patented improvements) or 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 the patent.

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

While we seek to protect the trademarks we use in the United States and in other countries, we may be unsuccessful in obtaining registrations and/or otherwise protecting these trademarks. If that were to happen, we may be prevented from using our names, brands and trademarks unless we enter into appropriate royalty, license or coexistence agreements, which may not be available or may not be available on commercially reasonable terms. Over the long term, if we are unable to establish name recognition based on our trademarks, trade names, service marks and domain names, then we may not be able to compete effectively, resulting in a material adverse effect on our business. Our registered or unregistered trademarks or trade names may be challenged, infringed, diluted or declared generic, or determined to be infringing on other marks. We rely on both registration and common law protection for our trademarks. 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 to build name recognition among potential partners or customers in our markets of interest. At times, competitors may adopt trademarks and trade names similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks. Over the long term, if we are unable to establish name recognition based on our trademarks, then we may not be able to compete effectively and our business may be adversely affected. During trademark registration proceedings, we may receive rejections. Although we would be given an opportunity to respond to those rejections, we may be unable to overcome such rejections. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. Effective trademark protection may not be available or may not be sought in every country in which our products are made available. Any name we propose to use for our products in the United States must be approved by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA objects to any of our proposed product names, we may be required to expend significant additional resources in an effort to identify a usable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA. 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.

Our proprietary rights may not adequately protect our technologies and product candidates, and do not necessarily address all potential threats to our competitive advantage.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business, or permit us to maintain our competitive advantage. The following examples are illustrative:

- others may be able to make products that are the same as or similar to our product candidates but that are not covered by the claims of the patents that we own;
- others, including inventors or developers of our patented technologies who may become involved with competitors, may independently develop similar technologies that function as alternatives or replacements for any of our technologies without infringing our intellectual property rights;
- we might not have been the first to conceive and reduce to practice the inventions covered by our patents or patent applications;
- we might not have been the first to file patent applications covering certain of our patents or patent applications;
- 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 patents;
- our issued patents may not provide us with any commercially viable products or competitive advantage, or may be held invalid or unenforceable, as a result of legal challenges by our competitors;
- the Supreme Court of the United States, other U.S. federal courts, Congress, the USPTO or similar foreign authorities may change the standards of patentability and any such changes could narrow or invalidate, or change the scope of, our or our collaboration partners' patents;
- patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time;
- our competitors might conduct research and development activities in countries where we do not have patent rights, or in countries where research and development safe harbor laws exist, and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- ownership, validity or enforceability of our patents or patent applications may be challenged by third parties; and
- the patents of third parties or pending or future applications of third parties, if issued, may have an adverse effect on our business.

Risks Related to Employee Matters and Managing Growth

We will need to expand our organization, and we may experience difficulties in managing this growth, which could disrupt our operations.

We expect to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of product candidate development, regulatory affairs and sales, marketing

and distribution. As of December 31, 2019, we had full-time employees. To manage our growth activities, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. As we expand our organization, we may have difficulty identifying, hiring and integrating new personnel. Future growth would impose significant additional responsibilities on our management, including the need to identify, recruit, maintain, motivate and integrate additional employees, consultants and contractors. Also, our management may need to divert a disproportionate amount of its attention away from our day-to-day activities and devote a substantial amount of time to managing these growth activities. We may not be able to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of product candidates. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and/or grow revenues could be reduced, and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize our product candidates and compete effectively will depend, in part, on our ability to effectively manage any future growth.

Many of the biotechnology and pharmaceutical companies that we compete against for qualified personnel and consultants have greater financial and other resources, different risk profiles and a longer history in the industry than we do. If we are unable to continue to attract and retain high-quality personnel and consultants, the rate and success at which we can discover and develop product candidates and operate our business will be limited.

If we lose key management or scientific personnel, cannot recruit qualified employees, directors, officers or other significant personnel or experience increases in our compensation costs, our business may materially suffer.

We are highly dependent on our management and directors, including our chief executive officer, Maria Palasis, Ph.D., and our chief scientific officer, Dana Washburn, M.D., among others. Due to the specialized knowledge each of our officers and key employees possesses with respect to our product candidates and our operations, the loss of service of any of our officers or directors could delay or prevent the successful enrollment and completion of our clinical trials. We do not carry key person life insurance on our officers or directors. Although we have formal employment agreements with our executive officers, these agreements do not prevent them from terminating their employment with us at any time.

In addition, our future success and growth will depend in part on the continued service of our directors, employees and management personnel and our ability to identify, hire, and retain additional personnel. If we lose one or more of our executive officers or key employees, our ability to implement our business strategy successfully could be seriously harmed. Furthermore, replacing executive officers and key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to develop, gain regulatory approval of and commercialize product candidates successfully. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these additional key personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors may be engaged by entities other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. If we are unable to continue to attract and retain high quality personnel, our ability to develop and commercialize product candidates will be limited.

Many of our employees have become or will soon become vested in a substantial amount of our common stock or a number of common stock options. Our employees may be more likely to leave us if the shares they own have significantly appreciated in value relative to the original purchase prices of the shares, or if the exercise prices of the options that they hold are significantly below the market price of our common stock, particularly after the expiration of the lock-up agreements described herein. Our future success also depends on our ability to continue to attract and retain additional executive officers and other key employees.

We may engage in acquisitions or strategic partnerships that could disrupt our business, cause dilution to our stockholders, reduce our financial resources, cause or to incur debt or assume contingent liabilities, and subject us to other risks.

In the future, we may enter into transactions to acquire other businesses, products or technologies or enter into strategic partnerships, including licensing. If we do identify suitable acquisition or partnership candidates, we may not be able to make such acquisitions or partnerships on favorable terms, or at all. Any acquisitions or partnerships we make may not strengthen our competitive position, and these transactions may be viewed negatively by customers or investors. We may decide to incur debt in connection with an acquisition or issue our common stock or other equity securities to the stockholders of the acquired company, which would reduce the percentage ownership of our existing stockholders. We could incur losses resulting from undiscovered liabilities of the acquired business or partnership that are not covered by the indemnification we may obtain from the seller or our partner. In addition, we may not be able to successfully integrate any acquired personnel, technologies and operations into our existing business in an effective, timely and non-disruptive manner. Acquisitions or partnerships may also divert management attention from day-to-day responsibilities, lead to a loss of key personnel, increase our expenses and reduce our cash available for operations and other uses. We cannot predict the number, timing or size of future acquisitions or partnerships or the effect that any such transactions might have on our operating results.

We or the third parties upon whom we depend may be adversely affected by natural disasters and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Natural disasters could severely disrupt our operations and have a material adverse effect on our business, results of operations, financial condition and prospects. If a natural disaster, power outage or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as the manufacturing facilities on which we rely, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible for us to continue our business for a substantial period of time. The disaster recovery and business continuity plans we have in place may prove inadequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity plans, which could have a material adverse effect on our business. For example, following Hurricane Maria, shortages in production and delays in a number of medical supplies produced in Puerto Rico resulted, and any similar interruption due to a natural disaster affecting us or any of our third-party manufacturers could materially delay our operations.

Litigation against us could be costly and time-consuming to defend and could result in additional liabilities.

We may from time to time be subject to legal proceedings and claims that arise in the ordinary course of business or otherwise, such as claims brought by our customers in connection with commercial disputes and employment claims made by our current or former employees. Claims may also be asserted by or on behalf of a variety of other parties, including government agencies, patients or vendors of our customers, or stockholders.

Any litigation involving us may result in substantial costs, operationally restrict our business, and may divert management’s attention and resources, which may seriously harm our business, overall financial condition, and results of operations. Insurance may not cover existing or future claims, be sufficient to fully compensate us for one or more of such claims, or continue to be available on terms acceptable to us. A claim brought against us

that is uninsured or underinsured could result in unanticipated costs, thereby adversely impacting our results of operations and resulting in a reduction in the trading price of our stock.

Risks Related to Our Common Stock and this Offering

An active trading market for our common stock may not develop.

Prior to this offering, there has been no public market for our common stock. The initial public offering price for our common stock will be determined through negotiations with the underwriters. Although we intend to apply to have our common stock listed on The Nasdaq Global Market, an active trading market for our shares may never develop or be sustained following this offering. If an active market for our common stock does not develop, it may be difficult for you to sell shares you purchase in this offering without depressing the market price for the shares, or at all.

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 market for smaller biopharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. 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:

- the success of competitive products or technologies;
- actual or expected changes in our growth rate relative to our competitors;
- results of clinical trials of our product candidates or those of our competitors;
- developments related to our existing or any future collaborations;
- regulatory actions with respect to our product candidates or our competitors' products and product candidates;
- regulatory or legal developments in the United States and other countries;
- development of new product candidates that may address our markets and make our product candidates less attractive;
- changes in physician, hospital or healthcare provider practices that may make our product candidates less useful;
- announcements by us, our partners or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations or capital commitments;
- 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 any of our product candidates or clinical development programs;
- failure to meet or exceed financial estimates and projections of the investment community or that we provide to the public;

- the results of our efforts to discover, develop, acquire or in-license additional product candidates or products;
- actual or expected changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in this "Risk Factors" section and elsewhere in this prospectus.

After this offering, our executive officers, directors and principal stockholders, if they choose to act together, will continue to have the ability to control or significantly influence all matters submitted to stockholders for approval.

Upon the closing of this offering, based on the number of shares of common stock outstanding as of December 31, 2019, our executive officers, directors and stockholders who owned more than 5% of our outstanding common stock before this offering and their respective affiliates will, in the aggregate, hold shares representing approximately % of our outstanding voting stock. As a result, if these stockholders choose to act together, they would be able to control or significantly influence all matters submitted to our stockholders for approval, as well as our management and affairs. For example, these persons, if they choose to act together, would control or significantly influence the election of directors, the composition of our management and approval of any merger, consolidation or sale of all or substantially all of our assets.

If you purchase shares of common stock in this offering, you will suffer immediate dilution of your investment.

The initial public offering price of our common stock will be substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of our common stock in this offering, you will pay a price per share that substantially exceeds our net tangible book value per share after this offering. To the extent shares subsequently are issued under outstanding options or warrants, you will incur further dilution. Based on an assumed initial public offering price of $ per share (the midpoint of the price range set forth on the cover page of this prospectus), you will experience immediate dilution of $ per share as of December 31, 2019, 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. In addition, purchasers of common stock in this offering will have contributed approximately % of the aggregate price paid by all purchasers of our stock but will own only approximately % of our common stock outstanding after this offering.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. We expect that we will use the net proceeds of this offering, together with our existing cash and cash equivalents, to fund the clinical development of LYR-210 and LYR-220, for future product candidate and platform development and the remainder, if any, for working capital and other general corporate purposes as set forth under "Use of Proceeds." However, our use of these proceeds may differ substantially from our current

plans. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

A significant portion of our total outstanding shares are eligible to be sold into the market in the near future, which could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. After this offering, we will have outstanding shares of common stock based on the number of shares outstanding as of December 31, 2019. This includes the shares that we are selling in this offering, which may be resold in the public market immediately without restriction, unless purchased by our affiliates or existing stockholders. The remaining shares are currently restricted as a result of securities laws or lock-up agreements (which may be waived, with or without notice, by BofA Securities, Inc. and Jefferies LLC) but will become eligible to be sold at various times beginning 180 days after this offering, unless held by one of our affiliates, in which case the resale of those securities will be subject to volume limitations under Rule 144 of the Securities Act of 1933, as amended, or Rule 144. Moreover, after this offering, holders of an aggregate of shares of our common stock will have rights, subject to specified conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders, until such shares can otherwise be sold without restriction under Rule 144 or until the rights terminate pursuant to the terms of the stockholders' agreement between us and such holders. We also intend to register all shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates and the lock-up agreements described in the "Underwriting" section of this prospectus.

We are an "emerging growth company," and the reduced disclosure requirements applicable to emerging growth companies may make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act, and may remain an emerging growth company until the last day of the fiscal year following the fifth anniversary of the closing of this offering. However, if certain events occur prior to the end of such five-year period, including if we become a "large accelerated filer," our annual gross revenues exceed $1.07 billion or we issue more than $1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure in this prospectus;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- reduced disclosure obligations regarding executive compensation; and

- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We have taken advantage of reduced reporting burdens in this prospectus. In particular, in this prospectus, we have provided only two years of audited financial statements and have not included all of the executive compensation related information that would be required if we were not an emerging growth company. We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. 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 stock price may be reduced or more volatile. In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of these accounting standards until they would otherwise apply to private companies.

We will incur 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, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of The Nasdaq Global 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, these rules and regulations will increase our legal and financial compliance costs and will 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, which in turn could make it more difficult for us to attract and retain qualified members of our board of directors.

We are evaluating these rules and regulations, and cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. 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.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, we will be required to furnish a report by our management on our internal control over financial reporting. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing whether such controls are functioning as documented, and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by Section 404. We may discover significant deficiencies or material weaknesses, which we may not successfully remediate on a timely basis or at all. Any failure to remediate any significant deficiencies or material weaknesses identified by us or to implement required new or improved controls, or difficulties encountered in their implementation, could cause us to fail to meet our reporting obligations or result in material misstatements in our financial statements. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

If securities or industry analysts do not publish research or reports about our business, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline, even if our business is doing well.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. We do not currently have, and may never obtain, research coverage by securities and industry analysts. If no or few securities or industry analysts commence coverage of us, the trading price for our stock would be negatively impacted. In the event we obtain securities or industry analyst coverage, if any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, our intellectual property or our stock performance, or if our target pre-clinical studies or clinical trials and operating results fail to meet the expectations of analysts, our stock price would likely decline. If one or more of these analysts ceases coverage of us or fails to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

We are a "smaller reporting company" and the reduced disclosure requirements applicable to smaller reporting companies may make our common stock less attractive to investors.

We are considered a "smaller reporting company." We are therefore entitled to rely on certain reduced disclosure requirements, such as an exemption from providing selected financial data and executive compensation information. We are also exempt from the requirement to obtain an external audit on the effectiveness of internal control over financial reporting provided in Section 404(b) of the Sarbanes-Oxley Act. These exemptions and reduced disclosures in our SEC filings due to our status as a smaller reporting company mean our auditors do not review our internal control over financial reporting and may make it harder for investors to analyze our results of operations and financial prospects. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. 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 stock prices may be more volatile.

Provisions in our restated certificate of incorporation and restated bylaws and under Delaware law could make an acquisition of our company, 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 restated certificate of incorporation and our restated bylaws, which will become effective upon the closing of this offering may discourage, delay or prevent a merger, acquisition or other change in control of our company that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions could also 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 include those establishing:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from filling vacancies on our board of directors;

- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;

- the ability of our board of directors to alter our bylaws without obtaining stockholder approval;

- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to adopt, amend or repeal our bylaws or repeal the provisions of our restated certificate of incorporation regarding the election and removal of directors;

- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;

- the requirement that a special meeting of stockholders may be called only by the chairman of the board of directors, the chief executive officer, the president or the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and

- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the General Corporation Law of the State of Delaware, which prohibits a person who owns in excess of 15% 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 in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Our restated certificate of incorporation will designate specific courts as the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us.

Our restated certificate of incorporation, which will become effective upon the closing of this offering, specifies that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for most legal actions involving claims brought against us by stockholders; 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, the rules and regulations thereunder 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. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions of our restated certificate of incorporation described above.

We believe this provision benefits us by providing increased consistency in the application of Delaware law by chancellors particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, the provision may have the effect of discouraging lawsuits against our directors, officers, employees and agents as it may limit any stockholder's ability to bring a claim in a judicial forum that such stockholder finds favorable for disputes with us or our directors, officers, employees or agents. 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, in connection with any applicable action brought against us, a court could

find the choice of forum provisions contained in our restated certificate of incorporation to be inapplicable or unenforceable in such action. If a court were to find the choice of forum provision contained in our 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 adversely affect our business, financial condition or results of operations.

Because we do not anticipate paying any cash dividends on our common shares in the foreseeable future, capital appreciation, if any, would be your sole source of gain.

We have never declared or paid any cash dividends on our common shares. 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. As a result, capital appreciation, if any, of our common shares would be your sole source of gain on an investment in our common shares for the foreseeable future. See the "Dividend Policy" section of this prospectus for additional information.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biopharmaceutical companies 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 resources, which could harm our business.

Our ability to use our net operating losses and research and development credits to offset future taxable income may be subject to certain limitations.

As of December 31, 2018, we had net operating loss carryforwards, or NOLs, of $91.3 million for federal income tax purposes and $79.6 million for state income tax purposes, which may be available to offset our future taxable income, if any, and begin to expire at various dates through 2037. As of December 31, 2018, we also had federal and state research and development credit carryforwards of $4.4 million, which begin to expire at various dates through 2033. In general, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, a corporation that undergoes an "ownership change," generally defined as a greater than 50% change by value in its equity ownership over a three-year period, is subject to limitations on its ability to utilize its pre-change NOLs and its research and development credit carryforwards to offset future taxable income. Our existing NOLs and research and development credit carryforwards may be subject to limitations arising from previous ownership changes, and if we undergo an ownership change in connection with or after this offering, our ability to utilize NOLs and research and development credit carryforwards could be further limited by Sections 382 and 383 of the Code. Future changes in our stock ownership, some of which might be beyond our control, could result in an ownership change under Section 382 of the Code. For these reasons, in the event we experience a change of control, we may not be able to utilize a material portion of the NOLs or research and development credit carryforwards even if we attain profitability.

The impact of the Tax Cuts and Jobs Act on our financial results is not entirely clear and could differ materially from the financial statements provided herein.

On December 22, 2017, the United States enacted the Tax Cuts and Jobs Act, or TCJA, that significantly reformed the Code. The TCJA, among other things, contained significant changes to corporate 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; limitation of the deduction for NOLs and elimination of NOL carrybacks, in each case, for losses arising in taxable years beginning after December 31, 2017 (though any such tax losses may be carried forward indefinitely); and modifying or repealing many business deductions and credits. The financial statements contained herein reflect the effects of the TCJA based on current guidance.

However, there remain uncertainties and ambiguities in the application of certain provisions of the TCJA, and, as a result, we made certain judgments and assumptions in the interpretation thereof. The U.S. Treasury Department and the Internal Revenue Service may issue further guidance on how the provisions of the TCJA will be applied or otherwise administered that differs from our current interpretation. In addition, the TCJA could be subject to potential amendments and technical corrections, any of which could materially lessen or increase certain adverse impacts of the legislation on us.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. All statements other than statements of historical facts contained in this prospectus are forward-looking statements, including but not limited to statements regarding:

- our plans to develop and commercialize our product candidates;
- the timing of our ongoing or planned clinical trials for LYR-210, LYR-220 and any future product candidates;
- the timing of and our ability to obtain and maintain regulatory approvals for LYR-210, LYR-220 and any future product candidates;
- the clinical utility of our product candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our expectations about the willingness of healthcare professionals to use LYR-210, LYR-220 and any future product candidates;
- our intellectual property position;
- our expected use of proceeds from this offering;
- our competitive position and the development or and projections relating to our competitors or our industry;
- our ability to identify, recruit and retain key personnel;
- the impact of laws and regulations;
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act;
- our plans to identify additional product candidates with significant commercial potential that are consistent with our commercial objectives;
- research and development cost;
- our estimates and statements regarding our future revenue, future results of operations and financial position;
- our business strategy;
- our research and development costs;
- our plans and objectives of management for future operations; and
- the plans and objectives of management.

These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “contemplate,” “believe,” “estimate,” “predict,” “potential,” “would” or “continue” or the negative of these terms or other similar expressions, although not all forward-looking statements contain these words. The forward-looking statements in this prospectus are only predictions and are based largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of known and unknown risks, uncertainties and assumptions, including those described under the sections in this prospectus entitled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and elsewhere in this prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. The forward-looking statements contained in this prospectus are excluded from the safe harbor protection provided by the Private Securities Litigation Reform Act of 1995 and Section 27A of the Securities Act of 1933, as amended.

MARKET AND INDUSTRY DATA

We obtained the industry, market and competitive position data in this prospectus from our own internal estimates and research as well as from industry and general publications and research, surveys and studies conducted by third parties. Industry publications, studies and surveys generally state that they have been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe that each of these studies and publications is reliable, we have not independently verified market and industry data from third-party sources. Management's estimates are derived from publicly available information, their knowledge of our industry and their assumptions based on such information and knowledge, which we believe to be reasonable. While we believe our internal company research as to such matters is reliable and the market definitions are appropriate, neither such research nor these definitions have been verified by any independent source. This data involves a number of assumptions and limitations which are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in "Risk Factors." These and other factors could cause our future performance to differ materially from our assumptions and estimates.

USE OF PROCEEDS

We estimate that the net proceeds to us from our issuance and sale of shares of our common stock in this offering will be approximately $ million, assuming an 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 after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters' option to purchase additional shares from us is exercised in full, we estimate that our net proceeds will be approximately $ million.

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (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 the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase (decrease) of 1.0 million in the number of shares we are offering would increase (decrease) the net proceeds to us from this offering, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, by $ million, assuming the assumed initial public offering price stays the same.

We anticipate that we will use the net proceeds of this offering, together with our existing cash and cash equivalents, for the following purposes:

- approximately $ million to $ million to fund the clinical development and pre-commercialization expenses for LYR-210 through ;
- approximately $ million to $ million to fund the development of LYR-220 through ; and
- the remainder, if any, for platform development and other research and development expenses for our pipeline, and for working capital and other general corporate purposes.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. We may also use a portion of the net proceeds to in-license, acquire, or invest in additional businesses, technologies, products or assets, although currently we have no specific agreements, commitments or understandings in this regard. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the closing of this offering or the amounts that we will actually spend on the uses set forth above. Predicting the cost necessary to develop product candidates can be difficult and we anticipate that we will need additional funds to complete the development of any product candidates we identify. The amounts and timing of our actual expenditures and the extent of clinical development may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from pre-clinical studies and any ongoing clinical trials or clinical trials we may commence in the future, as well as any collaborations that we may enter into with third parties for our product candidates 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 planned use of the net proceeds of this offering and our current cash and cash equivalents, we estimate that such funds will be sufficient to enable us to fund our operating expenses and capital expenditure requirements through . We have based this estimate on assumptions that may prove to be incorrect, and we could use our available capital resources sooner than we currently expect. We may satisfy our future cash needs through the sale of equity securities, debt financings, working capital lines of credit, corporate collaborations or license agreements, grant funding, interest income earned on invested cash balances or a combination of one or more of these sources.

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term and intermediate-term, investment-grade, interest-bearing instruments and U.S. government securities.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and future earnings, if any, for the operation and expansion of our business and do not anticipate declaring or paying any dividends in the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors after considering our financial condition, results of operations, capital requirements, contractual requirements, business prospects and other factors the board of directors deems relevant, and subject to the restrictions contained in any future financing instruments.

CAPITALIZATION

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

- on an actual basis;
- on a pro forma basis to reflect (1) the automatic conversion of all outstanding shares of our preferred stock into shares of common stock upon the closing of this offering and (2) the filing and effectiveness of our restated certificate of incorporation which will occur upon the closing of this offering; and
- on a pro forma as adjusted basis to give further effect to our issuance and 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 the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

Our capitalization following the closing of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read this information in conjunction with our consolidated financial statements and the related notes appearing at the end of this prospectus and the "Use of Proceeds," "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections and other financial information contained in this prospectus.

	As of December 31, 2019 (in thousands, except share data)		
	Actual	Pro Forma	Pro Forma As Adjusted(1)
Cash and cash equivalents	$	$	$
Redeemable convertible preferred stock (Series A-1, Series A-2, Series A-3, Series A-4 and Series B), par value $0.001 per share; shares authorized, shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$	$	$
Stockholders' (deficit) equity			
Preferred stock, $0.001 par value; no shares authorized, issued or outstanding, actual; shares authorized and no shares issued or outstanding, pro forma and pro forma as adjusted			
Common stock, par value $0.001 per share; shares authorized, shares issued and outstanding, actual; shares authorized, pro forma and pro forma as adjusted; shares issued and outstanding, pro forma; shares issued and outstanding, pro forma as adjusted			
Additional paid in capital			
Accumulated deficit			
Total stockholders' (deficit) equity			
Total capitalization	$	$	$

(1) Each $1.00 increase (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 (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, additional paid in capital, total stockholders' equity and total capitalization by $ 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 and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us at the assumed initial public offering price per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, additional paid in capital, total stockholders' equity and total capitalization by approximately $ million.

The number of shares in the table above does not include:

- shares of common stock issuable upon the exercise of stock options outstanding, pursuant to our 2016 Plan, as of December 31, 2019, at a weighted-average exercise price of $ per share;
- shares of common stock issuable upon the exercise of stock options outstanding, pursuant to our 2005 Plan, as of December 31, 2019, at a weighted-average exercise price of $ per share;
- shares of common stock issuable upon the exercise of stock options granted after December 31, 2019 pursuant to our 2016 Plan;
- shares of our common stock reserved for future issuance under our 2020 Plan, which will become effective in connection with this offering, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under our 2020 Plan; and
- shares of our common stock that will become available for future issuance under our 2020 ESPP, which will become effective in connection with this offering, and shares of our common stock that become available pursuant to provisions in our 2020 ESPP that automatically increase the share reserve under our 2020 ESPP.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately 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 after this offering.

As of December 31, 2019, we had a historical net tangible book value of $ million, or $ per share of common stock. Our historical net tangible book value per share represents total tangible assets less total liabilities, divided by the number of shares of our 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. Pro forma net tangible book value represents the amount of our total tangible assets less total liabilities, after giving effect to the automatic conversion of all shares of our preferred stock outstanding as of December 31, 2019 into an aggregate of shares of our common stock in connection with this offering. Pro forma net tangible book value per share represents our pro forma net tangible book value divided by the total number of shares outstanding as of December 31, 2019, after giving effect to the pro forma adjustment described above.

After giving further effect to receipt of the net proceeds from our issuance and 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, and after deducting the 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 would have been approximately $ million, or approximately $ per share. This amount represents an immediate increase in pro forma net tangible book value of $ per share to our existing stockholders and an immediate dilution of approximately $ per share to new investors participating in this offering. We determine dilution by subtracting the pro forma as adjusted net tangible book value per share after this offering from the amount of cash that a new investor paid for a share of common stock. The following table illustrates this dilution:

Assumed initial public offering price per share		$
Historical net tangible book value per share as of December 31, 2019	$	
Increase (decrease) per share attributable to the conversion of our preferred stock		
Pro forma net tangible book value (deficit) per share as of December 31, 2019		
Increase per share attributable to this offering		
Pro forma as adjusted net tangible book value per share after this offering		$
Dilution per share to new investors in this offering		$

Each $1.00 increase (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 (decrease) the pro forma as adjusted net tangible book value per share after this offering by $ million, and dilution in pro forma net tangible book value per share to new investors by $, 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 and estimated offering expenses payable by us. Each increase (decrease) of 1.0 million shares in the number of shares offered by us would increase (decrease) our pro forma as adjusted net tangible book value per share after this offering by $ per share and decrease (increase) the dilution to new investors by $ per share, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us.

If the underwriters exercise their option to purchase additional shares of our common stock in full, the pro forma as adjusted net tangible book value after this offering would be $ per share, the increase in

pro forma net tangible book value per share would be $ and the dilution per share to new investors would be $ per share, in each case assuming an 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 after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us.

The following table summarizes on the pro forma as adjusted basis described above, as of December 31, 2019, the differences between the number of shares purchased from us, the total consideration paid to us in cash and the average price per share that existing stockholders and new investors paid. The calculation below is 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, before deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors					
Total		100.0%		100.0%	$

A $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 new investors by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same. An increase or decrease of 1.0 million shares 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 new investors by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by % and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming no change in the assumed initial public offering price.

The foregoing tables and calculations are based on the number of shares of our common stock outstanding as of December 31, 2019, after giving effect to the automatic conversion of all outstanding shares of our preferred stock into common stock in connection with this offering, and exclude:

- shares of common stock issuable upon exercise of stock options outstanding under our 2016 Plan as of December 31, 2019, at a weighted-average exercise price of $ per share;
- shares of common stock issuable upon exercise of stock options outstanding under our 2005 Plan as of December 31, 2019, at a weighted-average exercise price of $ per share;
- shares of common stock issuable upon the exercise of stock options granted after December 31, 2019 pursuant to our 2016 Plan;
- shares of our common stock reserved for future issuance under our 2020 Plan, which will become effective in connection with this offering, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under our 2020 Plan; and
- shares of our common stock that will become available for future issuance under our 2020 ESPP, which will become effective in connection with this offering, and shares of our common stock that become available pursuant to provisions in our 2020 ESPP that automatically increase the share reserve under our 2020 ESPP.

To the extent any of these outstanding options is exercised, there will be further dilution to new investors. If all of such outstanding options had been exercised as of December 31, 2019, the pro forma as adjusted net tangible book value per share after this offering would be $, and total dilution per share to new investors would be $.

If the underwriters exercise their option to purchase additional shares of our common stock in full:

- the percentage of shares of common stock held by existing stockholders will decrease to approximately % of the total number of shares of our common stock outstanding after this offering; and
- the number of shares held by new investors will increase to , or approximately % of the total number of shares of our common stock outstanding after this offering.

SELECTED CONSOLIDATED FINANCIAL DATA

You should read the following selected consolidated financial data together with our consolidated financial statements and the related notes appearing at the end of this prospectus and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus. We have derived the consolidated statement of operations data for the years ended December 31, 2018 and 2019 and the consolidated balance sheet data as of December 31, 2018 and 2019 from our audited consolidated financial statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of results that may be expected in any future period.

	Years Ended December 31,	
	2018	2019
	(in thousands, except share and per share data)	
Consolidated Statement of Operations Data:		
Grant revenues	$ 1,244	$
Operating expenses:		
Research and development	4,975	
General and administrative	3,528	
Total operating expenses	8,503	
Loss from operations	(7,259)	
Other income:		
Interest income (expense), net	36	
Other income, net	10	
Change in fair value of tranche liability	1,184	
Total other income, net	1,230	
Net loss	$ (6,029)	$
Net loss per share attributable to common stockholders—basic and diluted(1)	$ (1.07)	$
Weighted-average common shares outstanding—basic and diluted(1)	5,728,033	
Pro forma net loss per share attributable to common stockholders—basic and diluted (unaudited)(1)		$
Pro forma weighted-average common shares outstanding—basic and diluted (unaudited)(1)		

(1) See Note 2 to our consolidated financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma basic and diluted net loss per common share and the weighted average number of shares used in the computation of the per share amounts.

	As of December 31,	
	2018	2019
	(in thousands)	
Consolidated Balance Sheet Data:		
Cash and cash equivalents	$ 23,888	$
Working capital(1)	22,967	
Total assets	25,359	
Total redeemable convertible preferred stock	130,353	
Total stockholders' deficit	(107,074)	

(1) We define working capital as current assets less current liabilities. See our consolidated financial statements for further details regarding our current assets and 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 the "Selected Consolidated Financial Data" section of this prospectus 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 the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical-stage therapeutics company focused on the development and commercialization of novel integrated drug and delivery solutions for the localized treatment of patients with ear, nose and throat diseases. Our proprietary technology platform, XTreo, is designed to precisely and consistently deliver medicines directly to the affected tissue for sustained periods with a single administration. Our initial product candidates, LYR-210 and LYR-220, are bioresorbable polymeric matrices designed to be administered in a brief, non-invasive, in-office procedure and intended to deliver up to six months of continuous drug therapy to the sinonasal passages for the treatment of chronic rhinosinusitis, or CRS. The therapeutic embedded within LYR-210 and LYR-220 is mometasone furoate, which is the active ingredient in various U.S. Food and Drug Administration, or FDA, approved drugs and has a well-established efficacy and safety profile. CRS is an inflammatory disease of the paranasal sinuses which leads to debilitating symptoms and significant morbidities and affects approximately 13 million people in the United States. We are advancing LYR-210 as a preferred alternative to surgery in an ongoing Phase 2 clinical trial for CRS patients who have failed medical management. In our Phase 1 clinical trial, LYR-210 met its primary safety endpoint, and we observed that patients generally experienced significant and rapid, clinically meaningful and durable improvement in SNOT-22 scores, an established patient symptom severity scale, through week 25, which was the end of the trial. We are also developing LYR-220 for use in CRS patients who have an enlarged nasal cavity due to sinus surgery but continue to require treatment to manage CRS symptoms. Beyond CRS, we believe our XTreo platform has potential applications in other disease areas, which we are actively exploring to further broaden its therapeutic potential.

We were incorporated as a Delaware corporation on November 21, 2005, and our headquarters is located in Watertown, Massachusetts. On July 16, 2018, we formally changed our name to Lyra Therapeutics, Inc. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, developing our technology, building our intellectual property portfolio and conducting research and development activities for our product candidates. We do not have any products approved for sale and have not generated any revenue from product sales. To date, we have funded our operations primarily through private placements of redeemable convertible preferred stock and funding from government contracts. From inception through December 31, 2019, we have raised an aggregate of $ million to fund our operations, of which $ million were gross proceeds from sales of our redeemable convertible preferred stock, $ million were gross proceeds from the issuance of common stock and $ million were gross proceeds from government contracts.

We have incurred significant net operating losses in every year since our inception and expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. Our net losses may fluctuate significantly from quarter to quarter and year to year and could be substantial. Our net losses were $6.0 million and $ for the years ended December 31, 2018 and 2019, respectively. As of December 31, 2019, we had an accumulated deficit of $. We anticipate that our expenses will increase significantly as we:

- conduct additional clinical trials of our most advanced product candidate, LYR-210, including the Phase 2 trial which commenced in May 2019 and one or more planned pivotal Phase 3 clinical trials of LYR-210;
- advance the development of LYR-220;
- continue to discover and develop additional product candidates;
- establish manufacturing and supply chain capacity sufficient to provide commercial quantities of any product candidates for which we may obtain marketing approval;
- seek regulatory and marketing approvals for product candidates that successfully complete clinical trials, if any;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain regulatory approval in geographies in which we plan to commercialize our products ourselves;
- maintain, expand and protect our intellectual property portfolio;
- hire additional staff, including clinical, scientific, technical, regulatory, operational, financial commercial and support personnel, to execute our business plan; and
- add clinical, scientific, operational, financial and management information systems and personnel to support our product development and potential future commercialization efforts, and to enable us to operate as a public company.

We do not expect to generate revenue from product sales unless and until we successfully complete clinical development and obtain regulatory approval for a product candidate. Additionally, we currently use contract research organizations, or CROs, to carry out our clinical development activities. We do not yet have a sales organization. If we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Furthermore, commencing upon the closing of this offering, we will incur additional costs associated with operating as a public company. As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to fund our operations through public or private equity or debt financings or other sources, including strategic collaborations. We may, however, be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. Our failure to raise capital or enter into such other arrangements as and when needed would have a negative impact on our financial condition and our ability to develop our current product candidates, or any additional product candidates, if developed.

Because of the numerous risks and uncertainties associated with therapeutics product development, we are unable to accurately predict the timing or amount of increased expenses or when or if we will be able to achieve or maintain profitability. Even if we are able to generate revenue from product sales, we may not become profitable. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce or terminate our operations.

As of December 31, 2019, we had cash and cash equivalents totaling $. We believe that the net proceeds from this offering, together with our existing cash and cash equivalents, will enable us to fund our operating expenses and capital expenditure requirements into . We have based these estimates on assumptions that may prove to be imprecise or incorrect, and we may use our available capital resources sooner than we currently expect. See "—Liquidity and Capital Resources." Because of the numerous risks and uncertainties associated with the development of our product candidates and any future product candidates, our platform and technology and because the extent to which we may enter into collaborations with third parties for development of any of our product candidates is unknown, we are unable to estimate the amounts of increased capital outlays and operating expenses associated with completing the research and development of our product candidates.

If we raise additional funds through collaborations, strategic alliances, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce, or terminate our product development programs or any future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

In its report on our financial statements for the year ended December 31, 2018, our independent registered public accounting firm included an explanatory paragraph stating that our recurring losses from operations since inception and required additional funding to finance our operations raise substantial doubt about our ability to continue as a going concern. See "Risk Factors—Risks Related to Our Financial Position and Need for Additional Capital—Our recurring losses from operations could continue to raise substantial doubt regarding our ability to continue as a going concern. Our ability to continue as a going concern requires that we obtain sufficient funding to finance our operations."

Financial Operations Overview

Revenue

To date, we have not generated any revenue from product sales and do not expect to generate any revenue from the sale of products in the foreseeable future. If our development efforts for our product candidates are successful and result in regulatory approval and successful commercialization efforts, we may generate revenue in the future from product sales. We cannot predict if, when, or to what extent we will generate revenue from the commercialization and sale of our product candidates. We may never succeed in obtaining regulatory approval for any of our product candidates.

To date, all of our revenue has been derived from government awards. In July 2016, we were awarded a grant from the National Institutes of Health, or NIH, titled "Novel Bioabsorbable, Flexible Polymeric Stent for Pulmonary Artery Stenosis," which we refer to as PED-PA. The amount awarded of approximately $1.0 million related to the award period of August 2016 through July 2019.

In September 2016, we received a fixed-fee award of approximately $0.4 million from NIH for the development leading to the commercialization of bioresorbable stents, or BRS, for the treatment of coarctation of the aorta in neonates, which we refer to as PED-CA. In November 2017, we were awarded an amendment to this contract which increased the amount by approximately $3.0 million. We recognized revenue under the government awards as we incurred qualifying expenses. During the year ended December 31, 2018, we recognized approximately $1.2 million of revenue under the NIH awards. In 2019, we focused our efforts on the development of LYR-210 and our other product development efforts and are no longer conducting research under the NIH awards and as a result do not expect any future revenue from government awards.

Operating Expenses

Our operating expenses since inception have consisted solely of research and development costs and general and administrative costs.

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for our research activities, including the development of and pursuit of regulatory approval of our most advanced product candidate, LYR-210, for the treatment of CRS, which include:

- employee-related expenses, including salaries, benefits and stock-based compensation expense for personnel engaged in research and development functions;
- expenses incurred in connection with the preclinical and clinical development of our product candidates, including under agreements with CROs, investigative sites and consultants;
- costs of manufacturing our product candidates for use in our preclinical studies and clinical trials as well as manufacturers that provide components of our product candidates for use in our preclinical and potential future clinical trials;
- consulting and professional fees related to research and development activities;
- costs related to compliance with clinical regulatory requirements; and
- facility costs and other allocated expenses, which include expenses for rent and maintenance of our facility, utilities, depreciation and other supplies.

We expense research and development costs as incurred. We recognize costs for certain development activities, such as clinical trials, based on an evaluation of the progress to completion of specific tasks using data such as clinical site activations, patient enrollment, or information provided to us by our vendors and our clinical investigative sites. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of costs incurred, and may be reflected in our consolidated financial statements as prepaid or accrued research and development expenses.

Our external research and development expenses consist primarily of costs such as fees paid to consultants, contractors and CROs in connection with our preclinical and clinical development activities. We typically use our employee and infrastructure resources across our development programs and we do not allocate personnel costs and other internal costs to specific product candidates or development programs with the exception of the costs to manufacture our product candidates.

Research and development activities are central to our business model. Product candidates in later stages of clinical development 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. We expect that our research and development expenses will continue to increase for the foreseeable future as we initiate additional clinical trials, including one or more clinical trials for LYR-210 and LYR-220, scale our manufacturing processes, continue to discover and develop additional product candidates and hire additional clinical and scientific personnel.

The successful development of LYR-210, LYR-220 and other potential future product candidates is highly uncertain. Accordingly, at this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the development of these product candidates. We are also unable

to predict when, if ever, we will generate revenue and material net cash inflows from the commercialization and sale of any of our product candidates for which we may obtain marketing approval. We may never succeed in achieving regulatory approval for any of our product candidates. The duration, costs and timing of preclinical studies, clinical trials and development of our product candidates will depend on a variety of factors, including:

- successful completion of clinical trials with safety, tolerability and efficacy profiles for LYR-210, LYR-220 and any potential future product candidates that are satisfactory to the FDA or any comparable foreign regulatory authority;
- approval of INDs for LYR-210, LYR-220 and any potential future product candidate to commence planned or future clinical trials in the United States or foreign countries;
- significant and changing government regulation and regulatory guidance;
- timing and receipt of marketing approvals from applicable regulatory authorities;
- establishing arrangements with contract manufacturing organizations, or CMOs, for third-party clinical and commercial manufacturing to obtain sufficient supply of our product candidates;
- obtaining and maintaining patent and other intellectual property protection and regulatory exclusivity for our product candidates;
- commercializing the product candidates, if and when approved, whether alone or in collaboration with others;
- acceptance of the product, if and when approved, by patients, the medical community and third-party payors;
- competition with other therapies; and
- maintenance of a continued acceptable safety profile of the products following approval.

A change in the outcome of any of these variables with respect to the development, manufacture or commercialization enabling activities of any of our product candidates would significantly change the costs, timing and viability associated with the development of that product candidate. For example, if the FDA or another regulatory authority were to require us to conduct clinical trials beyond those that we anticipate will be required for the completion of clinical development of a product candidate, or if we experience significant delays in our clinical trials due to patient enrollment or other reasons, we would be required to expend significant additional financial resources and time on the completion of clinical development.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and other related costs, including stock-based compensation, for personnel in executive, finance and administrative functions. General and administrative expenses also include direct and allocated facility-related costs as well as professional fees for legal, patent, consulting, investor and public relations, accounting, auditing, tax services and insurance costs.

We expect that our general and administrative expenses will increase in the future to support continued research and development activities and potential commercialization of our product candidates. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, attorneys and accountants, among other expenses. Additionally, we expect to incur increased expenses associated with being a public company, including costs of additional personnel, accounting, audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and Securities and Exchange Commission, or SEC, requirements, director and officer insurance costs, and investor and public relations costs.

Interest Income (Expense), Net

Interest income (expense), net, primarily consists of non-cash interest expense incurred on our convertible notes, non-cash accretion of the fair value of the conversion feature related to our convertible notes, and interest income earned on our cash and cash equivalents.

Change in Fair Value of Tranche Liability

Change in fair value of tranche liability consists of non-cash changes in the fair value of the tranche rights associated with our Series B redeemable convertible preferred stock which provided investors with the right to participate in a subsequent offering of Series B redeemable convertible preferred stock in the event specified development milestone was achieved. We classified the tranche rights as a derivative liability on our consolidated balance sheet that was initially recorded at fair value and that we remeasured to fair value at each reporting date, and we recognized changes in the fair value of the derivative associated with the tranche rights as a component of other income in our consolidated statement of operations and comprehensive loss. The tranche liability was valued using the Black-Scholes option pricing model, which considered as inputs (a) the expected stock price volatility of the underlying common stock, (b) the expected term of the tranche right, (c) the risk-free interest rate and (d) expected dividends. The tranche rights were settled in 2018.

Critical Accounting Policies and Use of Estimates

Our 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 accounting principles generally accepted in the United States, or GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses and the disclosure of contingent assets and liabilities in our consolidated financial statements during the reporting periods. These items are monitored and analyzed by us for changes in facts and circumstances, and material changes in these estimates could occur in the future. We base our estimates on historical experience, known trends and events, and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Changes in estimates are reflected in reported results for the period in which they become known. Actual results may differ materially from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in the notes to our consolidated financial statements appearing elsewhere in this prospectus, we believe the following accounting policies used in the preparation of our consolidated financial statements require the most significant judgments and estimates.

Government Contracts and Revenue Recognition

Since 2010, we have been able to obtain partial funding for our research and development activities from government contracts. The classification within our statement of operations and comprehensive loss of the funding received under the government contracts is subject to management judgment based on the nature of the arrangements we enter into, the source of the funding and whether the funding is considered central to our business operations.

In applying the provisions of ASC Topic 606, or Topic 606, we have determined that government grants are a nonexchange transaction and outside the scope of Topic 606 because the government entities do not meet the definition of a "customer", as defined by Topic 606, as there is not considered to be a transfer of control of goods or services to the government entities funding the grant. We have accounted for grants received to perform research and development services in accordance with ASC 730-20, *Research and Development Arrangements*, which requires an assessment, at the inception of the grant, of whether the grant is a liability or a contract to

perform research and development services for others. If we are obligated to repay the grant funds to the grantor regardless of the outcome of the research and development activities, then we are required to estimate and recognize that liability. Alternatively, if we or a subsidiary receiving the grant are not required to repay, or if we are required to repay the grant funds only if the research and development activities are successful, then the grant agreement is accounted for as a contract to perform research and development services for others, in which case, grant revenue is recognized when the related research and development expenses are incurred.

We generated revenue from government contracts that reimbursed us for certain allowable costs for funded projects. For contracts with government agencies, when we have concluded that we are the principal in conducting the research and development activities and where the funding arrangement was considered central to our ongoing operations, we classified the recognized funding received as revenue.

We have concluded to recognize funding received from the NIH as revenue, rather than as a reduction of research and development expenses, because we were the principal in conducting the research and development activities and these contracts were central to our operations. Revenue was recognized as the qualifying expenses related to the contracts were incurred. Revenue recognition commenced only once persuasive evidence of a contract existed, services had been rendered, the reimbursement amounts under the contract were fixed or determinable, and collectability was reasonably assured. Revenue recognized upon incurring qualifying expenses in advance of receipt of funding was recorded in our consolidated balance sheet as grants receivable. The related costs incurred by us were included in research and development expenses in our consolidated statements of operations and comprehensive loss.

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. This process involves reviewing purchase orders and open contracts, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the services when we have not yet been invoiced or otherwise notified of the actual cost. The majority of our service providers invoice us monthly in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advance payments. We make estimates of our accrued expenses as of each balance sheet date in our consolidated financial statements based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and make adjustments if necessary. The significant estimates in our accrued research and development expenses include the following costs incurred for services in connection with research and development activities for which we have not yet been invoiced:

- vendors in connection with the preclinical development activities;
- vendors in connection with the testing of preclinical and clinical trial materials;
- CROs in connection with preclinical and clinical studies; and
- investigative sites in connection with clinical trials.

We contract with CROs to conduct clinical and other research and development services on our behalf. We base our expenses related to CROs on our estimates of the services received and efforts expended pursuant to quotes and contracts with them. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our CROs will exceed the level of services provided and result in a prepayment of the research and development 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 our estimate, we adjust the accrual or amount of prepaid expense accordingly. Non-refundable

advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period. To date, there have not been any material adjustments to our prior estimates of accrued research and development expenses.

Stock-Based Compensation

We apply the fair value recognition provisions of ASC 718, *Compensation—Stock Compensation*, or ASC 718, for stock-based awards granted to employees and directors for their services on the board of directors. Determining the amount of stock-based compensation to be recorded requires us to develop estimates of the fair value of stock options as of their grant date. We estimate the fair value of each stock option grant using the Black-Scholes option-pricing model. Calculating the fair value of stock-based awards requires that we make subjective assumptions.

Pursuant to ASC 718, we measure stock-based awards granted to employees and members of the board of directors at fair value on the date of grant and recognize the corresponding stock-based compensation expense of those awards on a straight-line basis over the requisite service period, which is generally the vesting period of the respective award. We have historically granted stock options with exercise prices equivalent to the fair value of our common stock as of the date of grant.

We account for stock-based awards to non-employees in accordance with ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*, or ASU No. 2018-07, which permits the valuation of stock-based awards granted to non-employees to be measured at fair value at the grant date rather than on an accelerated attribution basis over the vesting period and recognizes non-employee stock-based compensation expense over the related service period of the non-employee award. Prior to January 1, 2019, we accounted for stock-based payments to non-employees in accordance with ASC 505-50, *Equity-Based Payments to Non-Employees*, or ASC 505-50. Pursuant to ASC 505-50, we measured stock-based awards granted to non-employees at fair value as the awards vest and recognize the resulting value as expense during the period the related services are rendered, which is typically the vesting period. At the end of each financial reporting period prior to completion of the service, we re-measured the unvested portion of these awards using the then-current fair value of our common stock and updated assumption inputs in the Black-Scholes option-pricing model.

The Black-Scholes option-pricing model uses the following inputs: the fair value of our common stock, the expected volatility of our common stock, the expected term of our stock options, the risk-free interest rate for a period that approximates the expected term of our stock options and our expected dividend yield. Due to the lack of a public market for our common stock and a lack of company-specific historical and implied volatility data, we have based our computation of expected volatility on the historical volatility of a representative group of public companies with similar characteristics to us, including stage of product development, life science industry focus, length of trading history and similar vesting provisions. The historical volatility data is calculated based on a period of time commensurate with the expected term assumption. We will continue to apply this process until a sufficient amount of historical information regarding the volatility of our own stock price becomes available or until circumstances change, such that the identified entities are no longer representative companies. In the latter case, more suitable, similar entities whose share prices are publicly available would be utilized in the calculation. We use the simplified method as prescribed by the SEC Staff Accounting Bulletin No. 107, *Share-Based Payment*, to calculate the expected term for options granted to employees as we do not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. Under this approach, the

weighted-average expected option term is presumed to be the average of the contractual term (ten years) and the vesting term (generally four years) of our stock options. We utilize this method due to lack of historical exercise data and the "plain-vanilla" nature of our stock-based awards. The expected term is applied to the stock option grant group as a whole, as we do not expect substantially different exercise or post-vesting termination behavior among our employee population. For options granted to non-employees, we utilize the contractual term of the arrangement as the basis for the expected term assumption. The risk-free interest rate is based on a treasury instrument whose term is consistent with the expected term of the stock options. The expected dividend yield is assumed to be zero as we have never paid cash dividends and have no current plans to pay any cash dividends on our common stock.

The fair value of stock options granted to employees and directors was estimated on the date of grant using the Black-Scholes option-pricing model, with the following range of assumptions for the years ended December 31, 2018 and 2019:

	Years Ended December 31,	
	2018	2019
Risk-free interest rate	3.1%	
Expected dividend yield	—%	
Expected term (in years)	6.1	
Expected volatility	80.7%	

These assumptions represented our best estimates, but the estimates involve inherent uncertainties and the application of our judgment. As a result, if factors change and we use significantly different assumptions or estimates, our stock-based compensation expense could be materially different.

The following table presents the grant dates, number of underlying shares of common stock and the per share exercise prices of stock options granted between January 1, 2018 and the date of this prospectus, along with the fair value per share utilized to calculate stock-based compensation expense:

Grant Date	Type of Award	Number of Common Shares	Exercise Price of Award per Share(1)	Fair Value of Common Stock per Share on Grant Date	Per Share Estimated Fair Value of Award(2)(3)
November 5, 2018	Option	1,980,500	$ 0.08	$ 0.08	$ 0.06
March 6, 2019	Option	6,315,361	$ 0.08	$ 0.08	$ 0.05
June 20, 2019	Option	1,170,000	$ 0.13	$ 0.13	$ 0.09
September 24, 2019	Option	3,225,761	$ 0.13	$ 0.13	$ 0.09

(1) The Exercise Price of Award per Share 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 valuations of our common stock as well as additional factors that may have changed since the date of such contemporaneous valuations through the date of grant.

(2) The Per Share Estimated Fair Value of Award reflects the fair value of options as estimated at the date of grant using the Black-Scholes option-pricing model.

(3) For the purposes of recording stock-based compensation for stock options granted to non-employees, upon adoption of ASU No. 2018-07 on January 1, 2019, we measure the fair value of the award at the grant date rather than on an accelerated attribution basis over the vesting period and recognize non-employee stock-based compensation expense over the related service period of the non-employee award. Prior to adoption of ASU No. 2018-07, we measured the fair value of the award on the service completion date (vesting date). At the end of each reporting period prior to completion of the services, we re-measured the value of any unvested portion of the award based on the then-current fair value of the award and adjusted expense accordingly.

Determination of Fair Value of Common Stock

As a private company with no active public market for our common stock, our board of directors has historically determined the fair value of our common stock on each date of grant, with input from management. Our board of directors periodically determined the estimated per share fair value of our common stock at various dates using contemporaneous valuations performed by third parties. Once a public trading market for our common stock has been established in connection with the completion of this offering, it will no longer be necessary for us to estimate the fair value of our common stock in connection with our accounting for stock options.

We performed contemporaneous valuations, with the assistance of a third-party specialist, as of September 30, 2018 and May 31, 2019, which resulted in valuations of our common stock of $0.08 and $0.13 per share, respectively. In conducting the valuations, we considered all objective and subjective factors that we believed to be relevant for each valuation conducted, including our best estimate of our business condition, prospects and operating performance at each valuation date. Within the valuations performed, a range of factors, assumptions and methodologies were used. The significant factors included:

- the lack of an active public market for our common stock and redeemable convertible preferred stock;
- the prices at which we sold shares of our redeemable convertible preferred stock in arm's length transactions and the superior rights, preferences and privileges of the convertible preferred stock relative to our common stock, including the liquidation preferences of our preferred stock;
- our results of operations and financial condition, including cash on hand;
- the material risks related to our business;
- our stage of development and business strategy;
- the composition of, and changes to, our management team and board of directors;
- the market performance of publicly traded companies in the life sciences and biotechnology sectors, as well as recently completed initial public offerings, or IPOs, of companies in the life sciences and biotechnology sectors; and
- the likelihood of achieving a liquidity event such as an IPO given prevailing market conditions.

Historically, the dates of our contemporaneous valuations have not coincided with the dates of our stock-based compensation grants. In determining the exercise prices of the stock options granted, our board of directors considered, among other things, the most recent contemporaneous valuations of our common stock and our assessment of additional objective and subjective factors we believed were relevant as of the grant date. The additional factors considered when determining any changes in fair value of our common stock between the most recent contemporaneous valuation and the grant dates included the status of our stage of research and development, our operating and financial performance and current business conditions.

There are significant judgments and estimates inherent in the determination of the fair value of our common stock. These judgments and estimates are management's best estimates and include assumptions regarding our future operating performance, the time to completing an initial public offering or other liquidity event, the related company valuations associated with such events and the determinations of the appropriate valuation methods. If we had made different assumptions, our stock-based compensation expense, net loss and net loss per common share could have been different.

Common Stock Valuation Methodologies

Our contemporaneous common stock valuations were prepared in accordance with the guidelines in the American Institute of Certified Public Accountants Practice Aid, V*aluation of Privately-Held Company Equity Securities Issued as Compensation*, which prescribes several valuation approaches for determining the value of an enterprise, such as the cost, market and income approaches, and various methodologies for allocating the value of an enterprise to its capital structure and specifically the common stock.

Our common stock valuation as of September 30, 2018 was prepared using an option pricing method, or OPM, framework and utilized a recent transactions market approach for inferring the equity value implied by our recently completed sales of Series B redeemable convertible preferred stock. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preference at the time of the liquidity event, such as a strategic sale or a merger. A discount to reflect a lack of marketability of 40% was then applied to arrive at a $0.08 per share valuation of our common stock.

Our common stock valuation as of May 31, 2019 was prepared using a hybrid method of two potential liquidity outcomes: a merger and acquisition scenario utilizing the Guideline Transaction approach and an IPO scenario utilizing the Direct Waterfall approach. The hybrid method is a probability-weighed expected return method, or PWERM, where the equity value in one or more scenarios is calculated using the OPM. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. For the May 31, 2019 valuation, we (i) assigned a 90% probability of occurrence to the merger and acquisition scenario, with a 30% weighted average cost of capital within this scenario, then reflected a calculated discount for lack of marketability of 34.5%; and (ii) we assigned a 10% probability of occurrence to the IPO scenario, with a 30% weighted average cost of capital and a 0.75-year estimated term to an IPO event, then reflected a calculated discount for lack of marketability of 15%.

Tranche Rights

Our sale of Series B redeemable convertible preferred stock provided our investors with the right to participate in a subsequent offering of Series B redeemable convertible preferred stock in the event specified development milestone was achieved. We classified the tranche rights as a derivative liability on our consolidated balance sheet because it met the definition of a freestanding financial instrument that could have required the Company to transfer assets upon exercise. We remeasured the derivative liability associated with the tranche right to fair value at each reporting date, and recognized changes in the fair value of the derivative liability as a component of other income (expense) in our consolidated statements of operations and comprehensive loss. The fair value of the derivative liability was determined using the Black-Scholes option pricing model, which considered as inputs (a) the expected stock price volatility of the underlying common stock, (b) the expected term of the tranche right, (c) the risk-free interest rate and (d) expected dividends.

Results of Operations

Comparison of the Years Ended December 31, 2018 and 2019

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

	Years Ended December 31,		Dollar Change
	2018	2019	
Grant revenues	$ 1,244	$	$
Operating expenses:			
Research and development	4,975		
General and administrative	3,528		
Total operating expenses	8,503		
Loss from operations	(7,259)		
Other income:			
Interest income (expense), net	36		
Other income, net	10		
Change in fair value of tranche liability	1,184		
Total other income, net	1,230		
Net loss	$ (6,029)	$	$

Revenue

Grant revenue decreased from $1.2 million for the year ended December 31, 2018 to $ for the year ended December 31, 2019. The decrease was a result of the conclusion of our activities related to the NIH awards.

Research and Development Expenses

Research and development expense increased by $ from $5.0 million for the year ended December 31, 2018 to $ for the year ended December 31, 2019.

The increase in research and development expense was primarily attributable to an increase in clinical development external costs of $ primarily as a result of Phase 2 clinical trial costs associated with LYR-210, an increase in chemistry, manufacturing and controls costs of $ primarily as a result of increased spending on LYR-210 as it entered Phase 2 clinical trials, and an increase in employee compensation and benefits of $ primarily as result of an increase in headcount and a decrease in charges to Arsenal Medical, Inc., or Arsenal, a company which shared certain common owners with us, for employee compensation and benefit costs related to our employees working on Arsenal-sponsored projects in accordance with the terms of the Transition Services Agreement between the two companies.

General and Administrative Expenses

General and administrative expense increased by $ from $3.5 million for the year ended December 31, 2018 to $ for the year ended December 31, 2019.

The increase in general and administrative expenses was primarily attributable to an increase in employee compensation and benefits of $ million for the year ended December 31, 2019, primarily due to an increase in headcount and related expenses; an increase in consulting and professional services of

$ for the year ended December 31, 2019, primarily as a result of increased consulting professional fees resulting from the growth in our general business operations; and an increase in other general and administrative expenses of $ million for the year ended December 31, 2019, primarily as a result of .

Interest Income (Expense), net

Interest income (expense), net consists of interest income earned on our cash and cash equivalents and non-cash interest expense incurred on our convertible notes payable. Interest income increased $ from $36,000 for the year ended December 31, 2018 to $ for the year ended December 31, 2019. The increase was attributable to the interest earned on higher average cash and cash equivalents balances during the year ended December 31, 2019 after the closing of the second tranche of our Series B redeemable convertible preferred stock financing in October 2018.

Change in Fair Value of Tranche Liability

Change in fair value of tranche liability consists of the change in fair value of the tranche rights related to the sale of our Series B redeemable convertible preferred stock. It decreased from $1.2 million for the year ended December 31, 2018 to none for the year ended December 31, 2019. The decrease was attributable to the change in fair value of the tranche rights which were settled in October 2018.

Liquidity and Capital Resources

Sources of Liquidity

We have funded our operations from inception through December 31, 2019 primarily through gross proceeds of $ million from sales of our redeemable convertible preferred stock and $ million from government contracts. The following table provides information regarding our total cash and cash equivalents at December 31, 2018 and 2019 (in thousands):

	As of December 31,	
	2018	2019
Cash and cash equivalents	$ 23,888	$

Cash Flows

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

	Years Ended December 31,	
	2018	2019
Net cash used in operating activities	$ (6,640)	$
Net cash used in investing activities	(37)	
Net cash provided by financing activities	29,213	
Net increase in cash and cash equivalents	$ 22,536	$

Net Cash Used in Operating Activities

The cash used in operating activities resulted primarily from our net losses adjusted for non-cash charges and changes in components of working capital.

Net cash used in operating activities was $ for the year ended December 31, 2019 compared to $6.6 million for the year ended December 31, 2018. The increase in cash used in operating activities of $ was attributable to:

- $ million increase in net loss;
- $ million increase in non-cash charges as for the year ended December 31, 2018 $1.2 million of non-cash income was from the change in fair value of the tranche liability without corresponding non-cash income in the year ended December 31, 2019; and
- $ increase in changes in the components of working capital.

Net Cash Used in Investing Activities

Net cash used in investing activities was $ for the year ended December 31, 2019 compared to $37,000 for the year ended December 31, 2018. The increase in cash used for investing activities of $ was attributable a $ increase in purchases of property and equipment.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was $ for the year ended December 31, 2019 compared to $29.2 million for the year ended December 31, 2018. The in cash provided by financing activities of $ was attributable to:

- net proceeds of $28.7 million from the sale of our Series B redeemable convertible preferred stock and the $0.5 million of proceeds from the sale of our convertible notes payable during the year ended December 31, 2018;
- $ increase in proceeds from the exercise of common stock options in the year ended December 31, 2019 compared to the year ended December 31, 2018; and
- $ in payments for deferred financing costs in the year ended December 31, 2019.

Funding Requirements

We expect our expenses to increase in connection with our ongoing activities, particularly as we continue the research and development for, initiate later stage clinical trials for, 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 product sales, marketing, manufacturing 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 would be forced to delay, reduce or eliminate our research and development programs or future commercialization efforts.

We expect that the net proceeds from this offering, together with our existing cash and cash equivalents will enable us to fund our operating expenses and capital expenditure requirements into . We have based this estimate on assumptions that may prove to be wrong, and we may use our available capital resources sooner than we currently expect. Our future capital requirements will depend on many factors, including:

- the costs of conducting future clinical trials of LYR-210;
- the costs of manufacturing additional material for one or more pivotal Phase 3 clinical trials of LYR-210 and potential future clinical studies we might conduct for our other product candidates;

- the costs of scaling up our manufacturing process and supply chain capacity to provide sufficient quantities of LYR-210 for the potential commercialization of LYR-210 if our clinical development program is successful and we obtain marketing approval;
- the advancement of LYR-220;
- the scope, progress, results and costs of discovery, preclinical development, laboratory testing and clinical trials for other potential product candidates we may develop, if any;
- the costs, timing and outcome of regulatory review of our product candidates;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- the achievement of milestones or occurrence of other developments that trigger payments under any collaboration agreements we might have at such time;
- the costs and timing of future commercialization activities, including product sales, marketing, manufacturing and distribution, for any of our product candidates for which we receive marketing approval;
- the amount of revenue, if any, received from commercial sales of our product candidates, should any of our product candidates receive marketing approval;
- the costs of preparing, filing and prosecuting patent applications, obtaining, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- our headcount growth and associated costs as we expand our business operations and our research and development activities; and
- the costs of operating as a public company.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for many years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances and licensing arrangements. We do not have any committed external source of funds. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interests may be diluted, and the terms of these securities may include liquidation or other preferences that could adversely affect your rights as a common stockholder. Any debt financing, if available, may involve agreements that include restrictive covenants that limit our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends, that could adversely impact our ability to conduct our business.

If we raise funds through collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

In its report on our financial statements for the year ended December 31, 2018, our independent registered public accounting firm included an explanatory paragraph stating that our recurring losses from operations since inception and required additional funding to finance our operations raise substantial doubt about our ability to continue as a going concern. See "Risk Factors—Risks Related to Our Financial Position and Need for Additional Capital—Our recurring losses from operations could continue to raise substantial doubt regarding our ability to continue as a going concern. Our ability to continue as a going concern requires that we obtain sufficient funding to finance our operations."

Contractual Obligations

The following table summarizes our significant contractual obligations as of payment due date by period at December 31, 2019 (in thousands):

	Total	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years
Operating lease obligation(1)	$	$	$	$	$
Total	$	$	$	$	$

(1) Represents future minimum lease payments under our non-cancelable operating lease which expires April 2023. The minimum lease payments above do not include any related common area maintenance charges, operating expenses or real estate taxes.

We enter into agreements in the normal course of business with CROs for clinical trials, third party manufacturers for clinical supply manufacturing, professional consultants for expert advice and other vendors for other services for operating purposes. We have not included these payments in the table of contractual obligations above since the contracts do not contain any minimum purchase commitments and are cancelable at any time by us, generally upon 30 days prior written notice and therefore we believe that our non-cancelable obligations under these agreements are not material.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under applicable SEC rules.

Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risk related to changes in interest rates. As of December 31, 2018 and 2019, our cash equivalents consisted of interest-bearing checking accounts. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Due to the short-term nature and the low risk profile of our interest-bearing accounts, an immediate 10% change in interest rates would not have a material effect on the fair market value of our cash and cash equivalents or on our financial position or results of operations.

We are not currently exposed to significant market risk related to changes in foreign currency exchange rates; however, we have contracted with and may continue to contract with foreign vendors located in Europe, Australia and New Zealand. Our operations may be subject to fluctuations in foreign currency exchange rates in the future.

Inflation generally affects us by increasing our clinical trial costs. We do not believe that inflation had a material effect on our business, financial condition or results of operations during the years ended December 31, 2018 and 2019.

Emerging Growth Company Status

The Jumpstart Our Business Startups Act of 2012, or the JOBS Act, permits an "emerging growth company" such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies.

We are in the process of evaluating the benefits of relying on other exemptions and reduced reporting requirements under the JOBS Act. Subject to certain conditions, as an emerging growth company, or EGC, we intend to rely on certain of these exemptions, including exemptions from the requirement to provide an auditor's attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act and from any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, known as the auditor discussion and analysis.

BUSINESS

Overview

We are a clinical-stage therapeutics company focused on the development and commercialization of novel integrated drug and delivery solutions for the localized treatment of patients with ear, nose and throat, or ENT, diseases. Our proprietary technology platform, XTreo, is designed to precisely and consistently deliver medicines directly to the affected tissue for sustained periods with a single administration. Our initial product candidates, LYR-210 and LYR-220, are bioresorbable polymeric matrices designed to be administered in a brief, non-invasive, in-office procedure and intended to deliver up to six months of continuous drug therapy to the sinonasal passages for the treatment of chronic rhinosinusitis, or CRS. The therapeutic embedded within LYR-210 and LYR-220 is mometasone furoate, or MF, which is the active ingredient in various U.S. Food and Drug Administration, or FDA, approved drugs and has a well-established efficacy and safety profile. CRS is an inflammatory disease of the paranasal sinuses which leads to debilitating symptoms and significant morbidities and affects approximately 13 million people in the United States. We are advancing LYR-210 as a potential preferred alternative to surgery in an ongoing Phase 2 clinical trial for CRS patients who have failed medical management, and we expect to report topline data in . In our Phase 1 clinical trial, LYR-210 met its primary safety endpoint, and we observed that patients generally experienced significant and rapid, clinically meaningful and durable improvement on a patient symptom severity scale through week 25, which was the end of the trial. We are also developing LYR-220 for use in CRS patients who have an enlarged nasal cavity due to sinus surgery but continue to require treatment to manage CRS symptoms, and we intend to initiate a proof-of-concept clinical trial for LYR-220 in . Beyond CRS, we believe our XTreo platform has potential applications in other disease areas, which we are actively exploring to further broaden its therapeutic potential.

CRS has been described in the literature as an “unrecognized epidemic” due to its high prevalence, its substantial impact on patient quality of life and the significant limitations of currently available treatment options. We estimate that sinusitis, which includes both CRS and acute rhinosinusitis, impacts approximately 12% of the adult population in the United States, or approximately 30 million people, making it the fifth most common condition in people under the age of 65 and more prevalent than diabetes or heart disease. Of this population, we estimate that approximately 13 million people are affected with CRS. Moreover, we estimate that approximately 8 million people are treated for CRS by physicians annually, of which approximately 4 million fail medical management each year. In the United States, over $60 billion is spent annually in direct treatment costs for sinusitis, including approximately $5 billion on sinus surgeries.

We believe LYR-210 and LYR-220, if successfully developed and approved, will be able to treat the entire spectrum of CRS patients, including pre- and post-surgical patients and those with and without nasal polyps, with up to six months of treatment in a single administration. Our most advanced product candidate, LYR-210, is being evaluated in CRS patients who have failed medical management but have not undergone endoscopic sinus surgery, who we refer to as surgically-naïve CRS patients, in an ongoing randomized, sham procedure-controlled, patient-blinded, Phase 2 clinical trial. We initiated this trial in May 2019 and expect to report topline data in . In an open-label, multi-center Phase 1 clinical trial, we placed 40 LYR-210 matrices bilaterally in 20 patients at sites in New Zealand and Australia. LYR-210 met its primary safety endpoint in the Phase 1 trial, and we observed significant and rapid, clinically meaningful and durable improvement through week 25 in SinoNasal Outcome Test scores, or SNOT-22 scores, an established patient symptom severity scale. At week 24, improvement versus baseline was observed in 90% of patients, with similar activity observed across both polyps and non-polyps patients. Additionally, we intend to initiate a proof-of-concept clinical trial for LYR-220 in , and to submit a supplemental new drug application, or sNDA, to the FDA for a potentially faster path to approval of LYR-220 if a new drug application, or NDA, for LYR-210 is approved by the FDA.

Our XTreo Platform

XTreo, our innovative and proprietary drug delivery platform, is designed to locally and continuously deliver small molecule drugs to the affected tissue over a sustained period of time from a single administration. The platform is comprised of three interrelated technology components:

- a biocompatible mesh scaffold, which is designed to maximize surface area for drug release while maintaining underlying tissue function;
- an engineered elastomeric matrix, which means a polymeric matrix composed of polymers having elastic characteristics, which has advanced physical properties resulting in implants with "shape memory" that dynamically adapt to nasal anatomy; and
- a versatile polymer-drug complex, which can be customized for the treatment of various chronic diseases treatable with ENT delivery to achieve the desired drug dose and drug elution rate.

Chronic Rhinosinusitis: A Prevalent Disease with High Unmet Medical Needs

CRS is an inflammatory disease of the paranasal sinuses causing the soft, moist layer of mucus-producing tissue, or mucosa, that lines the sinuses to become swollen and inflamed, leading to significant patient morbidities. The inflammation may be caused by infections, allergies or environmental factors, as well as structural issues such as blockages of an ostium. Patients with CRS on average experience a lower quality of life index than people suffering from congestive heart failure, angina, chronic obstructive pulmonary disease or back pain.

CRS has two phenotypes: CRS with nasal polyps, which are teardrop-shaped benign masses arising from the mucosa lining, and CRS without nasal polyps. The non-polyp form of CRS represents approximately 70%-to-90% of CRS patients. We estimate that approximately 8 million people are treated for CRS by physicians annually, of which approximately 4 million fail medical management every year.

Current Treatments and Their Limitations

The goals of therapy for CRS are to reduce mucosal swelling resulting from underlying inflammation, promote sinus drainage, and eradicate infections that may be present. The treatment of CRS is progressive in nature and typically begins with medical management, primarily with topical intranasal steroids and oral steroids. If this treatment is unsuccessful, an ENT physician may perform a sinus surgery.

Figure 1. Current Primary Treatment Paradigm for CRS.

Currently, there are no FDA-approved drug therapies for CRS for non-polyp patients, although some drugs approved for nasal polyps are used off-label in this population.

Our Solution for CRS

LYR-210 is an anti-inflammatory implantable drug matrix based on our XTreo platform that is designed to consistently and locally elute MF to the inflamed mucosal tissue for up to six months in surgically-naïve CRS patients who fail medical management. MF, the active ingredient in various FDA-approved drugs, has a well-established efficacy and safety profile, which we believe will support the development process for LYR-210. LYR-210 is designed to enable sustained drug delivery at difficult-to-access nasal inflammation sites without the need for patient compliance, while avoiding the systemic side effects associated with oral steroids. LYR-210 is designed to be administered in a brief, non-invasive, in-office procedure by an ENT physician under endoscopic visualization via a single-use applicator.

LYR-210 is currently being studied in a Phase 2 randomized, sham procedure-controlled, patient-blinded clinical trial, evaluating the safety and efficacy in surgically-naïve CRS patients who have failed previous medical management. The trial was initiated in May 2019 at sites in New Zealand, Australia and Europe. We expect to report topline data from the Phase 2 clinical trial in .

LYR-210 was previously studied in an open-label, Phase 1 clinical trial with 20 patients in New Zealand and Australia, and achieved its primary endpoint of safety at week 4. In the Phase 1 trial, we also observed that patients generally experienced significant and rapid, clinically meaningful and durable improvement in SNOT-22 scores. Significant reduction in SNOT-22 was observed at week 1, and this reduction persisted through week 25, which was the end of the trial. The changes from baseline, or CFBL, in SNOT-22 score were statistically significant ($P < 0.01$) at all measured intervals. The average change from baseline in SNOT-22 score at week 1 was -13.0 points ($P=0.008$ to pre-treatment), achieving the minimal clinically significant difference of -8.9 points. Further, symptom relief as measured by SNOT-22 score was observed through the entire duration of the trial, achieving an average change from baseline of -20.5 points at week 24, the end of the treatment period ($P=0.00005$ to pre-treatment), and -20.0 points ($p < 0.0001$) at week 25, one week after the removal of LYR-210.

We are developing our second pipeline product candidate, LYR-220, for use in CRS patients who continue to require medical management despite having had sinus surgery. LYR-220 is also designed to utilize MF, but will employ an oversized matrix designed for patients whose nasal cavity is enlarged due to sinus surgery. LYR-220 is designed as a potential preferred alternative to revision sinus surgery and post-surgical medical management. We expect to initiate a proof-of-concept clinical trial for LYR-220 in .

We believe that the key potential benefits of our current investigational product portfolio, LYR-210 and LYR-220, include:

- **Clinical Activity**: We believe LYR-210 and LYR-220 have the potential to significantly improve symptoms by maintaining a steady, high dose of MF at the site of inflammation for up to six months with a single administration, without any dependence on patient compliance.

- **Patient Compliance**: Because drug delivery for LYR-210 and LYR-220 is designed to be sustained for up to six months with a single administration, the efficacy of LYR-210 and LYR-220 will not depend on patient compliance within the treatment period, unlike other CRS treatment options that require repeated daily administrations, such as topical intranasal steroids and oral steroids.

- **Patient Experience**: LYR-210 and LYR-220 are designed to be administered via a simple, in-office procedure every six months, which is intended to enhance convenience for patients, unlike the repeated daily medical management and/or time-consuming and painful surgery required by certain other CRS treatment options. Moreover, we believe patients may also benefit from the biocompatible, flexible structure of LYR-210 and LYR-220 that is designed to maximize comfort over the therapy period.

- **Physician Experience**: LYR-210 and LYR-220 are designed to enable physicians to perform the placement of LYR-210 and LYR-220 in-office in conjunction with an endoscopy procedure, thereby making the placement aligned with the existing care continuum for CRS patients and eliminating the need for physicians to schedule separate surgical time. Moreover, the elastomeric matrix encapsulates the underlying mesh fibers to facilitate removal.

- **Localized Delivery**: LYR-210 and LYR-220 are designed to benefit from our XTreo platform, which is intended to provide localized delivery to avoid systemic side effects that are common with certain other CRS treatment options, such as oral steroids.

- **Patient Applicability**: LYR-210 and LYR-220 are designed to treat the entire spectrum of CRS patients who have failed medical management, including pre- and post-surgical patients and those with and without polyps.

- **Pharmacoeconomic Impact**: LYR-210 and LYR-220 are designed as an alternative to surgery (initial or revision), and as such have the potential to provide significant savings to the healthcare industry by reducing the number and frequency of expensive surgical treatment options.

We believe LYR-210 and LYR-220, if approved, would be the only products able to deliver up to six months of continuous topical treatment in a single administration to treat the entire spectrum of CRS patients who fail medical management, including pre- and post-surgery patients and those with and without nasal polyps.

Intellectual Property and Barriers to Entry

We own all the material intellectual property rights related to our platform and product candidate portfolio. As of November 1, 2019, our product candidate portfolio is protected by 21 issued and 27 pending patents worldwide with claims directed to composition of matter, drug delivery and method of use, which, exclusive of possible patent term adjustments or extensions or other forms of exclusivity, are projected to expire between 2030 and 2037.

We also rely upon know-how, continuing technological innovation, and technical barriers to entry, including manufacturing and drug delivery complexities, to develop and maintain our competitive intellectual property position.

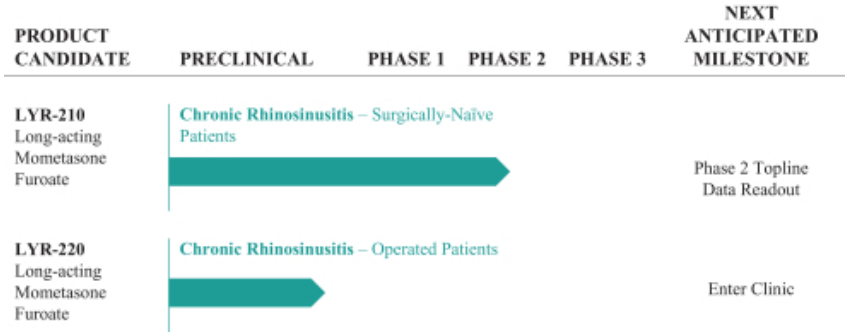
Management Team and Investors

Our management team has extensive drug development, manufacturing and commercialization experience across a broad spectrum of disease areas, for both drug and drug-device combination products, with a successful track record in large pharmaceutical, medical device and biotech companies. Additionally, our management team has been involved in the development of successfully approved and commercialized products such as Taxus (drug-eluting stent), Renagel Tablets, AvoneX, Arikayce and Pangematin.

Further, we are supported by a leading group of biotech investors including, among others, Arrowmark Partners, Intersouth Partners, North Bridge Venture Partners, Perceptive Advisors, Polaris Venture Partners, RA Capital and Soleus Capital.

Our Pipeline

The current status of our product candidates is summarized below.



Our Strategy

Our mission is to transform the ENT treatment paradigm by utilizing our proprietary drug delivery platform, XTreo, to develop safe and effective therapies for the treatment of debilitating diseases treatable with ENT delivery. We intend to achieve this through the following strategies:

- **Complete the development and secure FDA approval of LYR-210 for the treatment of CRS.** We believe LYR-210, if approved, is well positioned in the CRS treatment paradigm to provide a preferred alternative to surgery. LYR-210, which is currently in an ongoing randomized, sham procedure-controlled, patient-blinded Phase 2 clinical trial, utilizes MF, the active ingredient in various FDA-approved drugs. We expect to report topline data from the Phase 2 trial of LYR-210 in . Our goal is to advance LYR-210 through Phase 2 and into one or more pivotal Phase 3 clinical trials, followed by potential marketing approval through a 505(b)(2) NDA submitted to the FDA.

- **Advance our second product candidate, LYR-220, into the clinic to provide a comprehensive solution for CRS patients who have failed medical management and surgery.** We are developing a larger version of LYR-210 designed for use in the enlarged nasal cavity of CRS patients who have had sinus surgery. We believe LYR-220, if successfully developed and approved, is well positioned to provide a preferred alternative to revision surgery and post-surgical medical management. LYR-220 is currently in product feasibility studies. We plan to advance LYR-220 into a proof-of-concept clinical trial in and intend to seek approval through the sNDA pathway if an NDA for LYR-210 is approved by the FDA.

- **Build a commercialization infrastructure in the U.S. market for LYR-210 and LYR-220.** If any of our product candidates are approved, we plan to launch an efficient, go-to-market commercialization model focused on targeted outreach to our key physician, payer and patient audiences. We plan to build an in-house sales force that will target ENT physicians whose sub-specialty is general otolaryngology or rhinology, which together represent roughly 60% of the 12,000 ENT physicians in the United States. Ensuring physician and patient market access to our products will be critical to our success, and we plan to execute a holistic reimbursement strategy that will integrate payer coverage and physician practice management initiatives. In addition, we also plan to selectively use cost-effective, patient-directed marketing strategies to further increase awareness among the CRS patient community of our products with the goal of increasing ENT physician visits. Finally, we plan to leverage our commercial infrastructure in the subsequent launch of LYR-220 and any future product candidates.

- **Maximize the value of our XTreo platform and expand our product pipeline.** Our XTreo platform provides a versatile drug development engine that enables us to focus on other indications where long-term delivery of existing treatments may provide improved local bioavailability and enhanced efficacy or safety. We plan to utilize our platform to identify additional product candidates, with an initial focus on conditions treatable with nasal delivery, potentially including allergic rhinitis, rare disorders where nasal disease contributes to the disease pathology, eye disorders and central nervous system disorders. In addition, we believe we can adapt our platform to target conditions treatable with delivery to other tissues beyond the nasal cavities, such as the ear.

- **Seek strategic collaborative relationships.** We intend to develop our product candidates on our own in the U.S. and retain all U.S. rights, but seek strategic collaborations ex-U.S. to facilitate the capital-efficient development of our product candidates. We may also enter into collaborative relationships within the U.S. for our future pipeline candidates. We believe these collaborations could potentially provide non-dilutive funding to advance our pipeline candidates while allowing us to benefit from the development expertise of our collaborators.

Our Technology Platform

XTreo, our innovative and proprietary drug delivery platform is designed to locally and continuously deliver small molecule drugs to the affected tissue over a sustained period of time from a single administration. Our technology platform, developed over the past decade, was first patented in 2009 by members of our team who have extensive experience in drug formulation and delivery, material science and biotechnology. This expertise has allowed us to significantly improve upon polymer drug delivery technology and add shape-memory properties to bioresorbable polymeric implants, one of our key innovations.

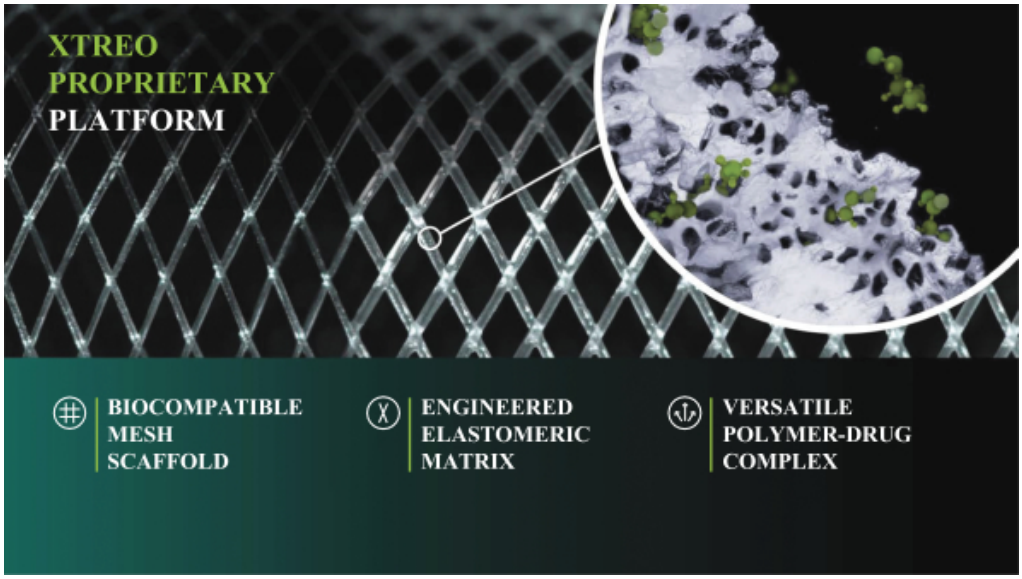


Figure 2. XTreo Proprietary Platform.

XTreo, our drug-eluting bioresorbable technology platform is comprised of three polymeric components, which are designed to work together to enable highly efficient, localized drug delivery (see Figure 2, above). This proprietary technology platform is designed to enable sustained delivery of medications for many

months of therapy, targeting tissues deep in the ENT passages and potentially other diseased tissues that are not accessible with conventional therapeutic approaches. The components of our platform include:

- **Biocompatible Mesh Scaffold**—variants of poly(L-lactide-co-glycolide), or PLGA, braided to form an implantable mesh with a high surface area. Our biocompatible mesh scaffold is intended to provide the foundation for efficient drug delivery. We have designed the mesh scaffold to optimize surface area for drug release while maintaining underlying tissue function through an open-cell design. The mesh scaffold is comprised of bioresorbable polymers and is pliable to maximize patient comfort.

- **Engineered Elastomeric Matrix**—overlying elastomer of poly(L-lactide-co-e-caprolactone), or PLCL, coating that constrains the intersection points of the braid. Over the last decade we have developed a highly sophisticated and proprietary engineered elastomeric matrix which has advanced physical properties to dynamically conform to nasal anatomy. Its adaptive elastic tension, which gives it shape-memory to resist deformation, is key to ensuring persistent positioning in the target location. The matrix works in conjunction with the underlying mesh to exert outward retention force, keeping it in place as tissue remodels.

- **Versatile Polymer-Drug Complex**—active therapeutic embedded in a polymer designed to control its release. We have extensive drug-delivery know-how which has enabled us to design a versatile polymer-drug complex that can accommodate most small molecule drugs and achieve tunable elution profiles. We believe our versatile polymer-drug complex is potentially amenable to continuous, prolonged drug release across a wide range of drugs for different therapeutic applications. With proprietary bioresorbable polymer-drug formulations, we believe our platform can be used to customize controlled-release drugs for various chronic diseases treatable with ENT delivery.

The three integrated components are fundamental to the successful function and versatility of the XTreo technology. For application to a targeted tissue, the implant is compressed into a narrow applicator, which allows non-invasive placement deep within cavities of the ear, nose, and throat. The shape-memory properties ensure the implant self-expands as it is administered through the applicator to conformably fit within and adapt to the target anatomy. The implant is designed to be oversized for the target anatomy and therefore will push outwards to stay fixed at the target location. Over time, as inflammation recedes due to the local drug therapy, the shape-memory properties are intended to allow the implant to actively adapt to the anatomy and continue to stay in place to elute drug locally for a prolonged period.

In engineering the implant, we use polymers that are biocompatible and bioresorbable which, if left in place, would gradually dissolve over time. The polymers used in our formulations have established safety profiles as they have previously been used in FDA-approved therapeutics. The mesh scaffold and elastomeric matrix are composed of PLGA and PLCL elastomer, both of which are well-established biodegradable polymers commonly used in medical applications. The customizable polymer drug complex consists of the active therapeutic embedded in the inactive ingredients containing PLCL and poly(L-lactide), or PLA, to control the drug elution rate. The polymer composition and drug formulation are tailored to achieve the desired drug dose and dissolution rate. Our expertise allows us to balance polymer resorption with drug elution to achieve a sustained rate of drug release over months in addition to varying the dosing and release rates to provide chronic local treatment.

Chronic Rhinosinusitis and the Treatment Landscape

Sinuses are air-filled pockets within the bones of the face and skull. The four types of sinuses are frontal, ethmoid, sphenoid and maxillary (see Figure 3, below). One of each type of sinus lies on either side of the face.

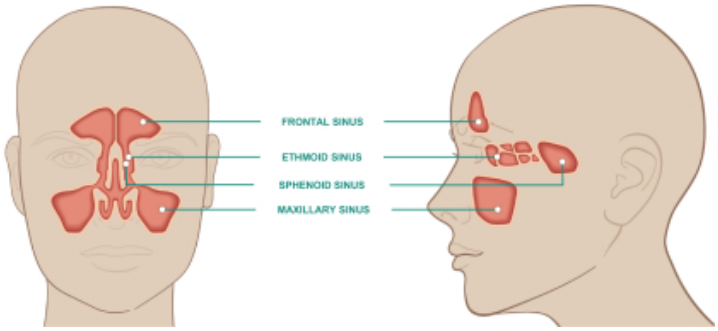


Figure 3. Illustration of Nasal Sinuses.

The sinuses are lined with a soft, moist layer of mucus-producing tissue, or mucosa. Mucus moistens the nasal lining and protects the body from inhaled impurities such as dust, pollutants and bacteria. Each of the maxillary, sphenoid and frontal sinuses has a corresponding ostium, or opening, through which mucus drains. The ethmoid sinuses are a series of cells with multiple, often interconnected openings and drainage pathways. The surface tissues of the sinuses are covered with millions of cilia, which are small, hair-like structures that act in coordination to sweep the mucus through the ostium of each sinus cavity to the back of the throat. The drainage of mucus is a normal process that keeps the sinuses healthy.

CRS is an inflammatory disease of the paranasal sinus causing the mucosa lining to become swollen and inflamed, leading to significant patient morbidities. The inflammation may be caused by infections, allergies or environmental factors, as well as structural issues such as blockages of an ostium. If one or more sinus drainage pathways becomes blocked, normal mucus drainage is prevented and damage to ciliary function may occur. There are two categories of sinusitis: acute and chronic. Acute sinusitis is transient in nature and lasts less than four weeks. Chronic sinusitis is more severe and lasts 12 weeks or longer. The term “chronic sinusitis” is generally used interchangeably with “CRS” in the medical community, and we refer to the condition as CRS in this prospectus. The four cardinal symptoms of CRS are nasal obstruction and congestion, facial pain and pressure, nasal discharge and olfactory loss (loss of sense of smell). Other symptoms include chronic headaches, bodily pain, fatigue, sleep deprivation, depression and recurrent infections. CRS may be diagnosed when two of the four cardinal symptoms persist for 12 weeks or longer and when inflammation is confirmed via endoscopy or CT scan. Patients with CRS experience a lower quality of life index than people suffering from congestive heart failure, angina, chronic obstructive pulmonary disease or back pain. In addition, CRS symptoms are estimated to cause patients to miss over 11 million workdays per year in the United States alone, resulting over $1 billion in indirect economic costs.

We estimate that sinusitis impacts approximately 12% of the adult population in the United States, or approximately 30 million people, making it the fifth most common condition in people under the age of 65, and more prevalent than diabetes or heart disease. Beyond the United States, sinusitis has a similarly high prevalence in Europe, with approximately 27 million cases in the EU5 (France, Germany, Italy, Spain and the United Kingdom), and in Asia, with approximately 104 million cases in China alone. Of the approximately 30 million people impacted by sinusitis in the United States, we estimate approximately 13 million are affected with CRS. Of these, we estimate that approximately 8 million people are treated for CRS by physicians annually, of which approximately 4 million fail medical management every year.

CRS has two phenotypes: CRS with nasal polyps, which are teardrop-shaped benign masses arising from the mucosa, and CRS without nasal polyps, with the non-polyp form representing approximately 70%-to-90% of CRS patients. Patients with polyps develop non-cancerous polyps on the chronically inflamed surfaces, but both subgroups typically share the same symptoms. Currently, the majority of our competitors target CRS patients with polyps, and there are no approved treatments for CRS without polyps, creating a vast untapped market opportunity for a more effective treatment solution. Given no approved treatments for CRS without polyps exist, there is only off-label drug usage for this segment of the patient population.

Current treatments are directed towards managing the symptoms of CRS through a combination of medical management and surgical intervention techniques. The first line of therapy is medical management involving nasal saline irrigation, intranasal corticosteroidal sprays, oral steroids and antibiotics for patients with an active sinus infection. CRS is the most common reason for adult outpatient antibiotic use in the United States. It has been estimated that antibiotic use to treat infections relating to CRS may cost more than $150 million per year in the aggregate. Patients whose symptoms persist despite medical management are generally recommended to undergo functional endoscopic sinus surgery (or FESS) or balloon sinus dilation (or BSD), or both. FESS is a highly invasive surgery performed in the operating room, under full anesthesia, to open the blocked sinus pathways by removing inflamed tissue and bone using surgical tools. BSD is a less severe form of endoscopic sinus surgery, often used in combination with FESS, in which small balloon catheters are inserted and inflated to drain the large nasal sinuses. Although FESS and BSD can improve symptoms and quality of life, limitations remain. Neither correct the underlying cause of the inflammation and patients who undergo either or both procedures often experience significant pain and require continued post-operative medical therapy to maintain improvements, with a high incidence of repeat surgeries.

Medical Management

The first-line of treatment for CRS is medical therapy, which typically includes nasal saline irrigation, corticosteroids, and antibiotics for patients with an active infection.

Steroids represent the current first-line standard of care for CRS patients, given they are generally pharmacologically effective at treating inflammation. Intranasal steroid sprays and aerosols, commonly indicated for rhinitis, or inflammation of the nasal passage, are routinely prescribed and used over-the-counter for the treatment of CRS symptoms. Physicians may also prescribe oral steroids on an episodic basis to patients who have not received sufficient symptomatic relief. They are generally prescribed for short-term use by patients with severe symptoms or exacerbations of CRS who are already on maintenance therapy, such as nasal irrigation or intranasal corticosteroid sprays. Finally, physicians may prescribe antibiotics for patients with an active infection.

Intranasal steroid sprays, oral steroids and antibiotics each have significant limitations:

- While intranasal steroid sprays avoid systemic exposure and thus lack such serious side effects, penetration of the spray beyond the nasal cavities into the paranasal sinuses—the site of inflammation—is limited, particularly in pre-operative patients, despite requiring multiple, inconvenient administrations per day. In a published study, a large fraction of the spray is deposited in the anterior nasal cavity without any significant penetration into the paranasal sinuses. Additionally, intranasal spray efficacy is also limited due to fast clearance rates, as it has been demonstrated that mucocilliary action removes approximately 50% of the spray from the nasal cavity within 10 to 15 minutes of dosing. Poor patient compliance further limits the effectiveness of intranasal steroid sprays. While a recently launched intranasal exhalation delivery product has been developed to enhance the delivery of steroid to areas of inflammation within the sinus, the product is still subject to the limitations resulting from fast clearance and poor patient compliance.

- Oral steroid therapy is effective at reaching the sinus lining, but it does so by means of systemic exposure and therefore carries the risk of serious side effects associated with prolonged use,

including glaucoma, bone loss, weight gain, psychosis and difficulty in controlling blood glucose levels in patients with diabetes. Additionally, studies have shown that long-term benefits from their use are limited.

- Although antibiotics are generally prescribed for patients with an active infection, their role for treatment of CRS is unclear, and there is limited evidence that supports their use for the treatment of CRS. In addition, their prolonged use can lead to antibiotic resistance, and CRS is identified as a major target in national efforts to reduce unnecessary antibiotic intervention.

Medical management is used as a first-line of medical therapy for pre-operative patients and as maintenance therapy for post-operative patients. Therefore, patients in both stages of the condition are managed medically and hence are subject to the limitations described above. Based on published medical literature, we estimate that about 60% of CRS patients who are seen by ENT physicians and receive medical management remain symptomatic.

Sinus Surgery

The primary alternative after medical management is FESS, an invasive surgery during which a physician enlarges the inflamed and obstructed sinus pathways by removing inflamed tissue and bone in order to facilitate normal sinus drainage and aeration as well as provide greater access for delivery of steroids. First introduced in the United States in the 1980s, FESS is considered the standard of care for surgical intervention to treat CRS. However, while approximately 400,000 FESS procedures are performed each year, many surgical candidates opt not to have surgery given that it does not correct the underlying inflammation or obviate the need for medical management. Approximately, 65% of patients have recurrent symptoms post-FESS and up to 20% require a revision surgery.

FESS is a highly invasive procedure, requiring general anesthesia and involving significant post-operative discomfort. During this procedure, a physician inserts an endoscope into the nasal cavity to provide visualization of the patient’s anatomy, the turbinate is identified with help of the endoscope and the uncinated process is removed exposing the ethmoid bulla. Surgical instruments, powered cutting tools and balloon dilation devices are used to remove or dilate the obstructive tissue and bone. Given the essential role of the ethmoid bulla in sinus function, the ethmoid sinuses are then opened in 75%-to-85% of FESS procedures. The dependent sinuses each drain into the ethmoid sinuses through ostia, which may be enlarged by either surgically removing tissue or via balloon dilation. Following the surgical intervention, physicians often pack the newly opened ethmoid sinuses with gauze or other obstructive sinus packing materials to hold the sinus cavities open. A follow-up office visit is required several days after the procedure to remove the sinus packing materials and depending on the circumstances a patient may have to visit the surgeon two to three times a week for a period of time using nasal irrigation or will be allowed to carry out simple nasal douching several times a day. A typical FESS procedure costs approximately $10,500 to $14,000 on average.

Since the introduction of FESS, several new technologies, such as image-guided surgical navigation systems, powered surgical instruments and BSD devices have expanded the addressable patient population who can benefit from FESS. For instance, BSD devices were developed to be used in combination with traditional surgical instruments during FESS to treat the dependent sinuses and have now allowed for treatment of some patients in the physician office setting as a standalone procedure. The cost of a BSD procedure can range from $3,000 to $7,000 per treatment.

On an annual basis, approximately 4 million CRS patients fail medical management, but ultimately only approximately 400,000 patients choose to undergo an endoscopic sinus surgery each year. Physicians report that many patients, when presented with sinus surgery as a treatment option, opt to forego the procedure. Some patients regard the often temporary benefits provided by surgery as not worth the expense, recovery time or use of general anesthesia.

While sinus surgery is the standard of care for treating CRS after the failure of medical management, it has several significant limitations:

- ***Invasive surgery with significant post-operative pain and nasal care.*** FESS is an invasive surgery that results in irreversible changes to the anatomy and significant post-operative pain, discomfort and recovery time. As with any invasive surgery, a FESS entails the potential for bleeding, infection and scar tissue.

- ***Requirement for post-operative maintenance.*** As the underlying inflammation of CRS is still unaddressed by sinus surgery, patients are required to post-operatively maintain their treatment with medical management. Additionally, reports have shown nasal polyp regrowth following surgery in many cases and post-nasal discharge often times remains a challenge.

- ***Additional FESS procedures may be needed.*** Approximately 65% of patients have recurring symptoms post-FESS, and approximately 20% of patients will require a revision of sinus surgery within five years, 43% of whom will be within the first post-operative year. This is because sinus surgery does not cure the underlying cause of the inflammation of the sinus pathways, which can cause repeat flare ups. We believe the risk of potential revision surgery is a significant deterrent to some patients that would otherwise undergo sinus surgery.

- ***Potential for severe complications.*** As a result of the use of surgical tools in close proximity to the brain, eyes and other critical anatomy, the potential for significant complications is a concern of physicians and patients alike. The risks of FESS, particularly in the frontal sinuses, cause some ENT physicians to avoid performing surgery in the frontal sinus drainage pathway. Major complications, such as cerebral spinal fluid leaks, swelling of the eye or blindness, occur in approximately 0.3% of FESS procedures.

Drug Eluting Stents and Monoclonal Antibodies

For patients with nasal polyps who remain symptomatic following surgery, who we refer to as refractory patients, certain non-surgical options are available. A steroid-eluting implant that continuously delivers three months of MF was approved to treat CRS in adults with nasal polyps. In addition, a subcutaneously-administered biweekly anti-IL-4/IL-13 monoclonal antibody, or mAb, was recently approved also to treat CRS in adults with nasal polyps.

However, each of these treatments have limitations. The drug-eluting stent has only a three month elution profile and has been approved as an addition to intranasal steroid sprays, presenting a more burdensome treatment regimen and requiring patient compliance. Meanwhile, the mAb is generally reserved for the most refractory patients, given that its long-term systemic safety is unknown and that it is priced at a significant premium even when compared to surgical options. In addition, both of these treatment options are only approved for the treatment of nasal polyps, leaving non-polyp patients (who represent approximately 70%-to-90% of all CRS patients) who are refractory with no approved treatment options.

LYR-210 for the Treatment of CRS

We believe LYR-210, if successfully developed and approved, has the potential to become a preferred alternative to surgery for the treatment of CRS. It is the only product candidate that we are aware of that is designed to provide up to six months of local delivery of anti-inflammatory medication with a single administration. The brief, non-invasive, in-office procedure allows for its implantation without the need for surgery. Further, we believe our studies have shown that LYR-210 has the potential to be an effective treatment for both patients with and without polyps. We believe LYR-210 has the potential to be a safe, effective and broadly applicable CRS treatment, designed to enhance patient comfort and physician experience and eliminate

patient compliance issues associated with other CRS treatments, such as intranasal steroid sprays, while achieving reduced costs compared to other CRS treatments, such as sinus surgery.

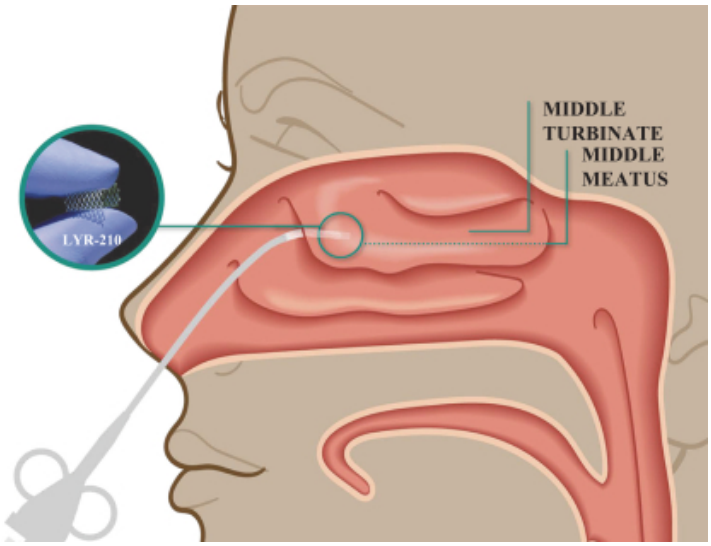


Figure 4. Illustration of Placement of LYR-210 in Middle Meatus.

LYR-210 is an investigational miniaturized local drug delivery system designed to fit within, and conform to, the confined space of a surgically-naïve patient's middle meatus, an air-containing space that plays a fundamental role in drainage of the paranasal sinuses (see Figure 4, above). LYR-210 consists of MF, the active ingredient in various FDA-approved drugs, embedded in biocompatible polymers to aid in the controlled and sustained delivery of MF to the sinonasal mucosal tissue from a single drug administration. LYR-210 has a tubular braid configuration with a uniform diamond pattern throughout and is 13 mm in diameter and 10 mm in length in the unconstrained state. It has elastic properties to promote patient comfort and is designed to be self-retaining against the mucosal tissue to allow effective drug transfer. The matrix is comprised of a base structure and a drug formulation. The base structure is composed of PLGA and PLCL elastomer to provide a 3-dimensional structure and elasticity. The drug formulation matrix consists of the active ingredient, MF, embedded in the inactive ingredients containing PLCL and PLA to control the release rate of MF. The composition and mass of the drug formulation matrix is specified to achieve the drug dose over time.

LYR-210 is intended to be administered bilaterally into the non-operated middle meatus by an ENT physician under endoscopic visualization via a provided, single use applicator. It is designed for office-based administration performed with topical anesthesia. Once administered, LYR-210 is designed to gradually release MF to the inflamed mucosal tissue for up to six months from a single administration. LYR-210 can be removed at six months or earlier at the physician's discretion using standard instruments. LYR-210 is made with bioresorbable polymers that, if left in place, would gradually dissolve over time. Moreover, the elastomeric matrix encapsulates the underlying mesh fibers to facilitate removal.

Overview of Our Clinical Development

The table below summarizes our completed and ongoing clinical trials for LYR-210 for CRS in patients who have failed medical management and have not undergone endoscopic sinus surgery.

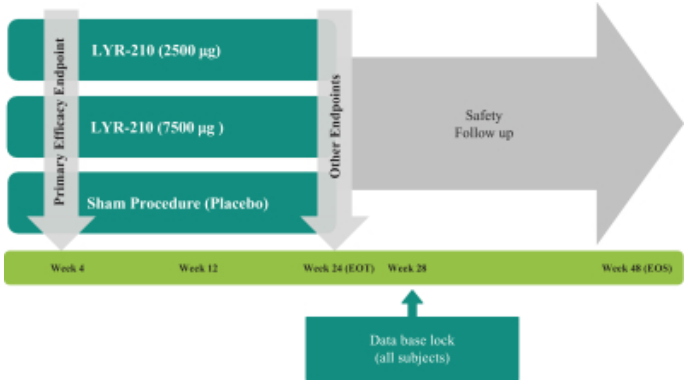
Trial	Status	Trial Design	Trial Objectives	Trial Results

Phase 1	Completed; Results presented in October 2018	• Prospective, multi-center, non-randomized, single-arm, open-label clinical trial
		• 25 week trial, including 24 week treatment period, plus one week post-removal
		• Bilateral 2,500 mg dose
		• 20 patients
		• 5 study sites
			• Study objective: Evaluate the safety and feasibility over 24 weeks of continuous anti-inflammatory treatment with a single administration of LYR-210
			• Primary endpoint: Product-related serious adverse events from baseline to 4 weeks post-procedure
			• Additional data collected: Morning serum cortisol, change in intraocular pressure, plasma pharmacokinetics, quality of life by SNOT-22 (secondary endpoint), endoscopy and MRI
				• Primary safety endpoint achieved / 2,500 mg was well tolerated during entire duration of treatment
				• Significant and rapid, clinically meaningful and durable improvement in SNOT-22 scores was observed from week 1 through week 25
				  • Average change in baseline SNOT-22 score at week 1 was -13.0 points (P= 0.008 to pre-treatment)
				  • Symptom relief, as measured by SNOT-22 score, was observed through the entire duration of study, achieving an average change from baseline of -20.5 points at week 24 (P=0.00005 to pre-treatment), which was the end of the treatment period, and -20.0 ($p < 0.0001$) at week 25, which was the end of the study

Phase 2	Initiated May 2019	• Randomized, blinded, sham-controlled, dose-ranging, parallel-group clinical trial • 24 week treatment period, plus 24 week safety follow up post-removal • Bilateral 2,500 mg or 7,500 mg dose • patients • Up to 30 study sites globally	• Primary endpoint: Change in composite score of 7-day average of 4 cardinal symptoms from baseline at week 4 • Secondary objectives: Symptom improvement at week 24, use of oral corticosteroids, sinus imaging to assess reduction in inflammation, SNOT-22, time to treatment failure, reduction in inflammation, frequency of exacerbations, pharmacokinetics/pharmacodynamics	• Expect to report topline data in

Phase 2

Our Phase 2 clinical trial for LYR-210 was initiated in May 2019. The clinical trial is designed as a multi-center, randomized, sham procedure-controlled, patient blinded trial. The study will evaluate patients across up to 30 sites in New Zealand, Australia and Europe. The goal of the trial is to evaluate the efficacy of LYR-210 in treating adult surgically-naïve CRS patients who have failed medical management. We expect to report topline data in .



EOT = End of Treatment; EOS = End of Study.

Figure 5. Design of Phase 2 Clinical Trial for LYR-210.

The trial consists of three arms: (1) an experimental arm with bilateral placement of 2,500 µg of LYR-210 consisting of subjects; (2) an experimental arm with bilateral placement of 7,500 µg of LYR-210 consisting of subjects; and (3) a control arm with a bilateral sham procedure only consisting of subjects (see Figure 5, above). In addition, subjects will be supplied with saline for nasal irrigation treatment during the course of the treatment period.

The primary endpoint of the trial is a change from baseline in the 7-day average scores of the 4-Cardinal Symptoms Score, or 4CSS, at week 4. The FDA prefers a composite score of the cardinal symptoms of CRS for patients with CRS, and we will utilize the 4CSS for the trial. The 4CSS is comprised of four domains that are scored 0-3 with a total score of 12. The four domains are: (1) obstruction and congestion; (2) facial pain and pressure; (3) nasal discharge; and (4) olfactory loss (loss of sense of smell).

The key secondary endpoints for the trial are the change from baseline in 7-day average 4CSS at week 24, time to treatment failure, percentage of subjects with use of oral corticosteroids for CS through week 24, and change from baseline in Zinreich score (a measure of inflammation) for the posterior ethmoid, frontal or spheoid sinuses at week 24.

Phase 1

Our Phase 1 clinical trial for LYR-210 was a prospective, multi-center, non-randomized, single-arm, open-label clinical trial with adult surgically-naïve CRS patients who have failed medical management. The objective of the trial was to evaluate safety and feasibility over 24 weeks of continuous anti-inflammatory treatment with a single administration of LYR-210 with an additional measurement taken one week post-removal. The trial was conducted across five sites in New Zealand and Australia. Forty LYR-210 matrices were placed bilaterally in 20 patients with and without nasal polyps. Each matrix contained 2,500 µg of MF. LYR-210 met its primary safety endpoint, and significant and rapid, clinically meaningful and durable improvement on a patient symptom severity scale was observed through 25 weeks.

Study Design	Prospective, multi-center, non-randomized, single-arm, open-label clinical trial
Study Objectives	Safety and feasibility over 24 weeks of continuous anti-inflammatory treatment with a single administration of LYR-210 with an additional measurement taken one week post-removal
Patient Population	Adult CRS patients who have failed medical management and have not had surgery
Number of Subjects	20 patients with CRS (40 LYR-210 matrices placed)
Number of Sites	5 study sites (New Zealand and Australia)
Dose	2,500 mcg bilaterally
Primary Endpoint	Product-related serious adverse events from baseline to week 4
Additional Data Collected	• Morning serum cortisol • Intraocular pressure • Plasma pharmacokinetics • Quality of life by SNOT-22 • Endoscopy and MRI

Figure 6. Description of Phase 1 Clinical Trial for LYR-210.

Twenty patients were enrolled, 12 of whom exhibited no bilateral nasal polyps and eight of whom exhibited bilateral nasal polyps. All 20 patients received bilateral administration of LYR-210 at 2,500 µg in an office setting. The study population was predominantly male with a mean age of 39.9 (range: 24-67) years old. All patients reported moderate-to-severe CRS symptoms with a mean SNOT-22 score of 50.9, of which nine patients reported severe symptoms (SNOT-22 score > 50). All patients complained of nasal obstruction.

The Phase 1 trial achieved its primary safety endpoint at week 4. LYR-210 at 2,500 µg was well tolerated by patients during the entire duration of treatment and also gave insight into the successful office-based placement of the matrix and clinical outcomes in non-polyp and polyp patients. There were no reports of unexpected adverse events, or AEs, or local nasal AEs, including epistaxis, nasal burning, nasal dryness, nasal irritation and nasal septal perforation during the 24-week MF local dosing treatment duration. Additionally, no change in morning serum cortisol levels or intraocular pressures were noted.

Event[1] Systemic Organ Class	Number of Patients with Event over full 25-week period[2]
All Adverse Events	**16**
Common AE (> 1 Patient)	
General disorders and administration site conditions	
Facial pain	2
Infections and infestations	
Nasopharyngitis	7
Sinusitis	4
Upper respiratory tract infection	5
Injury, poisoning and procedural complications	
Procedural headache	2
Respiratory, thoracic and mediastinal disorders	
Nasal discomfort	2
Nasal odor	4
All Serious Adverse Events	
Cardiac disorders	
Acute Myocardial Infarction	1

(1) AEs coded using the MedDRA dictionary, version 21.0.

(2) N=20 total patients. Patients experiencing the same AEs are counted only once. An additional 5 AEs occurred during the screening period, prior to treatment and are not included in this table. 25-week period includes one week post-removal.

Figure 7. Adverse Event Profile for Phase 1 Clinical Trial for LYR-210.

The most common reported AEs were nasopharyngitis, upper respiratory tract infection, sinusitis, nasal odor, procedural headache, nasal discomfort, and facial pain. There was one serious adverse event, an acute myocardial infarction, which was deemed to be unrelated to LYR-210. LYR-210 was removed due to AEs before the end of the 24-week treatment period from two patients who dropped out of the trial prior to completion. One patient requested removal after 20 weeks of treatment due to complaints of memory loss, which was deemed to be unrelated to LYR-210. The other patient requested removal after 17 weeks of treatment due to a recurrence of a sinus infection that was non-serious and moderate in severity and the patient reported relief of AE symptoms within four days following removal and medical treatment.

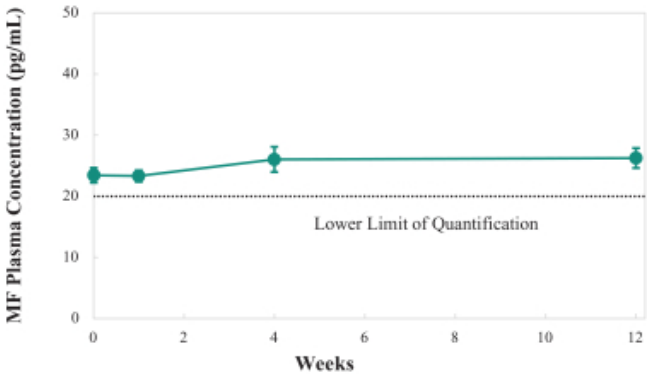
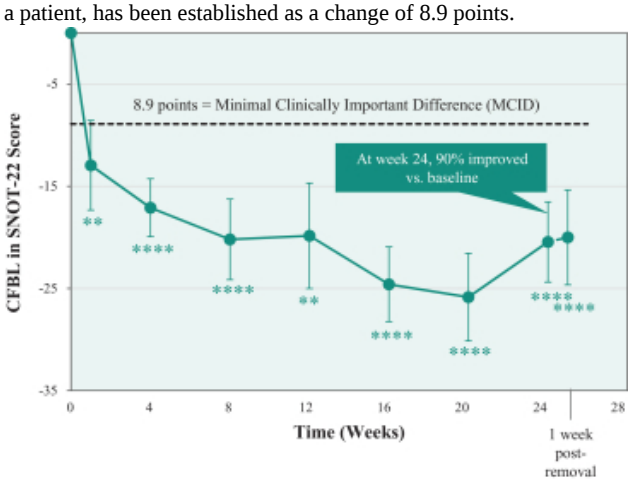


Figure 8. Plasma Drug Concentration for the 50% of Patients with Levels Above LLQ. Note: at day 1, week 1, week 4 and week 12, there were 11, 10, 16 and 10 patients, respectively, whose plasma drug concentration was below the lower limit of quantification, or LLQ.

The trial results indicated low levels of systemically circulated steroid from LYR-210. MF plasma concentrations were unquantifiable in about 50% of patients and near the lower limit of quantification of 20 pg/ML in the other 50% of patients (see Figure 8, above). There were no AEs associated with systemic levels of MF.

All of the matrices were successfully bilaterally placed in the sinonasal passages, in both non-polyp and polyp patients. In 7 out of the 40 matrices placed, the investigator felt that the initial placement was not ideal, and therefore the matrix was removed and a new matrix was placed. Patients did not report feeling the matrices post-administration. Further, LYR-210 had high levels of intranasal retention out to 24 weeks, with a retention rate of more than 80%. There were no AEs associated with the matrices that were dislodged.

The Sino-Nasal Outcome Test, or SNOT-22, is a disease-specific questionnaire for sinus disease. A validated patient-reported outcome measure, the SNOT-22 is used widely by ENTs to assess disease status and treatment outcomes in CRS patients with and without polyps. It is comprised of 20 questions which address CRS-related symptoms and quality of life that can be grouped into 5 domains including rhinologic, extranasal rhinologic, ear/facial, psychological and sleep. Each question is scored on a scale from 0 to 5 for a total score ranging from 0 to 110 points. Mild disease is defined on the SNOT-22 as a score of 8 to 20, moderate as a score of 21 to 50 and severe as greater than 50. If a patient has a SNOT-22 score of 7 or lower they are considered “normal” or absent of sino-nasal disease. The SNOT-22 minimal clinically important difference, or MCID, which is the smallest change in SNOT-22 score that can be detected by a patient, has been established as a change of 8.9 points.



** P<0.05, **P<0.01, *** P<0.001, **** P<0.0001 to baseline by paired two tailed t-test*

Figure 9. Total Symptom Improvement by SNOT-22 Score in Phase 1 Clinical Trial for LYR-210.

Patients generally experienced significant and rapid, clinically meaningful and durable improvements in CRS symptoms in the Phase 1 trial, as measured by SNOT-22 score (see Figure 9, above). Significant reduction in SNOT-22 scores was observed at week 1 and this reduction persisted through week 25, at the end of the trial (see Figure 9, above). Changes from baseline, or CFBL, in SNOT-22 score were statistically significant (P < 0.01) at all measured intervals. The average change from baseline in SNOT-22 score at week 1 was -13.0 points (P= 0.008 to pre-treatment), achieving the MCID of -8.9 points. Further, symptom relief was observed through the entire duration of study, and achieved -20.5 points at week 24 (P=0.00005 to pre-treatment), at the time LYR-210 was removed. Significant symptom improvement was achieved in all of the SNOT-22 subdomains at week 24.

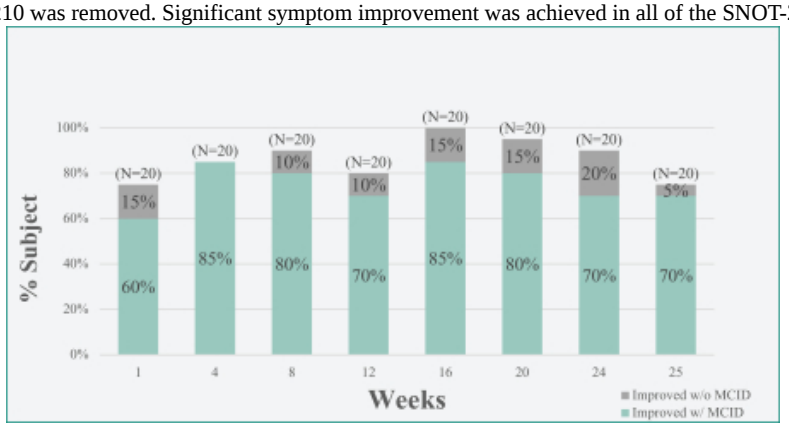
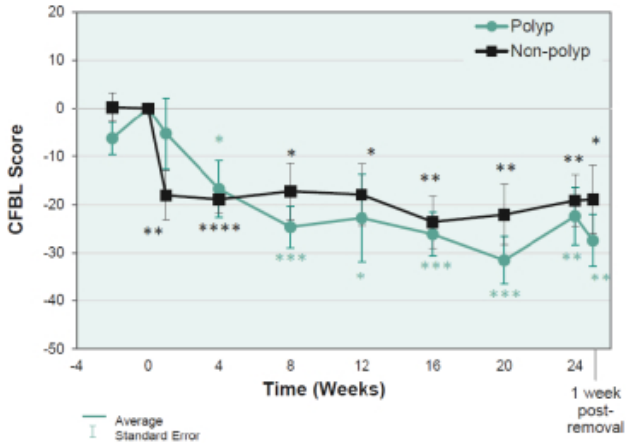


Figure 10. Percent of Patients with Symptom Improvement by SNOT-22 Score, Showing Improvement with MCID and without MCID, in Phase 1 Clinical Trial for LYR-210.

At week 24, 90% of patients improved versus the baseline score, with clinically meaningful improvement observed in 70% of patients (see Figure 10, above).



** P<0.05, **P<0.01, ***P<0.001, **** P<0.0001 to baseline by paired two tailed t-test*

Figure 11. Symptom Improvement in Polyp and Non-Polyp Patients by Change from Baseline in SNOT-22 Score in Phase 1 Clinical Trial for LYR-210.

Similar efficacy was observed in both polyp and non-polyp patients (see Figure 11, above). Further, even though each of the clinical trial patients were surgery candidates at the trial entry and no topical intranasal spray was utilized in conjunction with LYR-210 during the 25-week trial, none of the patients underwent sinus surgery during the treatment period.

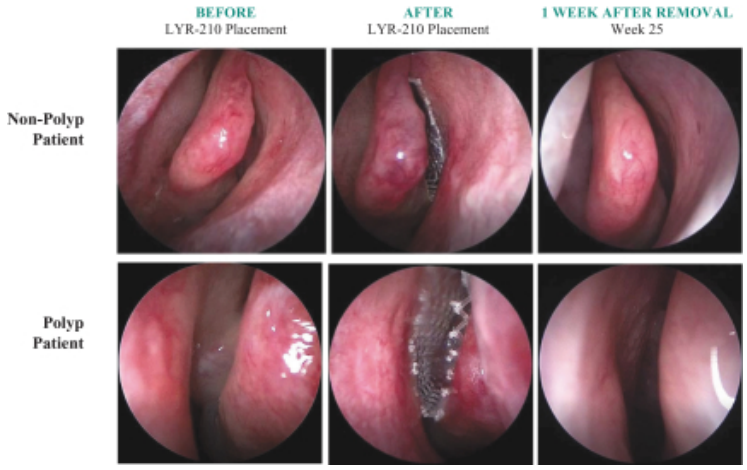


Figure 12. Endoscopy Images Before and After Treatment with LYR-210 in Phase 1 Clinical Trial. For illustrative purposes only.

Figure 12, above, shows via nasal endoscopy images from our Phase 1 clinical trial the impact of LYR-210 observed in a patient without nasal polyps and a patient with nasal polyps at three time points: before LYR-210 placement, after LYR-210 placement and at week 25, one week after LYR-210 was removed. The middle image for each patient shows the deployment of LYR-210 in the middle meatus of a non-polyp and a polyp patient, and how LYR-210 conformed to the walls of the obstructed nasal anatomy to maximize tissue contact. In the third image for each patient, the erythema and inflammation present before treatment was observed to be resolved and less evident after 24 weeks of treatment and one week post-removal.

LYR-220 for the Treatment of CRS

LYR-220 is a new investigative therapy for CRS patients with and without nasal polyps that have failed medical management and have had a prior endoscopic sinus surgery. In the treatment paradigm, LYR-220, if approved, is positioned for use for patients post-surgical intervention who continue to have recurrent CRS symptoms or relapse, as a potential preferred alternative to revision surgery. LYR-220 utilizes the same active pharmaceutical ingredient, or API, as LYR-210, but with a larger matrix to treat larger nasal cavities consistent with those in post-surgical CRS patients. We estimate that 40% of patients that present to an ENT physician with CRS have had a prior surgery. These patients represent the addressable market for LYR-220.

No product is currently approved by the FDA to treat post-surgery CRS patients that do not have polyps, representing the vast majority of such CRS patients, and only a three-month steroid-eluting sinus implant and a mAb have been approved by the FDA for the treatment of post-surgery CRS patients that have polyps. We believe LYR-220 is meaningfully differentiated from currently approved products because, if successfully developed and approved, it would be the only product able to deliver up to six months of topical treatment in a single administration to treat both polyp and non-polyp post-surgery CRS patients who fail medical management. Further, with respect to the mAb, LYR-220 is differentiated because it would provide localized delivery so as to avoid systemic side effects with the added benefit of being a significantly more economical treatment alternative.

We expect to initiate a proof-of-concept clinical trial for LYR-220 in and, if LYR-210 is approved by the FDA, to submit an sNDA for a potentially faster path to approval for LYR-220.

Future Product Candidates

Our XTreo platform provides a versatile drug development engine that enables us to focus on other indications where long-term delivery of existing treatments may provide improved local bioavailability and enhanced efficacy or safety. Other conditions we may pursue with nasal delivery include allergic rhinitis, rare disorders where nasal disease contributes to the disease pathology, eye disorders and central nervous system disorders. Additionally, we believe our platform can be adapted to locally address conditions of the ear.

Post-Approval Commercialization Strategy

If LYR-210 and LYR-220 are successfully developed and approved, we intend to engage in targeted outreach to our key physician, payer and patient audiences. ENT physicians are the primary treaters of CRS patients who have failed medical management and thus represent our target physician base. Given the requirement for endoscopic placement of our products, we plan to build an in-house sales force that will target ENT physicians whose sub-specialty is general otolaryngology or rhinology, which together represent approximately 60% of the approximately 12,000 ENT physicians in the United States. Given that LYR-210 and LYR-220 can be administered in a brief, simple procedure requiring no additional equipment, we anticipate that our sales representatives' time will primarily be directed at educating the ENT physicians around product attributes and patient selection. We plan to supplement our direct physician outreach with appropriate medical education and marketing efforts to further penetrate our physician base and drive adoption of our products.

Ensuring physician and patient market access to our products will be critical to our success, and we plan to execute a holistic reimbursement strategy that will integrate payer coverage and physician practice management initiatives. We believe that the primary decision makers from a payer perspective are private payers, which represent approximately 80% of the payer mix for our products. We intend to deploy a market access team to educate payers on the clinical and pharmacoeconomic attributes of our products and to seek to secure favorable coverage policies and to maximize the covered lives that have reimbursement for our products. The team will also secure the necessary codes to facilitate physician and patient payment including a J-code, which is required for physician-administered products. To maximize access to LYR-210 and LYR-220, we plan to develop a reimbursement support model which aims to reduce physician financial risk associated with physician-administered products.

Subsequent to our initial ENT physician and payer efforts, we also plan to selectively use cost-effective, patient-directed marketing strategies to further increase awareness among the CRS patient community of our products with the goal of increasing ENT physician visits.

In addition, we may also consider entering into collaborative relationships with established entities outside the U.S. for a potentially faster path to bringing our products to market. We may also enter into collaborative relationships within the U.S. for future pipeline product candidates.

Competition

Our industry is highly competitive and subject to rapid and significant technological change as research provides a deeper understanding of the pathology of diseases and new technologies and treatments are developed. We believe our scientific knowledge, technology, and development capabilities provide us with substantial competitive advantages, but we face potential competition from multiple sources, including large pharmaceutical, biotechnology, specialty pharmaceutical and, to a lesser degree, medical device companies.

Our competitors may have significantly greater financial resources, robust drug pipelines, established presence in the market and expertise in research and development, manufacturing, pre-clinical and clinical testing, obtaining regulatory approvals and reimbursement and marketing approved products than we do. These competitors also compete with us in recruiting and retaining qualified clinical, regulatory, scientific, sales,

marketing and management personnel, in establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

LYR-210 and LYR-220 are positioned following the failure of medical management and therefore are not anticipated to compete directly with branded, generic or over-the-counter, inhaled corticosteroids. LYR-210 is positioned for use in surgically-naïve CRS patients where the primary competitive treatment is surgical procedures, including FESS with and without BSD and BSD as a standalone procedure. In this space, LYR-210 would be the only product we are aware of that may deliver six months of local treatment with a single administration for both patients with and without polyps as a preferred alternative to surgical interventions. LYR-220 is positioned for use in patients that have had a prior FESS. Currently there are no competitive treatments for post-surgical patients without polyps. For patients with polyps, LYR-220 would compete against steroid-releasing sinus implants and mAbs. We believe LYR-220 has competitive advantages over these interventions, including a longer elution profile than the existing sinus implant and no systemic exposure relative to the mAb. Key competitive factors affecting the commercial success of both LYR-210 and LYR-220 and any other product candidates we may develop are likely to be efficacy, safety and tolerability profile, reliability, convenience of administration, price and reimbursement.

Several companies are also currently developing treatments for CRS patients with nasal polyps, including Hoffmann-La Roche, GlaxoSmithKline, Gossamer Bio, AnaptysBio, Regeneron, OptiNose and Intersect ENT. If these treatments are approved by the FDA, they could represent competition across the spectrum of CRS patients.

Manufacturing and Supply

We currently manufacture our drug delivery products at our facility in Watertown, Massachusetts with components supplied by external suppliers. We perform inspections of these components before use in our manufacturing operations. Using these components, we manufacture, assemble, inspect, and package our implants, and send them to a third-party sterilization vendor. After sterilization, we inspect the product and test via third-party laboratories to determine compliance with our specifications. Upon release of the lot to inventory, the product is labeled and distributed via a third-party vendor to clinical sites.

The API and a number of the components used in our implants are currently supplied to us from single source suppliers. We source our supplies from manufacturers with a track record of Good Manufacturing Procedures (GMP). We rely on single source suppliers for some of our polymer materials, some extrusions and molded components, and for finished goods testing, labeling and distribution. Our ability to supply our products and to develop our product candidates depends, in part, on our ability to obtain successfully the API and polymer materials used in these products in accordance with regulatory requirements and in sufficient quantities. We plan to enter into manufacturing, supply and quality agreements with our single source suppliers. We generally acquire our single source components pursuant to purchase orders placed in the ordinary course of business. We currently maintain sufficient supplies of the API and components from our single source suppliers to support our ongoing Phase 2 clinical trial and ongoing development activities. In the future, we intend to maintain sufficient supplies such that our ability to supply the clinic or commercial market will not be compromised and so as to allow for sufficient time necessary to obtain another source of API or components.

We are currently improving our manufacturing capabilities and increasing capacity to better support further clinical studies and commercialization. We plan to use an outsourcing model and choose a contract manufacturer with the appropriate infrastructure, technical experience, quality systems and a track record of FDA compliance. We plan to continue to use an outsourcing model for our operations until we reach a sufficient scale to justify investment in internal manufacturing capacity.

Intellectual Property

We actively seek to protect the intellectual property and proprietary technology platform that we believe is important to our business, which includes seeking and maintaining patents covering our technology platform and products, and any other inventions that are commercially or strategically important to the development of our business. We also rely upon trademarks to build and maintain the integrity of our brand, and we seek to protect the confidentiality of trade secrets that may be important to the development of our business. For more information, please see "Risk Factors—Risks Related to Our Intellectual Property".

Patents and Patent Applications

As of November 1, 2019, we own 18 issued U.S. patents, nine foreign issued patents, seven U.S. pending applications, and 21 foreign pending applications, out of which 12 issued U.S. patents, nine foreign issued patents, six U.S. pending applications, and 21 foreign pending applications are directed to our XTreo platform, LYR-210, and LYR-220.

All technology material to our business has been developed in-house and is protected with patents and patent applications in two major lineages, along with the beginning of a third, more recent lineage of patent applications. The first lineage dates from 2009 and provides protection potentially until 2030, exclusive of possible patent term adjustments or extensions or other forms of exclusivity. This first lineage includes issued patents in the U.S., Europe, Japan, Canada and Great Britain, that are not limited to any particular drug, site of delivery or patient condition, but specify features of the implant, system, method and polymers. The second lineage dates from 2015 and provides protection potentially until 2036, exclusive of possible patent term adjustments or extensions or other forms of exclusivity. This second lineage includes issued U.S. patents with ENT-specific method claims directed to the specific drug, site of delivery (i.e. middle meatus) and patient condition, along with numerous pending applications in the U.S., Europe, Japan, Canada, China and the Great Britain. The third, more recent lineage dates from 2017 with the prospect of patent protection potentially until 2037, exclusive of possible patent term adjustments or extensions or other forms of exclusivity. This third lineage attempts to capture the drug release features and patient results from the recent clinical trial. It includes pending applications in the U.S. and Great Britain, along with a patent application filed under the Patent Cooperation Treaty that entered the National Phase in October of 2019 in the following countries: the U.S., Canada, Australia, Europe, Korea, Singapore, China and Japan.

Trademarks and Trade Secrets

As of November 1, 2019, our trademark portfolio contained one U.S. trademark registration and eight foreign trademark registrations.

We also rely upon trade secrets, know-how and continuing technologies innovation, and may pursue licensing opportunities in the future, to develop and maintain our competitive position. We seek to protect our proprietary rights through a variety of methods, including confidentiality agreements, invention assignment agreements, non-solicitation and non-compete agreements with suppliers, employees, consultants and others who may have access to proprietary information.

Government Regulation and Product Approval

Government authorities in the United States, at the federal, state and local level, and in other countries extensively regulate, among other things, the research, development, testing, manufacturing, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, import, and export of pharmaceutical products such as those we are developing. We 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 of our product candidates. The processes for obtaining regulatory approvals in

the United States and other countries, as appropriate, along with subsequent compliance with appropriate federal, state, local and foreign statutes and regulations, require the expenditure of substantial time and resources.

U.S. Government Regulation

In the United States, we are subject to extensive regulation by the FDA, which regulates drugs under the Federal Food, Drug, and Cosmetic Act, or the FDCA, and its implementing regulations, and other federal, state, and local regulatory authorities. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant to a variety of administrative or judicial sanctions, such as the FDA's refusal to approve pending NDAs, withdrawal of an approval, imposition of a clinical hold, issuance of warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties.

The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests, animal studies and formulation studies in compliance with the FDA's Good Laboratory Practice regulations;
- submission to the FDA of an investigational new drug application, or IND, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB at each clinical site before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with good clinical practice (GCP) requirements to establish the safety and efficacy of the proposed drug product for each indication;
- submission to the FDA of an NDA;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is 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 drug's identity, strength, quality and purity;
- satisfactory completion of an FDA inspection of selected clinical sites to assure compliance with GCPs and the integrity of the clinical data;
- payment of user fees; and
- FDA review and approval of the NDA.

We are developing our product candidates using an innovative drug delivery platform comprised of a mesh scaffold, an elastomeric matrix and a polymer-drug complex delivered through a narrow applicator. In the United States, products composed of components that would normally be regulated by different centers at the FDA are known as combination products. Typically, the FDA's Office of Combination Products assigns a

combination product to a specific Agency Center as the lead reviewer. The FDA determines which Center will lead a product's review based upon the product's primary mode of action. Depending on the type of combination product, its approval, clearance or licensure may usually be obtained through the submission of a single marketing application. We anticipate that LYR-210 and LYR-220 will be regulated as drugs, and for each product candidate, the FDA will permit a single regulatory submission seeking approval. However, the FDA sometimes will require separate marketing applications for individual constituent parts of the combination product which may require additional time, effort, and information. Even when a single marketing application is required for a combination product, such as an NDA for a combination pharmaceutical and device product, both the FDA's Center for Drug Evaluation and Research and the FDA's Center for Devices and Radiological Health may participate in the review. An applicant will also need to discuss with the Agency how to apply certain premarket requirements and post-marketing regulatory requirements, including conduct of clinical trials, adverse event reporting and good manufacturing practices, to their combination product.

Preclinical Studies

Preclinical studies include laboratory evaluation of product chemistry, toxicity and formulation, as well as animal studies to assess potential safety and efficacy. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data and any available clinical data or literature, among other things, to the FDA as part of an IND. Some preclinical testing may continue even after the IND is submitted. An IND automatically becomes effective and a clinical trial proposed in the IND may begin 30 days after the FDA receives the IND, unless before that time the FDA raises concerns or questions related to one or more proposed clinical trials and places the clinical trial on a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. As a result, submission of an IND may not result in the FDA allowing clinical trials to commence.

Clinical Trials

Clinical trials involve the administration of the investigational new drug 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 in writing for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the trial, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. An IRB at each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must continue to oversee the clinical trial while it is being conducted. Information about certain clinical trials must be submitted within specific timeframes to the National Institutes of Health, or NIH, for public dissemination on their www.clinicaltrials.gov website.

Human clinical trials are typically conducted in three or four sequential phases, which may overlap or be combined:

- Phase 1: The drug is initially introduced into healthy human subjects or patients with the target disease or condition and tested for safety, dosage tolerance, absorption, metabolism, distribution, excretion and, if possible, to gain an early indication of its effectiveness.

- Phase 2: The drug is administered to a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage.

- Phase 3: The drug is administered to an expanded patient population, generally at geographically dispersed clinical trial sites, in well-controlled clinical trials to generate enough data to statistically evaluate the efficacy and safety of the product for approval, to establish the overall risk-benefit profile of the product, and to provide adequate information for the labeling of the product.

- Phase 4: In some cases, the FDA may conditionally approve an NDA for a product candidate on the sponsor's agreement to conduct additional clinical trials after NDA approval. In other cases, a sponsor may voluntarily conduct additional clinical trials post approval to gain more information about the drug. Such post approval trials are typically referred to as Phase 4 clinical trials.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA, and more frequently if serious adverse events occur. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the product and 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, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final product. 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.

Marketing Approval

Assuming successful completion of the required clinical testing, the results of the preclinical and clinical studies, together with detailed information relating to the product's chemistry, manufacture, controls and proposed labeling, among other things, are submitted to the FDA as part of an NDA requesting approval to market the product for one or more indications. In most cases, the submission of an NDA is subject to a substantial application user fee. Under the Prescription Drug User Fee Act (PDUFA) guidelines that are currently in effect, the FDA has a goal of 10 months to review and act on a standard NDA and 6 months to review and act on a priority NDA, measured from the "filing" date for an NDA for a new molecular entity (NME) or from the receipt date for an NDA for a non-NME product. Measuring from the "filing" date typically adds approximately two months to the timeline for review and decision, because the FDA has sixty days from receipt to make a "filing" decision, as described below.

In addition, under the Pediatric Research Equity Act of 2003 as amended and reauthorized, certain NDAs or supplements to an NDA must contain data that are adequate to assess the safety and effectiveness of the drug for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric data requirements.

The FDA also may require submission of a risk evaluation and mitigation strategy, or REMS, plan to ensure that the benefits of the drug outweigh its risks. The REMS plan could include medication guides, physician communication plans, assessment plans, and/or elements to assure safe use, such as restricted distribution methods, patient registries, or other risk minimization tools.

The FDA conducts a preliminary review of all NDAs within the first 60 days after submission, before accepting them for filing, to determine whether they are sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive

review. The FDA reviews an NDA to determine, among other things, whether the drug is safe and effective and whether the facility in which it is manufactured, processed, packaged or held meets standards designed to assure the product's continued safety, quality and purity.

The FDA may refer an application for a novel drug to an advisory committee. An advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving an NDA, the FDA typically will inspect the facility or facilities where the product is manufactured. 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. Additionally, before approving an NDA, the FDA may inspect one or more clinical trial sites to assure compliance with GCP requirements.

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

The testing and approval process for an NDA requires substantial time, effort and financial resources, and each may take several years to complete. Data obtained from preclinical and clinical testing are not always conclusive and may be susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. The FDA may not grant approval on a timely basis, or at all.

After evaluating the NDA and all related information, including the advisory committee recommendation, if any, and inspection reports regarding the manufacturing facilities and clinical trial sites, the FDA may issue an approval letter, or, in some cases, a complete response letter. A complete response letter generally contains a statement of specific conditions that must be met to secure final approval of the NDA and may require additional clinical testing, preclinical testing, manufacturing or formulation modifications or other changes in order for the FDA to reconsider the application. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval. If and when those conditions have been met to the FDA's satisfaction, the FDA will typically issue an approval letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications.

Even if the FDA approves a product, it may limit the approved indications for use of the product, require that contraindications, warnings or precautions be included in the product labeling, require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess a drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution and use restrictions or other risk management mechanisms under a REMS, which can materially affect the potential market and profitability of the product. The FDA may prevent or limit further marketing of a product based on the results of post-marketing studies or surveillance programs. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes, and additional labeling claims, are subject to further testing requirements and FDA review and approval.

The Hatch-Waxman Amendments

Our current regulatory strategy is to pursue development of LYR-210 as a Section 505(b)(2) NDA. As an alternative path to FDA approval for modifications to formulations or uses of drugs previously approved by the FDA, an applicant may submit an NDA under Section 505(b)(2) of the FDCA. Section 505(b)(2) was enacted as part of the Hatch-Waxman Amendments. A Section 505(b)(2) NDA is an application that contains full reports of investigations of safety and effectiveness, but where at least some of the information required for approval comes from studies not conducted by, or for, the applicant and for which the applicant has not obtained a right of reference or use from the person by or for whom the investigations were conducted. This type of application permits reliance for such approvals on literature or on an FDA finding of safety, effectiveness or both for an approved drug product. As such, under Section 505(b)(2), the FDA may rely, for approval of an NDA, on data not developed by the applicant. Therefore, if we can satisfy the conditions required for a Section 505(b)(2) NDA submission, it may eliminate the need for us to conduct some of the preclinical studies or clinical trials for the new product candidate that might otherwise have been required, although the review time is not shortened. The FDA may then approve the new product candidate for the new indication sought by the 505(b)(2) applicant.

Orange Book Listing

In seeking approval for a drug through an NDA, applicants are required to list with the FDA certain patents whose claims cover the applicant's product. Upon approval of an NDA, each of the patents listed in the application for the drug is then published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, known as the Orange Book. Any applicant who files an Abbreviated New Drug Application (ANDA) seeking approval of a generic equivalent version of a drug listed in the Orange Book or a 505(b)(2) NDA referencing a drug listed in the Orange Book must certify, for each patent listed in the Orange Book for the referenced drug, to the FDA that (1) no patent information on the drug product that is the subject of the application has been submitted to the FDA, (2) such patent has expired, (3) the date on which such patent expires or (4) such patent is invalid or will not be infringed upon by the manufacture, use or sale of the drug product for which the application is submitted. The fourth certification described above is known as a paragraph IV certification. A notice of the paragraph IV certification must be provided to each owner of the patent that is the subject of the certification and to the holder of the approved NDA to which the ANDA refers. The applicant may also elect to submit a "section viii" statement certifying that its proposed label does not contain (or carves out) any language regarding the patented method-of-use rather than certify to a listed method-of-use patent. This section viii statement does not require notice to the patent holder or NDA owner. There might also be no relevant patent certification.

If the reference NDA holder and patent owners assert a patent challenge directed to one of the Orange Book listed patents within 45 days of the receipt of the paragraph IV certification notice, the FDA is prohibited from approving the application until the earlier of 30 months from the receipt of the paragraph IV certification expiration of the patent, settlement of the lawsuit, or a decision in the infringement case that is favorable to the applicant. Even if the 45 days expire, a patent infringement lawsuit can be brought and could delay market entry, but it would not extend the FDA-related 30-month stay of approval.

The ANDA or 505(b)(2) application also will not be approved until any applicable non-patent exclusivity listed in the Orange Book for the branded reference drug has expired. Specifically, the holder of the NDA for the listed drug may be entitled to a period of non-patent exclusivity, during which the FDA cannot approve an ANDA or 505(b)(2) application that relies on the listed drug. For example, a pharmaceutical manufacturer may obtain five years of non-patent exclusivity upon NDA approval of an NCE, which is a drug that contains an active moiety that has not been approved by FDA in any other NDA. An "active moiety" is defined as the molecule or ion responsible for the drug substance's physiological or pharmacologic action. During the five-year exclusivity period, the FDA cannot accept for filing any ANDA seeking approval of a generic version of that drug or any 505(b)(2) NDA for the same active moiety and that relies on the FDA's findings regarding that drug, except that FDA may accept an application for filing after four years if the

follow-on applicant makes a paragraph IV certification. This exclusivity period may be extended by an additional six months if certain requirements are met to qualify the product for pediatric exclusivity, including the receipt of a written request from the FDA that the NDA holder conduct certain pediatric studies, the submission of study reports from such studies to the FDA after receipt of the written request and satisfaction of the conditions specified in the written request.

Expedited Review and Approval Programs

The FDA has various programs, including Fast Track Designation, accelerated approval, priority review, and breakthrough therapy designation, which are intended to expedite or simplify the process for the development and FDA review of drugs that are intended for the treatment of serious or life threatening diseases or conditions and demonstrate the potential to address unmet medical needs. The purpose of these programs is to provide important new drugs to patients earlier than under standard FDA review procedures.

To be eligible for a Fast Track Designation, the FDA must determine, based on the request of a sponsor, that a product is intended to treat a serious or life-threatening disease or condition and demonstrates the potential to address an unmet medical need. The FDA will determine that a product will fill an unmet medical need if it will provide a therapy where none exists or provide a therapy that may be potentially superior to existing therapy based on efficacy or safety factors. The FDA may review sections of the NDA for a fast track product on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the NDA, the FDA agrees to accept sections of the NDA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the NDA.

The FDA may give a priority review designation to drugs that offer major advances in treatment, or provide a treatment where no adequate therapy exists. A priority review means that the goal for the FDA to review an application is six months, rather than the standard review of ten months under current PDUFA guidelines. Under the new PDUFA agreement, these six and ten month review periods are measured from the “filing” date rather than the receipt date for NDAs for new molecular entities, which typically adds approximately two months to the timeline for review and decision from the date of submission. Most products that are eligible for Fast Track Designation are also likely to be considered appropriate to receive a priority review.

In addition, products studied for their safety and effectiveness in treating serious or life-threatening illnesses and that provide meaningful therapeutic benefit over existing treatments may be eligible for accelerated approval and may be approved on the basis of adequate and well-controlled clinical trials establishing that the drug product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA may require a sponsor of a drug receiving accelerated approval to perform post-marketing studies to verify and describe the predicted effect on irreversible morbidity or mortality or other clinical endpoint, and the drug may be subject to accelerated withdrawal procedures.

Moreover, under the provisions of the Food and Drug Administration Safety and Innovation Act, a sponsor can request designation of a product candidate as a “breakthrough therapy.” A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. Drugs designated as breakthrough therapies are also eligible for accelerated approval. The FDA must take certain actions, such as holding timely meetings and providing advice, intended to expedite the development and review of an application for approval of a breakthrough therapy.

Even if a product qualifies for one or more of these programs, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened. We may explore some of these opportunities for our product candidates as appropriate.

Post Approval Requirements

Drugs manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA and other government authorities, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications, manufacturing changes or other labeling claims, are subject to prior FDA review and approval. There also are continuing annual program fee requirements for any marketed products.

The FDA may impose a number of post-approval requirements as a condition of approval of an NDA. For example, the FDA may require post-marketing testing, including Phase 4 clinical trials, and surveillance to further assess and monitor the product's safety and effectiveness after commercialization.

In addition, drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and state authorities, and are subject to periodic unannounced inspections by the FDA and these state authorities for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP requirements and impose reporting and documentation requirements upon the sponsor and any third-party manufacturers that the sponsor may decide to use. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance.

Once an approval is granted, the FDA may withdraw the 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 mandatory 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 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 letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- 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. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label, although physicians, in the practice of medicine, may prescribe approved drugs for unapproved indications. The FDA and other authorities 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.

In addition, the distribution of prescription pharmaceutical products is subject to the Prescription Drug Marketing Act, or PDMA, which regulates the distribution of drugs and drug samples at the federal level, and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription pharmaceutical product samples and impose requirements to ensure accountability in distribution.

Other Healthcare Laws

Pharmaceutical and medical device manufacturers 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, U.S. federal anti-kickback, fraud and abuse, false claims, consumer fraud, pricing reporting, data privacy and security, and transparency laws and regulations as well as similar foreign laws in the jurisdictions outside the U.S. Similar state and local laws and regulations may also restrict business practices in the pharmaceutical industry, such as state anti-kickback and false claims laws, which may apply to business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, or by patients themselves; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information or which require tracking gifts and other remuneration and items of value provided to physicians, other healthcare providers and entities; state and local laws that require the registration of pharmaceutical sales representatives; and state and local laws governing the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts. Violation of any of such laws or any other governmental regulations that apply may result in penalties, including, without limitation, civil and criminal penalties, damages, fines, additional reporting obligation, the curtailment or restructuring of operations, exclusion from participation in governmental healthcare programs and individual imprisonment.

Coverage and Reimbursement

Sales of any pharmaceutical product 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 for such product by third-party payors. Significant uncertainty exists as to the coverage and reimbursement status of any newly approved product. Decisions regarding the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. One third-party payor's decision to cover a particular product does not ensure that other payors will also provide coverage for the product. As a result, the coverage determination process can require manufactures to provide scientific and clinical support for the use of a product to each payor separately and can be a time-consuming process, 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, third-party payors are increasingly reducing reimbursements for pharmaceutical products and services. The U.S. government and state legislatures 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 more and more challenging the prices charged, examining the

medical necessity and reviewing the cost effectiveness of pharmaceutical products, in addition to questioning their 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. Decreases in third-party reimbursement for any product or a decision by a third-party payor not to cover a product could reduce physician usage and patient demand for the product.

In international markets, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. Pharmaceutical products may face competition from lower-priced products in foreign countries that have placed price controls on pharmaceutical products and may also compete with imported foreign products. Furthermore, there is no assurance that a product will be considered medically reasonable and necessary for a specific indication, will be considered cost-effective by third-party payors, that an adequate level of reimbursement will be established even if coverage is available or that the third-party payors' reimbursement policies will not adversely affect the ability for manufacturers to sell products profitably.

Healthcare Reform

In the United States and certain foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes to the healthcare system. In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively the ACA, was signed into law, which substantially changed the way healthcare is financed by both governmental and private insurers in the United States. By way of example, the ACA increased the minimum level of Medicaid rebates payable by manufacturers of brand name drugs from 15.1% to 23.1%; required collection of rebates for drugs paid by Medicaid managed care organizations; imposed a non-deductible annual fee on pharmaceutical manufacturers or importers who sell certain "branded prescription drugs" to specified federal government programs, implemented 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; expanded eligibility criteria for Medicaid programs; creates 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 established a Center for Medicare Innovation at 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 and Congressional 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, in 2017, Congress enacted the Tax Cuts and Jobs Act, which eliminated the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." On December 14, 2018, a U.S. District Court Judge in the Northern District of Texas, or the Texas District Court Judge, ruled that the individual mandate is a critical and inseverable feature of the ACA, and therefore, because it was repealed as part of the Tax Cuts and Jobs Act, the remaining provisions of the ACA are invalid as well. While the Texas U.S. District Court Judge, as well as the Trump administration and CMS, have stated that the ruling will have no immediate effect, and on December 30, 2018 the Texas District Court Judge issued an order staying the judgment pending appeal, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the ACA will impact the ACA.

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, which will remain in effect through 2027 absent additional congressional action. 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 legislation designed, among other things, to bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs and reform government program reimbursement methodologies for pharmaceutical products. Individual states in the United States have also become increasingly active in implementing 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, mechanisms to encourage importation from other countries and bulk purchasing. Furthermore, there has been increased interest by third party payors and governmental authorities in reference pricing systems and publication of discounts and list prices.

Employees

As of December 31, 2019, we had full-time employees, including employees with M.D. or Ph.D. degrees. Of these full-time employees, employees are engaged in research and development activities. None of our employees is represented by a labor union or covered by a collective bargaining agreement. We consider our relationship with our employees to be good.

Facilities

Our principal office is located at 480 Arsenal Way, Watertown, Massachusetts, where we lease approximately 22,343 square feet of office and laboratory space. We lease this space under a lease agreement, as amended, that terminates on April 30, 2023. We believe that our facilities are sufficient to meet our current needs and that suitable additional space will be available as and when needed.

Corporate Information

We were incorporated under the laws of the state of Delaware in November 2005 under the name WMR Biomedical, Inc. In July 2018, we changed our name to Lyra Therapeutics, Inc. Our principal executive offices are located at 480 Arsenal Way, Watertown, MA 02472 and our telephone number is (617) 393-4600. Our website address is *www.lyratherapeutics.com*. The information contained in, or accessible through, our website does not constitute a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Legal Proceedings

We are not subject to any material legal proceedings.

MANAGEMENT

Executive Officers and Directors

The following table sets forth the name, age and position of each of our executive officers and directors as of the date of this prospectus.

Name	Age	Position
Executive Officers		
Maria Palasis, Ph.D.	55	President and Chief Executive Officer and Director
R. Don Elsey	66	Chief Financial Officer, Treasurer and Secretary
Dana Washburn, M.D.	57	Chief Medical Officer
Laura Edgerly-Pflug	56	Senior Vice President of Technical Operation
Corinne Noyes	52	Senior Vice President of Commercial Strategy and Market Development
Directors		
Michael Altman	37	Director
Edward Anderson	70	Director
Robert S. Langer, D.Sc.	71	Director
C. Ann Merrifield	68	Director
W. Bradford Smith	64	Director
George Whitesides, Ph.D.	80	Director

(1) Member of the audit committee.
(2) Member of the compensation committee.
(3) Member of the nominating and corporate governance committee.

Executive Officers

Maria Palasis, Ph.D. has served as our President and Chief Executive Officer and a member of our board of directors since January 2015. Prior to her role with us as President and Chief Executive Officer, Dr. Palasis held positions of increasing responsibility, the most recent of which was Executive Vice President and Chief Technology Officer from 2011 to 2015. Before that, in 2008, Dr. Palasis joined Arsenal Medical, Inc., a biotechnology company, as Executive Vice President and subsequently served as President and Chief Executive Officer and a member of the board of directors of Arsenal Medical from January 2015 to June 2018. Before that, from November 1995 to January 2008, Dr. Palasis served as Director at Boston Scientific Corporation, a medical device company, where she managed a portfolio of external biotech and medical device investments and led the development of several combination therapies. Dr. Palasis holds a B.S. and Ph.D. in Chemical Engineering from the University of Cincinnati, and she held a postdoctoral fellowship in molecular biology at the University of Cincinnati School of Medicine. We believe that Dr. Palasis' experience in the industry and knowledge of our company qualifies her to serve on our board of directors.

R. Don Elsey has served as our Chief Financial Officer since August 2019 and as our Treasurer and Secretary since October 2019. Prior to joining our company, from February 2015 to February 2019, Mr. Elsey served as Chief Financial Officer at Senseonics, Inc., a medical device company. From May 2014 until February 2015, Mr. Elsey served as Chief Financial Officer of Regado Biosciences, Inc., a biopharmaceutical company. From December 2012 to February 2014, Mr. Elsey served as Chief Financial Officer of LifeCell Corporation, a privately held regenerative medicine company. Mr. Elsey holds a B.A. in economics and an M.B.A. in finance from Michigan State University.

Dana Washburn, M.D. has served as our Chief Medical Officer since October 2019. Prior to joining our company, from November 2012 to October 2019, Dr. Washburn served in positions of increasing responsibility at Parexel International, a global contract research organization, most recently as Corporate Vice President, Head, Global Medical Services from 2015 to 2019, where he oversaw clinical research activities in support of

client development programs. Before that, from April 2010 to November 2012, Dr. Washburn served in positions of increasing responsibility at Lantheus Medical Imaging, Inc., a medical imaging agent manufacturer, most recently serving as Chief Medical Officer from September 2011 to November 2012. Dr. Washburn holds a B.A. in biology from Dartmouth College and an M.D. from the University of Massachusetts Medical School.

Laura Edgerly-Pflug has served as our Senior Vice President of Technical Operations since July 2019. Prior to joining our company, from October 2016 to June 2019, Ms. Edgerly-Pflug served as Vice President of Manufacturing Operations and Quality Control at Adgero Biopharmaceuticals Holdings, Inc., a biopharmaceutical company, where she led the manufacturing, formulation, analytical, and quality control and assurance activities for the development of a therapeutic. Before that, from January 2014 to September 2016, Ms. Edgerly-Pflug was the Owner at Pflug BioPharm Solutions, a biopharmaceutical consulting firm, where she provided strategic direction and implementation to clients in the areas of manufacturing, quality assurance, new technologies, new products and life cycle initiatives. Before that, from June 2012 to December 2013, Ms. Edgerly-Pflug served as Vice President of Technical Operations and Chemistry, Manufacturing and Controls at Insmed Incorporated, formerly Transave Inc., a pharmaceutical company, where she was responsible for product development and manufacturing of sterile liposomal products from preclinical development through commercialization. From July 2006 to June 2012, she served as Executive Director of Technical Operations and Chemistry, Manufacturing and Controls at Insmed. Ms. Edgerly-Pflug earned a B.S. in Chemistry from Kean College of New Jersey.

Corinne Noyes has served as our Senior Vice President of Commercial Strategy and Market Development since September 2018. Prior to joining our company, from January 2018 to August 2018, Ms. Noyes served as an independent contractor to our Company, providing biopharmaceutical consulting services. Before that, from January 2005 to August 2018, Ms. Noyes worked as a strategic advisor and independent biopharmaceutical consultant providing commercial leadership to emerging life sciences companies, including, among others, AMAG Pharmaceuticals, Inc., Avila Therapeutics, Inc. (Celgene Corporation), Adnexus Therapeutics Inc. (Bristol-Myers Squibb Company), Constellation Pharmaceuticals, Inc., and Editas Medicine, Inc. Before that, from 1997 to 2004, Ms. Noyes held various commercial leadership positions at Biogen Inc., a biotechnology company. Prior to joining Biogen Inc., from 1992 to 1996, Ms. Noyes worked as a health care strategy consultant at Deloitte & Touche LLP. Ms. Noyes holds a B.A. in Humanities and a B.B.A. in Business from St. Mary's College of Notre Dame and an M.B.A. in finance from University of Chicago Graduate School of Business.

Non-Employee Directors

Michael Altman has served as a member of our board of directors since June 2018. Since 2007, Mr. Altman has been employed on the investment team at Perceptive Advisors, a life sciences focused investment firm, where he currently serves as Managing Director and focuses on medical devices, diagnostics, digital health and specialty pharmaceuticals investments. Since October 2018, Mr. Altman has also served as Chief Financial Officer and member of the board of directors of ARYA Sciences Acquisition Corp., a special purpose acquisition company. From October 2005 to October 2007, Mr. Altman served as a healthcare trader and analyst at First New York Securities. Mr. Altman has served on the board of directors of Vitruvius Therapeutics, Inc., a pharmaceutical company, since December 2017, and served on the board of directors of Vensun Pharmaceuticals, Inc., a pharmaceutical company, from November 2016 to January 2019. Mr. Altman holds a B.S. in Business Administration from the University of Vermont. We believe that Mr. Altman's broad operational and transactional experience qualifies him to serve on our board of directors.

Edward Anderson. has served as a member of our board of directors since February 2019. Since June 1994, Mr. Anderson has served as the Founder and a Managing Partner at North Bridge Venture Partners & Growth Equity, a venture capital firm. Mr. Anderson holds a B.F.A. from the University of Denver and an M.B.A. from Columbia University Graduate School of Business. We believe that Mr. Anderson's extensive experience in venture capital investments qualifies him to serve on our board of directors.

Robert S. Langer, D.Sc. has served as a member of our board of directors since March 2006. Since 2005, Dr. Langer has served as a David H. Koch Institute Professor at the Massachusetts Institute of Technology. Dr. Langer has served on the board of directors of Abpro Corporation, a biotechnology company, since December 2016 and since September 2016 on the board of directors of Frequency Therapeutics, Inc., a biotechnology company. Dr. Langer has also served on the board of directors of Rubius Therapeutics, Inc., a biopharmaceutical company, since December 2014 and since December 2010 on the board of directors of Moderna, Inc., a biopharmaceutical company. Dr. Langer has also served on the board of directors of Puretech Health plc, a biotechnology company, and previously served on the boards of directors of Momenta Pharmaceuticals, Inc., a biotechnology company, Wyeth Pharmaceuticals, a biopharmaceutical company, Kala Pharmaceuticals, Inc., a biopharmaceutical company, Fibrocell Science, Inc., a biotechnology company, and Millipore Corp., a life-sciences device manufacturer. Dr. Langer holds a D.Sc. in Chemical Engineering from the Massachusetts Institute of Technology and a B.S. in Chemical Engineering from Cornell University. We believe Dr. Langer's pioneering academic work, extensive medical and scientific knowledge, and experience serving on public company boards of directors qualify him to serve on our board of directors.

C. Ann Merrifield has served as a member of our board of directors since September 2019. Ms. Merrifield has also served as a member of the boards of directors for a portfolio of public and private companies in the life sciences sector which include Flexion Therapeutics, Inc., since June 2014, InVivo Therapeutics Holdings Corp., since November 2014 and Veritas Genetics Inc., since December 2016. From July 2015 to August 2018, she served as a director of Juniper Pharmaceuticals, Inc., until it was acquired by Catalent, Inc. Ms. Merrifield also serves as a Trustee for MassMutual Premier, Select and MML Series Investment Funds, Partners Continuing Care (the post-acute care services division of Partners HealthCare) and the Huntington Theatre Company. From November 2012 to July 2014, Ms. Merrifield served as President, Chief Executive Officer and director of PathoGenetix Inc., a genomics company, which voluntarily filed for Chapter 7 bankruptcy in July 2014. Before that, Ms. Merrifield spent 18 years at Genzyme Corporation, serving in several leadership roles, including President of Genzyme Biosurgery, President of Genzyme Genetics and Senior Vice President, Business Excellence. Ms. Merrifield holds a B.A. in Zoology and a Master of Education from the University of Maine and an M.B.A. from the Tuck School of Business at Dartmouth College. We believe that Ms. Merrifield's extensive industry experience qualifies her to serve on our board of directors.

W. Bradford Smith has served a member of our board of directors since November 2019. Mr. Smith has served as Chief Financial Officer and Treasurer of Homology Medicines, Inc., a genetic medicines company, since April 2017 and as Secretary since July 2017. From March 2014 to April 2017, Mr. Smith was Chief Financial Officer of Ocular Therapeutix, Inc., a biopharmaceutical company. Prior to joining Ocular Therapeutix, Mr. Smith served as Chief Financial Officer of OmniGuide, Inc., a medical device company, from July 2008 to March 2014. Mr. Smith holds a B.S. in Biology from Tufts University and an M.B.A. from the Whittemore School of Business and Economics at the University of New Hampshire. We believe that Mr. Smith's extensive financial and industry experience qualify him to serve on our board of directors.

George Whitesides, Ph.D. has served as a member of our board of directors since March 2006. Since 2004, he has served as the Woodford L. and Ann A. Flowers University Professor at Harvard University. Dr. Whitesides joined Harvard's department of chemistry in 1982 and served as department chairman from 1986 to 1989. From 1963 to 1982, he was a faculty member at the Massachusetts Institute of Technology. Dr. Whitesides held advisory positions on the National Research Council, National Science Foundation and the Department of Defense's Defense Advanced Research Projects Agency (DARPA), and is a member of the American Academy of Arts and Sciences, National Academy of Sciences, National Academy of Engineering and the American Philosophical Society, among other organizations. Dr. Whitesides has served on the board of directors of Theravance Biopharma, Inc., a biopharmaceutical company, since October 2013. Dr. Whitesides is also a co-founder of a number of companies, including Genzyme Corporation, GelTex Pharmaceuticals Inc., Theravance Biopharma, Inc., Soft Robotics Inc. and Arsenal Medical, Inc. Dr. Whitesides holds an A.B. from Harvard University and a Ph.D. in chemistry from the California Institute of Technology. We believe that Dr. Whitesides' extensive scientific and industry experience qualifies him to serve on our board of directors.

Board Composition and Election of Directors

Director Independence

Our board of directors currently consists of members. Our board of directors has determined that, of our directors, , , , , and do not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under the rules of The Nasdaq Stock Market LLC, or Nasdaq. There are no family relationships among any of our directors or executive officers.

Classified Board of Directors

In accordance with our restated certificate of incorporation that will go into effect upon the closing of this offering, our board of directors will be divided into three classes with staggered, three-year terms. At each annual 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. Effective upon the closing of this offering, our directors will be divided among the three classes as follows:

- the Class I directors will be , , and , and their terms will expire at our first annual meeting of stockholders following this offering;
- the Class II directors will be , and , and their terms will expire at our second annual meeting of stockholders following this offering; and
- the Class III directors will be , and , and their terms will expire at the third annual meeting of stockholders following this offering.

Our restated certificate of incorporation that will go into effect upon the closing of this offering will provide that the authorized number of directors may be changed only by resolution of the board of directors. 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 of our company. Our directors may be removed only for cause by the affirmative vote of the holders of at least two-thirds of our outstanding voting stock entitled to vote in the election of directors.

Our directors were elected to and currently serve on the board pursuant to a voting agreement among us and several of our largest stockholders. See "Certain Relationships and Related Party Transactions—Voting Agreement." This agreement will terminate upon the closing of this offering, after which there will be no further contractual obligations regarding the election of our directors.

Board Leadership Structure

Our board of directors is currently chaired by . Our corporate governance guidelines provide that, if the chairman of the board is a member of management or does not otherwise qualify as independent, the independent directors of the board may elect a lead director. currently serves as our lead director. The lead director's responsibilities include, but are not limited to: presiding over all meetings of the board of directors at which the chairman is not present, including any executive sessions of the independent directors; approving board meeting schedules and agendas; and acting as the liaison between the independent directors and the chief executive officer and chairman of the board. Our corporate governance guidelines further provide the flexibility for our board of directors to modify our leadership structure in the future as it deems appropriate.

Role of the Board in Risk Oversight

One of the key functions of our board of directors is informed oversight of our risk management process. Our board of directors does not have a standing risk management committee, but rather administers this oversight function directly through our board of directors as a whole, as well as through various standing committees of our board of directors that address risks inherent in their respective areas of oversight. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure and our audit committee has the responsibility to consider and discuss our major financial risk exposures and the steps our management has taken to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. Our audit committee also monitors compliance with legal and regulatory requirements. Our nominating and corporate governance committee monitors the effectiveness of our corporate governance practices, including whether they are successful in preventing illegal or improper liability-creating conduct. Our compensation committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking. While each committee is responsible for evaluating certain risks and overseeing the management of such risks, our entire board of directors is regularly informed through committee reports about such risks.

Board Committees

Our board of directors has an audit committee, a compensation committee and a nominating and corporate governance committee, each of which has the composition and the responsibilities described below. In addition, from time to time, special committees may be established under the direction of our board of directors when necessary to address specific issues.

Each of the three standing committees—audit, compensation and nominating and corporate governance—operate under a charter that has been approved by our board of directors. Upon our listing on The Nasdaq Global Market, each committee's charter will be available under the Corporate Governance section of our website at *www.lyratherapeutics.com*. The reference to our website address does not constitute incorporation by reference of the information contained at or available through our website, and you should not consider it to be a part of this prospectus.

Audit Committee

The audit committee's responsibilities include, among other things:

- appointing, approving the compensation of, and assessing the independence of our registered public accounting firm;
- overseeing the work of our registered public accounting firm, including through the receipt and consideration of reports from such firm;
- reviewing and discussing with management and the registered public accounting firm our annual and quarterly financial statements and related disclosures;
- coordinating our board of directors' oversight of our internal control over financial reporting, disclosure controls and procedures and code of business conduct and ethics;
- discussing our risk management policies;
- meeting independently with our internal auditing staff, if any, registered public accounting firm and management;

- reviewing and approving or ratifying any related person transactions; and
- preparing the audit committee report required by Securities Exchange Commission, or SEC, rules.

The members of our audit committee are , and . serves as the chairperson of the committee. All members of our audit committee meet the requirements for financial literacy under the applicable listing rules of Nasdaq, or the Nasdaq rules. Our board of directors has determined that each of these individuals meets the independence requirements of Rule 10A-3 under the Exchange Act and the applicable Nasdaq rules. Each member of our audit committee can read and understand fundamental financial statements in accordance with the Nasdaq audit committee requirements. In arriving at this determination, the board has examined each audit committee member's scope of experience and the nature of their prior and/or current employment. Our board of directors has determined that is an "audit committee financial expert" as defined by applicable SEC rules and has the requisite financial sophistication as defined under the applicable Nasdaq rules.

We believe that the composition and functioning of our audit committee complies with all applicable requirements of the Sarbanes-Oxley Act, and all applicable SEC and Nasdaq rules and regulations. We intend to comply with future requirements to the extent they become applicable to us.

Compensation Committee

The compensation committee's responsibilities include, among other things:

- reviewing and approving, or recommending for approval by the board of directors, the compensation of our CEO and our other executive officers;
- overseeing and administering our cash and equity incentive plans;
- reviewing and making recommendations to our board of directors with respect to director compensation;
- reviewing and discussing annually with management our "Compensation Discussion and Analysis," to the extent required; and
- preparing the annual compensation committee report required by SEC rules, to the extent required.

The members of our compensation committee are , and . serves as the chairperson of the committee. Our board of directors has determined that each of , and is independent under the applicable Nasdaq rules, including the Nasdaq rules specific to membership on the compensation committee, and is a "non-employee director" as defined in Rule 16b-3 promulgated under the Exchange Act.

We believe that the composition and functioning of our compensation committee complies with all applicable requirements of the Sarbanes-Oxley Act, and all applicable SEC and Nasdaq rules and regulations. We intend to comply with future requirements to the extent they become applicable to us.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee's responsibilities include, among other things:

- identifying individuals qualified to become board members;

- recommending to our board of directors the persons to be nominated for election as directors and to each board committee;
- developing and recommending to our board of directors corporate governance guidelines, and reviewing and recommending to our board of directors proposed changes to our corporate governance guidelines from time to time; and
- overseeing a periodic evaluation of our board of directors.

The members of our nominating and corporate governance committee are , and . serves as the chairperson of the committee. Our board of directors has determined that , and are independent under the applicable Nasdaq rules and the SEC rules and regulations.

Compensation Committee Interlocks and Insider Participation

No member of our compensation committee is or has been our current or former officer or employee. None of our executive officers currently serves, or in the past year has served, as a director or a member of a compensation committee (or other committee serving an equivalent function) of any other entity, one of whose executive officers served as a director or member of our compensation committee.

Code of Ethics and Code of Conduct

We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. Upon our listing on The Nasdaq Global Market, our code of business conduct and ethics will be available under the Corporate Governance section of our website at *www.lyratherapeutics.com*. In addition, we intend to post on our website all disclosures that are required by law or the Nasdaq rules concerning any amendments to, or waivers from, any provision of the code. The reference to our website address does not constitute incorporation by reference of the information contained at or available through our website, and you should not consider it to be a part of this prospectus.

EXECUTIVE AND DIRECTOR COMPENSATION

This section discusses the material components of the executive compensation program for our executive officers who are named in the "2019 Summary Compensation Table" below. In 2019, our "named executive officers" and their positions were as follows:

- Maria Palasis, Ph.D., President and Chief Executive Officer;
- R. Don Elsey, Chief Financial Officer; and
- Laura Edgerly-Pflug, Senior Vice President of Technical Operations.

This discussion may contain forward-looking statements that are based on our current plans, considerations, expectations and determinations regarding future compensation programs. Actual compensation programs that we adopt following the completion of this offering may differ materially from the currently planned programs summarized in this discussion.

2019 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 ($)(1)	Non-Equity Incentive Plan Compensation ($)	All Other Compensation ($)	Total ($)
Maria Palasis, Ph.D. *President and Chief Executive Officer*	2019						
R. Don Elsey *Chief Financial Officer*	2019						
Laura Edgerly-Pflug *Senior Vice President of Technical Operations*	2019						

(1) Amounts represent the full grant date fair value of stock options granted during 2019 computed in accordance with ASC Topic 718, rather than the amounts paid to or realized by the named individual. We provide information regarding the assumptions used to calculate the value of all option awards made to named executive officers in Note 8 to the consolidated financial statements included in this prospectus.

(2) Mr. Elsey commenced employment with us in July 2019, and Ms. Edgerly-Pflug commenced employment with us in a part-time capacity in June 2019 and in a full-time capacity in July 2019.

Narrative to Summary Compensation Table

2019 Salaries

The named executive officers receive a base salary to provide a fixed component of compensation reflecting the executive's skill set, experience, role and responsibilities. For 2019, our board of directors established an annual base salary of $ for Dr. Palasis, effective . Mr. Elsey's and Ms. Edgerly-Pflug's 2019 annual base salaries were $ and $, respectively, and were established by our board of directors in connection with their commencing employment with us.

2019 Bonuses

We offer our named executive officers the opportunity to earn annual cash bonuses to compensate them for attaining short-term company goals as approved by our board of directors. For 2019, bonuses were based entirely on (i) completing steps towards a Phase 2 trial for LYR-210 and attaining other value-driving milestones, (ii) attaining corporate goals relating to overall business development and fundraising and (iii) building an executive team and board of directors, with these categories weighted at 30%, 50% and 20%, respectively. The 2019 target bonuses for each of Dr. Palasis, Mr. Elsey and Ms. Edgerly-Pflug were , and , respectively. The actual annual cash bonuses awarded to each named executive officer for 2019 performance are set forth above in the 2019 Summary Compensation Table in the column titled "Bonus".

Equity Compensation

We offer stock options to our employees, including our named executive officers, as the long-term incentive component of our compensation program. Our stock options generally allow employees to purchase shares of our common stock at a price equal to the fair market value of our common stock on the date of grant, as determined by the board of directors. With respect to grants made in connection with the commencement of employment, our stock options typically vest as to 25% of the underlying shares on the first anniversary of the date of grant and in equal monthly installments over the following three years, subject to the holder's continued employment with us. From time to time, our board of directors may also construct alternate vesting schedules as it determines are appropriate to motivate particular employees. Historically, our stock options have been intended to qualify as "incentive stock options" to the extent permitted under the Internal Revenue Code.

The following table sets forth the stock options granted to our named executive officers in during 2019.

Named Executive Officer	2019 Stock Options Granted
Maria Palasis, Ph.D.	
R. Don Elsey	
Laura Edgerly-Pflug	

These options were granted under our 2016 Equity Incentive Plan, which we refer to as the 2016 Plan, with exercise prices equal to the fair market value of our common stock on the date of grant, as determined by the board of directors, and with respect to Dr. Palasis, vest in equal monthly installments over four years following the date of grant and with respect to Mr. Elsey and Ms. Edgerly-Pflug, subject to our standard vesting schedule for grants made in connection with the commencement of employment described above.

In connection with this offering, we intend to adopt a 2020 Incentive Award Plan, referred to below as the 2020 Plan, in order to facilitate the grant of cash and equity incentives to directors, employees (including our named executive officers) and consultants of our company and to enable our company to obtain and retain services of these individuals. Following the effective date of the 2020 Plan, we will not make any further grants under the 2016 Plan. However, the 2016 Plan will continue to govern the terms and conditions of the outstanding awards granted under it. For additional information about the 2020 Plan, please see the section titled "Incentive Compensation Plans" below.

Other Elements of Compensation

Retirement Plan

We maintain a 401(k) retirement savings plan for our employees, including our named executive officers, who satisfy certain eligibility requirements. Our named executive officers are eligible to participate in the 401(k) plan on the same terms as other full-time employees. We believe that providing a vehicle for tax-deferred retirement savings though our 401(k) plan adds to the overall desirability of our executive compensation package and further incentivizes our employees, including our named executive officers, in accordance with our compensation policies.

Employee Benefits and Perquisites

All of our full-time employees, including our named executive officers, are eligible to participate in our employee benefit plans and programs, including medical, dental, and vision benefits, health spending accounts, and short- and long-term disability, accidental death and dismemberment, and life insurance, to the same extent as our other full-time employees, subject to the terms and eligibility requirements of those plans. For 2019, we did not provide an employer matching contribution under our 401(k) plan.

Outstanding Equity Awards at 2019 Fiscal Year-End

The following table summarizes the number of shares of common stock underlying outstanding equity incentive plan awards for each named executive officer as of December 31, 2019.

		Option Awards					Stock Awards			
Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ($)
Maria Palasis, Ph.D.										
R. Don Elsey										
Laura Edgerly-Pflug										

Executive Compensation Arrangements

In connection with the IPO, we intend to enter into employment agreements with each named executive officer that will supersede their current compensation arrangements and become effective on the effectiveness of the registration statement of which this prospectus is a part. The terms of those arrangements are not currently known.

Director Compensation

2019 Director Compensation Table

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)(1)	Option Awards ($)(1)	All Other Compensation ($)	Total ($)
Robert Langer D.Sc.					
George Whitesides Ph.D.					
Michael Altman					
C. Ann Merrifield					
Edward Anderson					
W. Bradford Smith					

(1) Amounts reflect the full grant-date fair value of stock awards and stock options granted during 2019 computed in accordance with ASC Topic 718, rather than the amounts paid to or realized by the named individual. We provide information regarding the assumptions used to calculate the value of all stock awards and option awards made to our directors in Note 8 to the consolidated financial statements included in this prospectus.

The table below shows the aggregate numbers of option awards (exercisable and unexercisable) and unvested stock awards held as of December 31, 2019 by each non-employee director who was serving as of December 31, 2019.

Name	Options Outstanding at Fiscal Year End	Unvested Restricted Shares Outstanding at Fiscal Year End
Robert Langer D.Sc.		
George Whitesides Ph.D.		
Michael Altman		
C. Ann Merrifield		
Edward Anderson		
W. Bradford Smith		

We intend to approve and implement a compensation program for our non-employee directors that consists of annual retainer fees and long-term equity awards. The terms of this program are not currently known.

Incentive Compensation Plans

The following summarizes the material terms of 2020 Plan and the 2020 Employee Stock Purchase Plan, which will be the long-term incentive compensation plans in which our directors and named executive officers are eligible to participate following the consummation of this offering, and the 2016 Plan, under which we have previously made periodic grants of equity and equity-based awards to our directors and named executive officers.

2020 Incentive Award Plan

Effective the day prior to the first public trading date of our common stock, we intend to adopt and ask our stockholders to approve the 2020 Plan, under which we may grant cash and equity-based incentive awards to eligible service providers in order to attract, retain and motivate the persons who make important contributions to our company. The material terms of the 2020 Plan are summarized below.

Eligibility and Administration

Our employees, consultants and directors, and employees and consultants of our subsidiaries, will be eligible to receive awards under the 2020 Plan. The 2020 Plan will be administered by our board of directors, which may delegate its duties and responsibilities to one or more committees of our directors and/or officers (referred to collectively as the plan administrator below), subject to the limitations imposed under the 2020 Plan, Section 16 of the Exchange Act, stock exchange rules and other applicable laws. The plan administrator will have the authority to take all actions and make all determinations under the 2020 Plan, to interpret the 2020 Plan and award agreements and to adopt, amend and repeal rules for the administration of the 2020 Plan as it deems advisable. The plan administrator will also have the authority to grant awards, determine which eligible service providers receive awards and set the terms and conditions of all awards under the 2020 Plan, including any vesting and vesting acceleration provisions, subject to the conditions and limitations in the 2020 Plan.

Shares Available for Awards

An aggregate of shares of our common stock will initially be available for issuance under the 2020 Plan. The number of shares initially available for issuance will be increased by an annual increase on January 1 of each calendar year beginning in 2021 and ending in and including 2030, equal to the lesser of (A) % of the shares of common stock outstanding on the final day of the immediately preceding calendar year and (B) a smaller number of shares determined by our board of directors. No more than shares of common stock may be issued under the 2020 Plan upon the exercise of incentive stock options. Shares issued under the 2020 Plan may be authorized but unissued shares, shares purchased on the open market or treasury shares.

If an award under the 2020 Plan or the 2016 Plan, expires, lapses or is terminated, exchanged for cash, surrendered, repurchased, canceled without having been fully exercised or forfeited, any unused shares subject to the award will, as applicable, become or again be available for new grants under the 2020 Plan. Awards granted under the 2020 Plan in substitution for any options or other stock or stock-based awards granted by an entity before the entity's merger or consolidation with us or our acquisition of the entity's property or stock will not reduce the shares available for grant under the 2020 Plan, but may count against the maximum number of shares that may be issued upon the exercise of incentive stock options, or ISOs.

Awards

The 2020 Plan provides for the grant of stock options, including ISOs, and nonqualified stock options, or NSOs, stock appreciation rights, or SARs, restricted stock, dividend equivalents, restricted stock units, or RSUs, and other stock or cash based awards. Certain awards under the 2020 Plan may constitute or provide for payment of "nonqualified deferred compensation" under Section 409A of the Code. All awards under the 2020 Plan will be set forth in award agreements, which will detail the terms and conditions of awards, including any applicable vesting and payment terms and post-termination exercise limitations. A brief description of each award type follows.

- Stock Options and SARs. Stock options provide for the purchase of shares of our common stock in the future at an exercise price set on the grant date. ISOs, by contrast to NSOs, may provide tax deferral beyond exercise and favorable capital gains tax treatment to their holders if certain holding period and other requirements of the Code are satisfied. SARs entitle their holder, upon exercise, to receive from us an amount equal to the appreciation of the shares subject to the award between the grant date and the exercise date. The plan administrator will determine the number of shares covered by each option and SAR, the exercise price of each option and SAR and the conditions and limitations applicable to the exercise of each option and SAR. The exercise price of a stock option or SAR will not be less than 100% of the fair market value of the underlying share on the grant date (or 110% in the case of ISOs granted to certain significant stockholders), except with respect to certain substitute awards granted in connection with a corporate transaction. The term of a stock option or SAR may not be longer than ten years (or five years in the case of ISOs granted to certain significant stockholders).

- Restricted Stock and RSUs. Restricted stock is an award of nontransferable shares of our common stock that remain forfeitable unless and until specified conditions are met and which may be subject to a purchase price. RSUs are contractual promises to deliver shares of our common stock in the future, which may also remain forfeitable unless and until specified conditions are met and may be accompanied by the right to receive the equivalent value of dividends paid on shares of our common stock prior to the delivery of the underlying shares. The plan administrator may provide that the delivery of the shares underlying RSUs will be deferred on a mandatory basis or at the election of the participant. The terms and conditions applicable to restricted stock and RSUs will be determined by the plan administrator, subject to the conditions and limitations contained in the 2020 Plan.

- Other Stock or Cash Based Awards. Other stock or cash based awards are awards of cash, fully vested shares of our common stock and other awards valued wholly or partially by referring to, or otherwise based on, shares of our common stock or other property. Other stock or cash based awards may be granted to participants and may also be available as a payment form in the settlement of other awards, as standalone payments and as payment in lieu of compensation to which a participant is otherwise entitled. The plan administrator will determine the terms and conditions of other stock or cash based awards, which may include any purchase price, performance goal, transfer restrictions and vesting conditions.

Performance Criteria

The plan administrator may select performance criteria for an award to establish performance goals for a performance period. Performance criteria under the 2020 Plan may include, but are not limited to, the following: net earnings or losses (either before or after one or more of interest, taxes, depreciation, amortization, and non-cash equity-based compensation expense); gross or net sales or revenue or sales or revenue growth; net income (either before or after taxes) or adjusted net income; profits (including but not limited to gross profits, net profits, profit growth, net operation profit or economic profit), profit return ratios or operating margin; budget or operating earnings (either before or after taxes or before or after allocation of corporate overhead and bonus); cash flow (including operating cash flow and free cash flow or cash flow return on capital); return on assets; return on capital or invested capital; cost of capital; return on stockholders' equity; total stockholder return; return on sales; costs, reductions in costs and cost control measures; expenses; working capital; earnings or loss per share; adjusted earnings or loss per share; price per share or dividends per share (or appreciation in or maintenance of such price or dividends); regulatory achievements or compliance; implementation, completion or attainment of objectives relating to research, development, regulatory, commercial, or strategic milestones or developments; market share; economic value or economic value added models; division, group or corporate financial goals; customer satisfaction/growth; customer service; employee satisfaction; recruitment and maintenance of personnel; human resources management; supervision of litigation and other legal matters; strategic partnerships and transactions; financial ratios (including those measuring liquidity, activity, profitability or leverage); debt levels or reductions; sales-related goals; financing and other capital raising transactions; cash on hand; acquisition activity; investment sourcing activity; and marketing initiatives, any of which may be measured in absolute terms or as compared to any incremental increase or decrease. Such performance goals also may be based solely by reference to the company's performance or the performance of a subsidiary, division, business segment or business unit of the company or a subsidiary, or based upon performance relative to performance of other companies or upon comparisons of any of the indicators of performance relative to performance of other companies. When determining performance goals, the plan administrator may provide for exclusion of the impact of an event or occurrence which the plan administrator determines should appropriately be excluded, including, without limitation, non-recurring charges or events, acquisitions or divestitures, changes in the corporate or capital structure, events unrelated to the business or outside of the control of management, foreign exchange considerations, and legal, regulatory, tax or accounting changes.

Certain Transactions

In connection with certain corporate transactions and events affecting our common stock, including a change in control, or change in any applicable laws or accounting principles, the plan administrator has broad discretion to take action under the 2020 Plan to prevent the dilution or enlargement of intended benefits, facilitate the transaction or event or give effect to the change in applicable laws or accounting principles. This includes canceling awards for cash or property, accelerating the vesting of awards, providing for the assumption or substitution of awards by a successor entity, adjusting the number and type of shares subject to outstanding awards and/or with respect to which awards may be granted under the 2020 Plan and replacing or terminating awards under the 2020 Plan. In addition, in the event of certain non-reciprocal transactions with our stockholders, the plan administrator will make equitable adjustments to awards outstanding under the 2020 Plan as it deems appropriate to reflect the transaction.

Provisions of the 2020 Plan Relating to Director Compensation.

The 2020 Plan provides that the plan administrator may establish compensation for non-employee directors from time to time subject to the 2020 Plan's limitations. Prior to commencing this offering, we intend to approve and implement a compensation program for our non-employee directors, which is described above under the heading "Director Compensation." Our board of directors or its authorized committee may modify the non-employee director compensation program from time to time in the exercise of its business judgment, taking into account such factors, circumstances and considerations as it shall deem relevant from time to time, provided

that the sum of any cash compensation or other compensation and the grant date fair value of any equity awards granted under the 2020 Plan as compensation for services as a non-employee director during any fiscal year may not exceed $ in the fiscal year of the non-employee director's initial service and $ in any other fiscal year. The plan administrator may make exceptions to this limit for individual non-employee directors in extraordinary circumstances, as the plan administrator may determine in its discretion, subject to the limitations in the 2020 Plan.

Plan Amendment and Termination

Our board of directors may amend or terminate the 2020 Plan at any time; however, no amendment, other than an amendment that increases the number of shares available under the 2020 Plan, may materially and adversely affect an award outstanding under the 2020 Plan without the consent of the affected participant and stockholder approval will be obtained for any amendment to the extent necessary to comply with applicable laws. Further, the plan administrator may, without the approval of our stockholders, amend any outstanding stock option or SAR to reduce its price per share, other than in the context of corporate transactions or equity restructurings, as described above. The 2020 Plan will remain in effect until the tenth anniversary of its effective date, unless earlier terminated by our board of directors. No awards may be granted under the 2020 Plan after its termination.

Foreign Participants, Claw-Back Provisions, Transferability and Participant Payments

The plan administrator may modify awards granted to participants who are foreign nationals or employed outside the United States or establish subplans or procedures to address differences in laws, rules, regulations or customs of such foreign jurisdictions. All awards will be subject to any company claw-back policy as set forth in such claw-back policy or the applicable award agreement. Except as the plan administrator may determine or provide in an award agreement, awards under the 2020 Plan are generally non-transferrable, except by will or the laws of descent and distribution, or, subject to the plan administrator's consent, pursuant to a domestic relations order, and are generally exercisable only by the participant. With regard to tax withholding obligations arising in connection with awards under the 2020 Plan and exercise price obligations arising in connection with the exercise of stock options under the 2020 Plan, the plan administrator may, in its discretion, accept cash, wire transfer or check, shares of our common stock that meet specified conditions, a promissory note, a "market sell order," such other consideration as the plan administrator deems suitable or any combination of the foregoing.

2020 Employee Stock Purchase Plan

Effective the day prior to the first public trading date of our common stock, we intend to adopt and ask our stockholders to approve the 2020 Employee Stock Purchase Plan, or the 2020 ESPP, the material terms of which are summarized below.

Shares Available for Awards; Administration

A total of shares of our common stock will initially be reserved for issuance under the 2020 ESPP. In addition, the number of shares available for issuance under the 2020 ESPP will be annually increased on January 1 of each calendar year beginning in 2021 and ending in and including 2030, by an amount equal to the lesser of (A) % of the shares outstanding on the final day of the immediately preceding calendar year and (B) such smaller number of shares as is determined by our board of directors, provided that no more than shares of our common stock may be issued under the 2020 ESPP. Our board of directors or a committee of our board of directors will administer and will have authority to interpret the terms of the 2020 ESPP and determine eligibility of participants. We expect that the compensation committee will be the initial administrator of the 2020 ESPP.

Eligibility

All of our employees are eligible to participate in the 2020 ESPP. However, an employee may not be granted rights to purchase stock under our 2020 ESPP if the employee, immediately after the grant, would own (directly or through attribution) stock possessing 5% or more of the total combined voting power or value of all classes of our stock.

Grant of Rights

The 2020 ESPP is intended to qualify under Section 423 of the Code and stock will be offered under the 2020 ESPP during offering periods. The length of the offering periods under the 2020 ESPP will be determined by the plan administrator and may be up to twenty-seven months long. Employee payroll deductions will be used to purchase shares on each purchase date during an offering period. The purchase dates for each offering period will be the final trading day in the offering period. Offering periods under the 2020 ESPP will commence when determined by the plan administrator. The plan administrator may, in its discretion, modify the terms of future offering periods.

The 2020 ESPP permits participants to purchase common stock through payroll deductions of up to a specified percentage of their eligible compensation. The plan administrator will establish a maximum number of shares that may be purchased by a participant during any offering period. In addition, no employee will be permitted to accrue the right to purchase stock under the 2020 ESPP at a rate in excess of $25,000 worth of shares during any calendar year during which such a purchase right is outstanding (based on the fair market value per share of our common stock as of the first day of the offering period).

On the first trading day of each offering period, each participant will automatically be granted an option to purchase shares of our common stock. The option will expire at the end of the applicable offering period, and will be exercised at that time to the extent of the payroll deductions accumulated during the offering period. The purchase price of the shares, in the absence of a contrary designation, will be 85% of the lower of the fair market value of our common stock on the first trading day of the offering period or on the purchase date. Participants may voluntarily end their participation in the 2020 ESPP at any time during a specified period prior to the end of the applicable offering period, and will be paid their accrued payroll deductions that have not yet been used to purchase shares of common stock. Participation ends automatically upon a participant's termination of employment.

A participant may not transfer rights granted under the 2020 ESPP other than by will or the laws of descent and distribution, and are generally exercisable only by the participant.

Certain Transactions

In the event of certain non-reciprocal transactions or events affecting our common stock, the plan administrator will make equitable adjustments to the 2020 ESPP and outstanding rights. In the event of certain unusual or non-recurring events or transactions, including a change in control, the plan administrator may provide for (1) either the replacement of outstanding rights with other rights or property or termination of outstanding rights in exchange for cash, (2) the assumption or substitution of outstanding rights by the successor or survivor corporation or parent or subsidiary thereof, if any, (3) the adjustment in the number and type of shares of stock subject to outstanding rights, (4) the use of participants' accumulated payroll deductions to purchase stock on a new purchase date prior to the next scheduled purchase date and termination of any rights under ongoing offering periods or (5) the termination of all outstanding rights.

Plan Amendment

The plan administrator may amend, suspend or terminate the 2020 ESPP at any time. However, stockholder approval will be obtained for any amendment that increases the aggregate number or changes the

type of shares that may be sold pursuant to rights under the 2020 ESPP, changes the corporations or classes of corporations whose employees are eligible to participate in the 2020 ESPP or changes the 2020 ESPP in any manner that would cause the 2020 ESPP to no longer be an employee stock purchase plan within the meaning of Section 423(b) of the Code.

2016 Plan

Our board of directors adopted our 2016 Plan in February 2016, and our stockholders approved our 2016 Plan in June 2016. Following the effectiveness of the 2020 Plan, we will cease granting additional awards under our 2016 Plan. However, our 2016 Plan will continue to govern the terms and conditions of the outstanding awards previously granted thereunder, which include options and restricted stock awards.

Share Reserve. As of December 31, 2019, stock options covering shares with a weighted-average exercise price of $ per share and no shares of restricted stock were outstanding under our 2016 Plan, and shares of our common stock remained available for the future grant of awards under our 2016 Plan. If an option granted under our 2016 Plan expires, lapses or is terminated, exchanged for cash, surrendered, repurchased, canceled without having been fully exercised or forfeited, in each case after effectiveness of the 2020 Plan, any unused shares subject to the option will become available for issuance under our 2020 Plan.

Administration. Our board of directors or a committee delegated by our board of directors administers our 2016 Plan. Subject to the terms of our 2016 Plan, the administrator has the power to, among other things, determine who will be granted awards, to determine the terms and conditions of each award (including the number of shares, exercise price, if any, and any vesting conditions), to accelerate the time(s) when an award may vest or be exercised and to construe and interpret the terms of our 2016 Plan and awards granted thereunder.

Options and Restricted Stock. Options and restricted stock granted under our 2016 Plan may be granted subject to terms and conditions generally similar to those described above with respect to options and restricted stock that may be granted under our 2020 Plan.

Changes to Capital Structure. In the event of any dividend or other distribution, reorganization, merger, consolidation, combination, repurchase, recapitalization, liquidation, dissolution, or sale, transfer, exchange or other disposition of assets of the Company, or sale or exchange of our common stock or other securities of the Company, issuance of warrants or other rights to purchase our common stock or other securities of the Company, or other similar corporate transaction or event affecting our shares, the plan administrator may adjust the number and kind of shares that may be delivered under the 2016 Plan, the number, kind and price of shares covered by each outstanding award and/or the terms and conditions of any outstanding award (including any performance “targets”) in order to prevent to prevent dilution or enlargement of the benefits or potential benefits intended by the Company under the 2016 Plan.

Additionally, in the event of any of the transactions described above or any other unusual or nonrecurring transaction or event , affecting the Company or the financial statements or financial condition of the Company, or any change in any applicable laws or accounting principles, the plan administrator is authorized to take any one or more of the following actions whenever the plan administrator determines that such action is appropriate in order to (x) prevent dilution or enlargement of the benefits or potential benefits intended by the Company to be made available under the 2016 Plan or with respect to any award granted or issued under the 2016 Plan, (y) to facilitate such transaction or event or (z) give effect to such changes in applicable laws or accounting principles:

- To provide for the cancellation of awards in exchange for either an amount of cash or other property with a value equal to the amount that could have been obtained upon the exercise or settlement of the vested portion of such award;
- To provide that awards shall vest and be fully exercisable;
- To make adjustments in the number and type of shares subject to outstanding awards, and/or in the terms and conditions of (including, without limitation, the grant or exercise price), and the criteria included in, outstanding awards;

- To provide that awards be assumed by the successor or survivor corporation, or a parent or subsidiary thereof, or shall be substituted for by awards covering the stock of the successor or survivor corporation, or a parent or subsidiary thereof;

- To replace awards with other rights or property selected by the plan administrator; and/or

- To provide that awards will terminate and cannot vest, be exercised or become payable after the applicable event.

Plan Amendment or Termination. Our board of directors may amend, alter, suspend or terminate our 2016 Plan at any time, subject to stockholder approval to the extent required by applicable law. No amendment to our 2016 Plan may materially and adversely affect any outstanding award outstanding without the consent of the affected award holder. As discussed above, we will terminate our 2016 Plan prior to the closing of this offering and no new awards will be granted thereunder following such termination.

2005 Plan

Our board of directors adopted our 2005 Equity Incentive Plan which we refer to as the 2005 Plan, and our stockholders approved our 2005 Plan in November 2005. No additional awards under our 2005 Plan can be made. However, our 2005 Plan continues to govern the terms and conditions of the outstanding awards previously granted thereunder, which include options.

Share Reserve. As of December 31, 2019, stock options covering shares with a weighted-average exercise price of $ per share were outstanding under our 2005 Plan.

Administration. Our board of directors or a committee delegated by our board of directors administers our 2005 Plan. Subject to the terms of our 2005 Plan, the administrator has the power to, among other things, determine who will be granted awards, to determine the terms and conditions of each awards, to accelerate the time(s) when an award may vest or be exercised and to construe and interpret the terms of our 2005 Plan and awards granted thereunder.

Options. Options granted under our 2005 Plan are subject to terms and conditions generally similar to those described above with respect to options that may be granted under our 2020 Plan.

Changes to Capital Structure. In the event of stock dividend, extraordinary cash dividend, recapitalization, reorganization, merger, consolidation, split-up, spin-off, combination, exchange of shares or other transaction affects the common stock such that an adjustment is required in order to preserve the benefits intended to be provided by the 2005 Plan, the plan administrator shall adjust the number, kind and price of shares covered by each outstanding award.

Change in Control. In order to preserve a holder's rights under an award in the event of a change in control (as defined by the plan administrator), the plan administrator in its discretion may take one or more of the following actions: (i) provide for the acceleration of any time period relating to the exercise or payment of the award, (ii) provide for payment to the holder of cash or other property equal to the amount that would have been received upon the exercise or payment of the award had the award been exercised or paid upon the change in control, (iii) adjust the terms of the award in a manner determined by the plan administrator to reflect the change in control, (iv) cause the award to be assumed, or new rights substituted therefor, by another entity, or (v) make such other provision as the plan administrator may consider equitable to award holders and in the best interests of the Company.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following includes a summary of transactions since January 1, 2017 to which we have been a party in which the amount involved exceeded or will exceed $120,000, and in which any of our directors, executive officers or, to our knowledge, beneficial owners of more than 5% of our capital stock or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest, other than equity and other compensation, termination, change in control and other arrangements, which are described under "Executive and Director Compensation." We also describe below certain other transactions with our directors, executive officers and stockholders.

Promissory Notes

On March 14, 2018, we issued $0.5 million in aggregate principal amount of convertible promissory notes to various investors pursuant to a convertible note purchase agreement. Certain of our officers and/or directors, including Carmichael Roberts, Terrance McGuire, Dennis Dougherty and Guido Neels participated in the convertible notes financing either personally or through affiliated trusts or funds. Certain holders of 5% or more of our common stock, on an as-converted basis, including entities affiliated with Polaris Venture Partners, entities affiliated with North Bridge Venture Partners and Intersouth Partners VII, L.P., participated in the convertible notes financing.

Preferred Stock Financing

On June 5, 2018, we issued and sold to investors 41,685,292 shares of our Series B preferred stock at a price per share of $0.30, for aggregate consideration of approximately $12.5 million, consisting of approximately $12.0 million in cash proceeds plus the conversion of certain convertible notes in an aggregate amount of approximately $0.5 million. On July 30, 2018, we issued and sold to investors an additional 16,666,667 shares of our Series B preferred stock for aggregate consideration of approximately $5.0 million. On September 14, 2018, we issued and sold to investors an additional 11,666,666 shares of our Series B preferred stock for aggregate consideration of approximately $3.5 million. On October 12, 2018, we issued and sold to investors an additional 28,333,328 shares of our Series B preferred stock for aggregate consideration of approximately $8.5 million. Certain of our officers and/or directors, including Michael Altman, Carmichael Roberts, Terrance McGuire, Dennis Dougherty and Guido Neels participated in the Series B preferred stock financing either personally or through affiliated trusts or funds. Certain holders of 5% or more of our common stock, on an as-converted basis, including entities affiliate with Polaris Venture Partners, entities affiliate with North Bridge Venture Partners, Intersouth Partners VII, L.P., Perceptive Life Sciences Master Fund, Ltd., RA Capital Healthcare Fund, L.P., entities affiliate with Arrowmark Partners and Soleus Private Equity Fund I, L.P., participated in the Series B preferred stock financing.

The following table sets forth the aggregate number of shares of our capital stock acquired by beneficial owners of more than 5% of our common stock, on an as-converted basis, in the financing transactions described above. Each share of our Series B preferred stock identified in the following table will convert into one share of common stock immediately prior to the closing of this offering.

Participants	Series B Preferred Stock
5% or Greater Stockholders(1)	
Entities affiliated with Polaris Venture Partners(2)	6,651,630
Intersouth Partners VII, L.P.	3,300,414
Entities affiliated with North Bridge Venture Partners(3)	6,651,629
Perceptive Life Sciences Master Fund, Ltd.	26,666,666
RA Capital Healthcare Fund, L.P.	26,666,666

(1) Additional details regarding these stockholders and their equity holdings are provided in this prospectus under the caption "Principal Stockholders."

(2) Represents securities acquired by (i) Polaris Venture Partners Entrepreneurs' Fund V, L.P., (ii) Polaris Venture Partners V, L.P., (iii) Polaris Venture Partners Founders' Fund V, L.P. and (iv) Polaris Venture Partners Special Founders' Fund V, L.P.

(3) Represents securities acquired by (i) North Bridge Venture Partners V-A, L.P., (ii) North Bridge Venture Partners V-B, L.P. and (iii) North Bridge Venture Partners VI, L.P.

Some of our directors are associated with our principal stockholders as indicated in the table below:

Director	Principal Stockholder
Michael Altman	Perceptive Life Sciences Master Fund, Ltd.
Edward Anderson	Entities affiliated with North Bridge Venture Partners
Robert S. Langer D.Sc.	Entities affiliated with Polaris Venture Partners

Agreements with Arsenal

In 2011, we entered into a Collaboration Agreement, a Technology License Agreement, a Trademark Coexistence Agreement and a Transition Services Agreement with Arsenal Medical, Inc., or Arsenal, a company in which certain of our principal stockholders are stockholders. During the year ended December 31, 2017 and 2018, we invoiced Arsenal for an aggregate of approximately $2.1 million and $1.2 million, respectively, for various costs and other obligations under these agreements. In October 2018, we entered an Acknowledgment and Release Agreement with Arsenal with respect to the expiration of the Collaboration Agreement and certain other intellectual property matters. The Technology License Agreement is a non-exclusive in-license agreement covering certain intellectual property regarding in situ forming foam and nanofiber, which is unrelated to our current and future expected product candidates. The Technology License Agreement provides for no future payments by us and remains in effect. In addition, the Trademark Coexistence Agreement relates to certain trademarks around our previous corporate name, which we no longer use. Finally, the Transition Services Agreement expired in June 2019.

Investor Rights Agreement

We entered into a Seventh Amended and Restated Investor Rights Agreement in June 2018 with the holders of our preferred stock, including entities with which certain of our directors are related. The agreement provides for certain rights relating to the registration of such holders' common stock, including shares issuable upon conversion of preferred stock, and a right of first refusal to purchase future securities sold by us. See "Description of Capital Stock—Registration Rights" for additional information.

Voting Agreement

We entered into an Eighth Amended and Restated Stockholders' Voting Agreement by and among us and certain of our stockholders, pursuant to which the following directors were elected to serve as members on our board of directors and, as of the date of this prospectus, continue to so serve: Maria Palasis, Ph.D., Michael Altman, Edward Anderson, and Robert S. Langer. Ms. Palasis was selected to serve on our board of directors in her capacity as our chief executive officer. Messrs. Altman, Anderson and Langer were selected to serve on our board of directors as representatives of holders of our preferred stock, as designated by Perceptive Life Sciences Master Fund, Ltd., entities affiliated with North Bridge Venture Partners and entities affiliated with Polaris Venture Partners, respectively.

The voting agreement will terminate upon the closing of this offering, and members previously elected to our board of directors pursuant to this agreement will continue to serve as directors until they resign, are

removed or their successors are duly elected by the holders of our common stock. The composition of our board of directors after this offering is described in more detail under "Management—Board Composition and Election of Directors."

Employment Agreements

We have entered into employment agreements with our named executive officers. For more information regarding the agreements with our named executive officers, see "Executive and Director Compensation—Executive Compensation Arrangements."

Indemnification Agreements

We intend to enter into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us or will require us to indemnify each director (and in certain cases their related venture capital funds) and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Stock Option Grants to Executive Officers and Directors

We have granted stock options to our executive officers and certain of our directors as more fully described in the section entitled "Executive and Director Compensation."

Policies and Procedures for Related Person Transactions

Our board of directors has adopted a written related person transaction policy, to be effective upon the closing of this offering, setting forth the policies and procedures for the review and approval or ratification of related person transactions. This policy will cover, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we were or are to be a participant, where the amount involved exceeds $120,000 in any fiscal year and a related person had, has or will have a direct or indirect material interest, including without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. In reviewing and approving any such transactions, our audit committee is tasked to consider all relevant facts and circumstances, including, but not limited to, whether the transaction is on terms comparable to those that could be obtained in an arm's length transaction and the extent of the related person's interest in the transaction. All of the transactions described in this section occurred prior to the adoption of this policy.

PRINCIPAL STOCKHOLDERS

The following table sets forth information with respect to the beneficial ownership of our common stock, as of December 31, 2019 by:

- each person or group of affiliated persons 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 number of shares beneficially owned by each stockholder is determined under rules issued by the Securities and Exchange Commission. Under these rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power. Applicable percentage ownership is based on shares of common stock outstanding as of December 31, 2019, assuming the conversion of all outstanding shares of preferred stock into common stock. In computing the number of shares beneficially owned by an individual or entity and the percentage ownership of that person, shares of common stock subject to options, warrants or other rights held by such person that are currently exercisable or will become exercisable within 60 days of December 31, 2019 are considered outstanding, although these shares are not considered outstanding for purposes of computing the percentage ownership of any other person. Unless noted otherwise, the address of all listed stockholders is 480 Arsenal Way, Watertown, MA 02472. Each of the stockholders listed has sole voting and investment power with respect to the shares beneficially owned by the stockholder unless noted otherwise, subject to community property laws where applicable.

	Shares Beneficially Owned Prior to Offering		Shares Beneficially Owned After Offering	
Name of Beneficial Owner	**Number**	**Percentage**	**Number**	**Percentage**
5% or Greater Stockholders				
Entities Affiliated with Polaris Venture Partners(1)		%		%
Intersouth Partners VII, L.P.(2)				
Entities Affiliated with North Bridge Venture Partners(3)				
Entities Affiliated with Perceptive Advisors(4)				
RA Capital Healthcare Fund, L.P.(5)				
Named Executive Officers and Directors				
Maria Palasis, Ph.D.(6)				
R. Don Elsey(7)				
Laura Edgerly-Pflug(8)				
Edward Anderson(3)				
Michael Altman(4)				
Robert S. Langer D.Sc.(9)				
C. Ann Merrifield(10)				
George Whitesides, Ph.D.(11)				
W. Bradford Smith(12)				
All executive officers and directors as a group (11 persons)				

* Less than 1%.

(1) Consists of (i) shares of common stock issuable upon conversion of shares of convertible preferred stock held by Polaris Venture Partners IV, L.P. (“PVP IV”); (ii) shares of common stock issuable upon conversion of shares of convertible preferred stock held by Polaris Venture Partners Entrepreneurs’ Fund IV, L.P. (“PVPEF IV” and, together with PVP IV, the “Polaris IV Funds”); (iii) shares of common stock issuable upon conversion of shares of convertible preferred stock

held by Polaris Venture Partners V, L.P. ("PVP V"); (iv) shares of common stock issuable upon conversion of shares of convertible preferred stock held by Polaris Venture Partners Entrepreneurs' Fund V, L.P. ("PVPEF V"); (v) shares of common stock issuable upon conversion of shares of convertible preferred stock held by Polaris Venture Partners Founders' Fund V, L.P. ("PVPFF V"); and (vi) shares of common stock issuable upon conversion of shares of convertible preferred stock held by Polaris Venture Partners Special Founders' Fund V, L.P. ("PVPSFF V," and together with PVP V, PVPEF V and PVPFF V, the "Polaris V Funds" and the Polaris V Funds, together with the Polaris IV Funds, the "Polaris Funds"). Polaris Venture Management Co., IV, L.L.C. ("PVM IV") is the sole general partner of each of the Polaris IV Funds and may be deemed to have sole voting and dispositive power with respect to the shares held by each of the Polaris IV Funds. Polaris Venture Management Co. V, L.L.C. ("PVM V") is the sole general partner of each of the Polaris V Funds and may be deemed to have sole voting and dispositive power with respect to the shares held by each of the Polaris V Funds. Jonathan A. Flint and Terrance G. McGuire are the managing members of each of PVM V and PVM IV. Each of Messrs. Flint and McGuire, as managing members of each of PVM V and PVM IV, may be deemed to have shared voting and dispositive power with respect to the shares held by each of the Polaris Funds. Each of PVM IV, PVM V and Messers. Flint and McGuire expressly disclaim beneficial ownership of the shares held by the each of the Polaris Funds, except to the extent of their respective pecuniary interests therein, if any. The mailing address of the individuals and entities listed above is One Marina Park Drive, 10th Floor, Boston, MA 02210.

(2) Consists of shares of common stock issuable upon conversion of shares of convertible preferred stock held by Intersouth Partners VII, L.P. ("ISP VII"), which shares are indirectly held by Intersouth Associates VII, LLC ("ISA VII"), as general partner of ISP VII, and each of the individual managing members of ISA VII. The individual managing members of ISA VI and ISA VII are Mitch Mumma and Dennis Dougherty. Member Managers may share voting and dispositive power over the shares directly held by such entities. The mailing address of the individuals and entities listed above is 4711 Hope Valley Road, Suite 4F-632, Durham NC 27707.

(3) Consists of (i) shares of common stock issuable upon conversion of shares of convertible preferred stock held by North Bridge Venture Partners V-A, L.P. ("NBVP V-A"), (ii) shares of common stock issuable upon conversion of shares of convertible preferred stock held by North Bridge Venture Partners V-B, L.P. ("NBVP V-B") and (iii) shares of common stock issuable upon conversion of shares of convertible preferred stock held by North Bridge Venture Partners VI, L.P. ("NBVP VI"). North Bridge Venture Management V, L.P. ("NBVM V"), is the sole General Partner of NBVP V-A and NBVP V-B. NBVM GP, LLC, the General Partner of NBVM V, has ultimate voting and dispositive power over the shares held of record by NBVP VA and NBVP V-B. Shared voting and dispositive power of such shares are vested in Edward T. Anderson and Richard A. D'Amore. Mr. Anderson, a member of our board of directors and a manager of NBVM GP, LLC, disclaims beneficial ownership over such shares, except to the extent of his pecuniary interest therein. North Bridge Venture Management VI, L.P. ("NBVM VI"), is the sole General Partner of NBVP VI. NBVM GP, LLC, the General Partner of NBVM VI, has ultimate voting and dispositive power over the shares held of record by NBVP VI. Shared voting and dispositive power of such shares are vested in Edward T. Anderson and Richard A. D'Amore. Mr. Anderson, a member of our board of directors and a manager of NBVM GP, LLC, disclaims beneficial ownership over such shares, except to the extent of his pecuniary interest therein. The address of all entities affiliated with North Bridge Venture Partners is 60 William Street, Suite 350, Wellesley, MA 02481.

(4) Consists of shares of common stock issuable upon conversion of shares of convertible preferred stock held by Perceptive Life Sciences Master Fund, Ltd. ("Perceptive Life"). Perceptive Advisors LLC serves as the investment advisor to Perceptive Life, and Joseph Edelman is the managing member of Perceptive Advisors LLC. Michael Altman, one of our directors, is a Managing Director at Perceptive Advisors LLC. The address of Perceptive Life is c/o Perceptive Advisors LLC, 51 Astor Place, 10th Floor, New York, New York 10003.

(5) Consists of shares of common stock issuable upon conversion of shares of convertible preferred stock held by RA Capital Healthcare Fund, L.P. (“RA Capital”). RA Capital Management, L.P., is the investment advisor (“Adviser”) of RA Capital and RA Capital Management GP, LLC (“Adviser GP”) is the general partner of the Adviser. Dr. Kolchinsky and Rajeev Shah are the controlling persons of the Adviser GP. The Adviser, Dr. Kolchinsky, and Mr. Shah may be deemed to beneficially own the shares held by RA Capital. The address of RA Capital is c/o RA Capital Management, L.P., 200 Berkeley Street, 18th Floor, Boston, Massachusetts 02116.

(6) Includes shares which are exercisable within 60 days of December 31, 2019.

(7) Includes shares which are exercisable within 60 days of December 31, 2019.

(8) Includes shares which are exercisable within 60 days of December 31, 2019.

(9) Includes shares which are exercisable within 60 days of December 31, 2019.

(10) Includes shares which are exercisable within 60 days of December 31, 2019.

(11) Includes shares which are exercisable within 60 days of December 31, 2019.

(12) Includes shares which are exercisable within 60 days of December 31, 2019.

DESCRIPTION OF CAPITAL STOCK

General

The following description summarizes some of the terms of our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the closing of this offering, of the Seventh Amended and Restated Investor Rights Agreement, or investor rights agreement, and of the General Corporation Law of the State of Delaware. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description, you should refer to our amended and restated certificate of incorporation, amended and restated bylaws and investor rights agreement, copies of which have been or will be filed as exhibits to the registration statement of which this prospectus is a part, as well as the relevant provisions of the General Corporation Law of the State of Delaware. The description of our common stock and preferred stock reflects changes to our capital structure that will occur immediately prior the closing of this offering.

Following the closing of this offering, our authorized capital stock will consist of shares of common stock, par value $0.001 per share, and shares of preferred stock, par value $0.001 per share.

As of December 31, 2019, there were shares of our common stock outstanding and shares of our common stock issuable upon the automatic conversion of all outstanding shares of our preferred stock in connection with this offering, held of record by stockholders.

Common Stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. An election of directors by our stockholders shall be determined by a plurality of the votes cast by the stockholders entitled to vote on the election. Subject to the supermajority votes for some matters, other matters shall be decided by the affirmative vote of our stockholders having a majority in voting power of the votes cast by the stockholders present or represented and voting on such matter. Our amended and restated certificate of incorporation and amended and restated bylaws also provide that our directors may be removed only for cause and only by the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon. In addition, the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon is required to amend or repeal, or to adopt any provision inconsistent with, several of the provisions of our amended and restated certificate of incorporation. See below under "—Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws—Amendment of Charter Provisions." Holders of common stock are entitled to receive proportionately any dividends as may be declared by our board of directors, subject to any preferential dividend rights of any series of preferred stock that we may designate and issue in the future.

In the event of our liquidation or dissolution, the holders of common stock are entitled to receive proportionately our net assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the prior rights of any outstanding preferred stock. Holders of common stock have no preemptive, subscription, redemption or conversion rights. Our outstanding shares of common stock are, and the shares offered by us in this offering will be, when issued and paid for, validly issued, fully paid and nonassessable. The rights, preferences and privileges of 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 and issue in the future.

Preferred Stock

Under the terms of our amended and restated certificate of incorporation that will become effective upon the closing of this offering, our board of directors is authorized to direct us to issue shares of preferred stock in

one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a majority of our outstanding voting stock. Upon the closing of this offering, there will be no shares of preferred stock outstanding, and we have no present plans to issue any shares of preferred stock.

Options

As of December 31, 2019, options to purchase shares of common stock were outstanding under our 2005 Plan (of which shares were vested and exercisable as of such date) and options to purchase shares of common stock were outstanding under our 2016 Plan (of which shares were vested and exercisable as of such date).

Registration Rights

Holders of shares of our common stock are entitled to certain rights with respect to the registration of such shares for public resale under the Securities Act, pursuant to an amended and restated investor rights agreement by and among us and certain of our stockholders, until the rights otherwise terminate pursuant to the terms of the investor rights agreement. The registration of shares of common stock as a result of the following rights being exercised would enable holders to trade these shares without restriction under the Securities Act when the applicable registration statement is declared effective.

Form S-1 Registration Rights

If at any time after the earlier of (i) June 5, 2023 or (ii) the date that is six months after the closing date of this offering, the holders of at least 30% of the registrable securities then outstanding request in writing that we effect a registration with respect to all or part of such registrable securities then outstanding having an anticipated aggregate offering price that would exceed $5,000,000, we may be required to register their shares. We are obligated to effect at most two registrations in response to these demand registration rights. If the holders requesting registration intend to distribute their shares by means of an underwriting, the managing underwriter of such offering will have the right to limit the numbers of shares to be underwritten for reasons related to the marketing of the shares.

Piggyback Registration Rights

If at any time after this offering, we propose to register any shares of our common stock under the Securities Act, subject to certain exceptions, the holders of registrable securities then outstanding will be entitled to notice of the registration and to include their shares of registrable securities in the registration. If our proposed registration involves an underwriting, the managing underwriter of such offering will have the right to limit the number of shares to be underwritten for reasons related to the marketing of the shares.

Form S-3 Registration Rights

If, at any time after we become entitled under the Securities Act to register our shares on a registration statement on Form S-3, the holders of the registrable securities then outstanding request in writing that we effect a registration with respect to all or part of such registrable securities having an anticipated aggregate offering

price to the public in the offering of at least $2,000,000, we will be required to effect such registration; provided, however, that we will not be required to effect such a registration if, within any twelve month period, we have already effected two registrations on Form S-3 for the holders of registrable securities.

Expenses and Indemnification

Ordinarily, other than underwriting discounts and commissions, we will be required to pay all expenses incurred by us related to any registration effected pursuant to the exercise of these registration rights. These expenses may include all registration and filing fees, printing expenses, fees and disbursements of our counsel, reasonable fees and disbursements of a counsel for the selling securityholders and blue sky fees and expenses. Additionally, we have agreed to indemnify selling stockholders for damages, and any legal or other expenses reasonably incurred, arising from or based upon any untrue statement of a material fact contained in any registration statement, an omission or alleged omission to state a material fact in any registration statement or necessary to make the statements therein not misleading, or any violation or alleged violation by the indemnifying party of securities laws, subject to certain exceptions.

Termination of Registration Rights

The registration rights terminate upon the earlier of the date that is five years after the closing of this offering, the date on which no stockholder holds any registrable securities and the closing of a company sale, as defined in the investor rights agreement.

Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

Some provisions of Delaware law, our restated certificate of incorporation and our restated bylaws could make the following transactions more difficult: an acquisition of us by means of a tender offer; an acquisition of us by means of a proxy contest or otherwise; or the removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions which provide for payment of a premium over the market price for our shares.

These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of the increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Undesignated Preferred Stock

The ability of our board of directors, without action by the stockholders, to issue up to shares of undesignated preferred stock with voting or other rights or preferences as designated by our board of directors could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Stockholder Meetings

Our restated bylaws provide that a special meeting of stockholders may be called only by our chairman of the board, chief executive officer or president (in the absence of a chief executive officer), or by a resolution adopted by a majority of our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our restated bylaws establish advance notice procedures with respect to stockholder proposals to be brought before a stockholder meeting and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our restated certificate of incorporation eliminates the right of stockholders to act by written consent without a meeting.

Staggered Board

Our board of directors is divided into three classes. The directors in each class will serve for a three-year term, one class being elected each year by our stockholders. For more information on the classified board, see "Management—Board Composition and Election of Directors." This system of electing and removing directors may tend to discourage a third-party from making a tender offer or otherwise attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Removal of Directors

Our restated certificate of incorporation provides that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of the holders of at least two-thirds in voting power of the outstanding shares of stock entitled to vote in the election of directors.

Stockholders Not Entitled to Cumulative Voting

Our restated certificate of incorporation does not permit stockholders to cumulate their votes in the election of directors. Accordingly, the holders of a majority of the outstanding shares of our common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they choose, other than any directors that holders of our preferred stock may be entitled to elect.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the General Corporation Law of the State of Delaware, which prohibits persons deemed to be "interested stockholders" from engaging in a "business combination" with a publicly held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

Choice of Forum

Our restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative form, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for: (1) any derivative action or proceeding brought on our behalf; (2) any action asserting a claim of breach of a fiduciary duty or other wrongdoing by any of our directors, officers, employees or agents to us or our stockholders; (3) any

action asserting a claim against us arising pursuant to any provision of the General Corporation Law of the State of Delaware or our certificate of incorporation or bylaws; (4) any action to interpret, apply, enforce or determine the validity of our certificate of incorporation or bylaws; or (5) any action asserting a claim governed by the internal affairs doctrine. Under our amended and restated certificate of incorporation, this exclusive forum provision will not apply to claims which are vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery of the State of Delaware, or for which the Court of Chancery of the State of Delaware does not have subject matter jurisdiction. For instance, the provision would not apply to actions arising under federal securities laws, including suits brought to enforce any liability or duty created by the Securities Act, Exchange Act, or the rules and regulations thereunder. Our restated certificate of incorporation also provides that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of and to have consented to this choice of forum provision. It is possible that a court of law could rule that the choice of forum provision contained in our restated certificate of incorporation is inapplicable or unenforceable if it is challenged in a proceeding or otherwise.

Amendment of Charter Provisions

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock and the provision prohibiting cumulative voting, would require approval by holders of at least two-thirds in voting power of the outstanding shares of stock entitled to vote thereon.

The provisions of Delaware law, our restated certificate of incorporation and our restated bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in the composition of our board and management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock will be .

Stock Exchange Listing

We intend to apply to have our common stock listed on The Nasdaq Global Market under the symbol “LYRA.”

SHARES ELIGIBLE FOR FUTURE SALE

Immediately prior to this offering, there was no public market for our common stock. Future sales of substantial amounts of common stock in the public market, or the perception that such sales may occur, could adversely affect the market price of our common stock.

Upon the closing of this offering, we will have outstanding an aggregate of shares of common stock, assuming the issuance of shares of common stock offered by us in this offering, the automatic conversion of all outstanding shares of our preferred stock into shares of our common stock and no exercise of options after December 31, 2019. Of these shares, all shares sold in this offering will be freely tradable without restriction or further registration under the Securities Act, except for any shares purchased by our "affiliates," as that term is defined in Rule 144 under the Securities Act, whose sales would be subject to the Rule 144 resale restrictions described below, other than the holding period requirement.

The remaining shares of common stock will be "restricted securities," as that term is defined in Rule 144 under the Securities Act. These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under Rules 144 or 701 under the Securities Act, which are summarized below. We expect that substantially all of these shares will be subject to the 180-day lock-up period under the lock-up agreements described below. Upon expiration of the lock-up period, we estimate that approximately shares will be available for sale in the public market, subject in some cases to applicable volume limitations under Rule 144.

In addition, of the shares of our common stock that were subject to stock options outstanding as of December 31, 2019, options to purchase shares of common stock were vested as of December 31, 2019 and, upon exercise, these shares will be eligible for sale subject to the lock–up agreements described below and Rules 144 and 701 under the Securities Act.

Lock-Up Agreements

We and each of our directors and executive officers and holders of substantially all of our outstanding capital stock, have agreed that, without the prior written consent of BofA Securities, Inc. and Jefferies LLC, we and they will not, subject to certain exceptions, during the period ending 180 days after the date of this prospectus, 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, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for common stock; or enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our common stock, whether any transaction described above is to be settled by delivery of our common stock or such other securities, in cash or otherwise.

Upon the expiration of the applicable lock-up periods, substantially all of the shares subject to such lock-up restrictions will become eligible for sale, subject to the limitations discussed above. For a further description of these lock-up agreements, please see "Underwriting."

Rule 144

Affiliate Resales of Restricted Securities

In general, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is an affiliate of ours, or who was an affiliate at any time during the 90 days before a sale, who has beneficially owned shares of our common stock for at least six months would be entitled

to sell in "broker's transactions" or certain "riskless principal transactions" or to market makers, a number of shares within any three-month period that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; or
- the average weekly trading volume in 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 such sale.

Affiliate resales under Rule 144 are also subject to the availability of current public information about us. In addition, if the number of shares being sold under Rule 144 by an affiliate during any three-month period exceeds 5,000 shares or has an aggregate sale price in excess of $50,000, the seller must file a notice on Form 144 with the Securities and Exchange Commission and Nasdaq concurrently with either the placing of a sale order with the broker or the execution directly with a market maker.

Non-Affiliate Resales of Restricted Securities

In general, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is not an affiliate of ours at the time of sale, and has not been an affiliate at any time during the three months preceding a sale, and who has beneficially owned shares of our common stock for at least six months but less than a year, is entitled to sell such shares subject only to the availability of current public information about us. If such person has held our shares for at least one year, such person can resell under Rule 144(b)(1) without regard to any Rule 144 restrictions, including the 90-day public company requirement and the current public information requirement.

Non-affiliate resales are not subject to the manner of sale, volume limitation or notice filing provisions of Rule 144.

Rule 701

In general, under Rule 701, any of an issuer's employees, directors, officers, consultants or advisors who purchases shares from the issuer in connection with a compensatory stock or option plan or other written agreement before the effective date of a registration statement under the Securities Act is entitled to sell such shares 90 days after such effective date in reliance on Rule 144. An affiliate of the issuer can resell shares in reliance on Rule 144 without having to comply with the holding period requirement, and non-affiliates of the issuer can resell shares in reliance on Rule 144 without having to comply with the current public information and holding period requirements.

The Securities and Exchange Commission has indicated that Rule 701 will apply to typical stock options granted by an issuer before it becomes subject to the reporting requirements of the Exchange Act, along with the shares acquired upon exercise of such options, including exercises after an issuer becomes subject to the reporting requirements of the Exchange Act.

Equity Plans

We intend to file one or more registration statements on Form S-8 under the Securities Act to register all shares of common stock subject to outstanding stock options and common stock issued or issuable under our stock plans. We expect to file the registration statement covering shares offered pursuant to our stock plans shortly after the date of this prospectus, permitting the resale of such shares by non-affiliates in the public market without restriction under the Securities Act and the sale by affiliates in the public market, subject to compliance with the resale provisions of Rule 144.

Registration Rights

Upon the closing of this offering, the holders of shares of common stock, which includes all of the shares of common stock issuable upon the automatic conversion of our preferred stock upon the closing of this offering, or their transferees will be entitled to various rights with respect to the registration of these shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming fully tradable without restriction under the Securities Act immediately upon the effectiveness of the registration, except for shares purchased by affiliates. See “Description of Capital Stock—Registration Rights” for additional information. Shares covered by a registration statement will be eligible for sale in the public market upon the expiration or release from the terms of the lock-up agreement described above.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO 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 purchase, ownership and disposition of our common stock issued pursuant to this offering, but does not purport to be a complete analysis of all potential tax effects. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or non-U.S. tax laws are not discussed. This discussion is based on the U.S. Internal Revenue Code of 1986, as amended, or the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the U.S. Internal Revenue Service, or the IRS, in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a Non-U.S. Holder of our common stock. We have not sought and will not seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the purchase, ownership and disposition of our common stock.

This discussion is limited to Non-U.S. Holders that 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 U.S. federal income tax consequences relevant to a Non-U.S. Holder's particular circumstances, including the impact of the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to Non-U.S. Holders subject to special rules, including, without limitation:

- U.S. expatriates and certain former citizens or long-term residents of the United States;
- persons subject to the alternative minimum tax;
- persons holding our common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- brokers, dealers or traders in securities;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations or governmental organizations;
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons for whom our common stock constitutes "qualified small business stock" within the meaning of Section 1202 of the Code;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
- tax-qualified retirement plans; and
- "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.

If an entity or arrangement treated as a partnership for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships holding our common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. INVESTORS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.

Definition of a Non-U.S. Holder

For purposes of this discussion, a "Non-U.S. Holder" is any beneficial owner of our common stock that is neither a "U.S. person" nor an entity 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 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 that (1) is subject to the primary supervision of a U.S. court and the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

Distributions

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 do make distributions of cash or 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 first be applied against and reduce a Non-U.S. Holder's adjusted tax basis in its common stock, but not below zero. Any excess will be treated as capital gain and will be treated as described below under "—Sale or Other Taxable Disposition." Because we may not know the extent to which a distribution is a dividend for U.S. federal income tax purposes at the time it is made, for purposes of the withholding rules discussed below we or the applicable withholding agent may treat the entire distribution as a dividend.

Subject to the discussion below on effectively connected income, dividends paid to a Non-U.S. Holder of our common stock 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, provided the Non-U.S. Holder furnishes a valid IRS Form W-8BEN or W-8BEN-E (or other applicable documentation) certifying qualification for the lower treaty rate). A Non-U.S. Holder that does not timely furnish the required documentation, but that qualifies 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 their entitlement to benefits under any applicable income tax treaty.

If dividends paid to a Non-U.S. Holder are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such dividends are attributable), the Non-U.S. Holder will be exempt from the U.S. federal withholding tax described above. To claim the exemption, the Non-U.S. Holder must furnish to the applicable withholding agent a valid IRS Form W-8ECI, certifying that the dividends are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States.

Any such effectively connected dividends will be subject to U.S. federal income tax on a net income basis at the regular graduated rates. A Non-U.S. Holder that is a corporation also may be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty) on such effectively connected dividends, as adjusted for certain items. Non-U.S. Holders should consult their tax advisors regarding any applicable tax treaties that may provide for different rules.

Sale or Other Taxable Disposition

A Non-U.S. Holder will not be subject to U.S. federal income tax on any gain realized upon the sale or other taxable disposition of our common stock unless:

- the gain is effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such gain is attributable);
- 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 U.S. real property interest, or USRPI, by reason of our status as a U.S. real property holding corporation, or USRPHC, for U.S. federal income tax purposes.

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 graduated rates. A Non-U.S. Holder that is a corporation also may be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty) on such effectively connected gain, as adjusted for certain items.

Gain described in the second bullet point above will be subject to U.S. federal income tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty), which may be offset by U.S. source capital losses of the Non-U.S. Holder (even though the individual is not considered a resident of the United States), provided the Non-U.S. Holder has timely filed U.S. federal income tax returns with respect to such losses.

With respect to the third bullet point above, we believe we currently are not, and do not anticipate becoming, a USRPHC. Because the determination of whether we are a USRPHC depends, however, on the fair market value of our USRPIs relative to the fair market value of our non-U.S. real property interests and our other business assets, there can be no assurance we currently are not a USRPHC or will not become one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a Non-U.S. Holder of our common stock will not be subject to U.S. federal income tax if our common stock is "regularly traded," as defined by applicable Treasury Regulations, on an established securities market, and such Non-U.S. Holder owned, actually and constructively, 5% or less of our common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the Non-U.S. Holder's holding period. Non-U.S. Holders are encouraged to consult their tax advisors regarding the possible consequences to them if we are, or were to become, a USRPHC.

Non-U.S. Holders should consult their tax advisors regarding potentially applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Payments of dividends on our common stock will not be subject to backup withholding, provided the applicable withholding agent does not have actual knowledge or reason to know the holder is a United States person and the holder either certifies its non-U.S. status, such as by furnishing a valid IRS Form W-8BEN, W-8BEN-E or W-8ECI, or otherwise establishes an exemption. However, information returns are required to be filed with the IRS in connection with any dividends on our common stock paid to the Non-U.S. Holder, regardless of whether any tax was actually withheld. In addition, proceeds of the sale or other taxable disposition of our common stock within the United States or conducted through certain U.S.-related brokers generally will not be subject to backup withholding or information reporting, if the applicable withholding agent receives the certification described above and does not have actual knowledge or reason to know that such holder is a United States person, or the holder otherwise establishes an exemption. Proceeds of a disposition of our common stock conducted through a non-U.S. office of a non-U.S. broker generally will not be subject to backup withholding or information reporting.

Copies of information returns that are filed with the IRS may also be made available under the provisions of an applicable treaty or agreement to the tax authorities of the country in which the Non-U.S. Holder resides or is established.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a Non-U.S. Holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS.

Additional Withholding Tax on Payments Made to Foreign Accounts

Withholding taxes may be imposed under Sections 1471 to 1474 of the Code (such Sections commonly referred to as the Foreign Account Tax Compliance Act, or "FATCA") on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, a 30% withholding tax may be imposed on dividends on, or (subject to the proposed Treasury Regulations discussed below) gross proceeds from the sale or other disposition of, our common stock paid to a "foreign financial institution" or a "non-financial foreign entity" (each as defined in the Code), unless (1) the foreign financial institution undertakes certain diligence and reporting obligations, (2) the non-financial foreign entity either certifies it does not have any "substantial United States owners" (as defined in the Code) or furnishes identifying information regarding each substantial United States owner, or (3) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in (1) above, it must enter into an agreement with the U.S. Department of the Treasury requiring, among other things, that it undertake to identify accounts held by certain "specified United States persons" or "United States owned foreign entities" (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on certain payments to non-compliant foreign financial institutions and certain other account holders. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules.

Under the applicable Treasury Regulations and administrative guidance, withholding under FATCA generally applies to payments of dividends on our common stock. While withholding under FATCA would have applied also to payments of gross proceeds from the sale or other disposition of stock on or after January 1, 2019, recently proposed Treasury Regulations eliminate FATCA withholding on payments of gross proceeds entirely. Taxpayers generally may rely on these proposed Treasury Regulations until final Treasury Regulations are issued.

Because we may not know the extent to which a distribution is a dividend for U.S. federal income tax purposes at the time it is made, for purposes of these withholding rules we or the applicable withholding agent may treat the entire distribution as a dividend. Prospective investors should consult their tax advisors regarding the potential application of withholding under FATCA to their investment in our common stock.

UNDERWRITING

BofA Securities, Inc., Jefferies LLC and William Blair & Company, L.L.C. are acting as representatives of each of the underwriters named below. Subject to the terms and conditions set forth in an underwriting agreement among us and the underwriters, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of shares of common stock set forth opposite its name below.

Underwriter	Number of Shares
BofA Securities, Inc.	
Jefferies LLC	
William Blair & Company, L.L.C.	
BTIG, LLC	
Total	

Subject to the terms and conditions set forth in the underwriting agreement, the underwriters have agreed, severally and not jointly, to purchase all of the shares sold under the underwriting agreement if any of these shares 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 against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those liabilities.

The underwriters are offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, including the validity of the shares, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officer's certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commissions and Discounts

The representatives have advised us that the underwriters propose initially to offer the shares to the public at the public offering price set forth on the cover page of this prospectus and to dealers at that price less a concession not in excess of $ per share. After the initial offering, the public offering price, concession or any other term of the offering may be changed.

The following table shows the public offering price, underwriting discount and proceeds before expenses to us. The information assumes either no exercise or full exercise by the underwriters of their option to purchase additional shares.

	Per Share	Without Option	With Option
Public offering price	$	$	$
Underwriting discount	$	$	$
Proceeds, before expenses, to us	$	$	$

The expenses of the offering, not including the underwriting discount, are estimated at $ and are payable by us. We have also agreed to reimburse the underwriters for their expenses relating to clearance of this offering with the Financial Industry Regulatory Authority in an amount up to $.

Option to Purchase Additional Shares

We have granted an option to the underwriters, exercisable for 30 days after the date of this prospectus, to purchase up to additional shares at the public offering price, less the underwriting discount. If the underwriters exercise this option, each will be obligated, subject to conditions contained in the underwriting agreement, to purchase a number of additional shares proportionate to that underwriter's initial amount reflected in the above table.

No Sales of Similar Securities

We, our executive officers and directors and our other existing security holders have agreed not to sell or transfer any common stock or securities convertible into, exchangeable for, exercisable for, or repayable with common stock, for 180 days after the date of this prospectus without first obtaining the written consent of BofA Securities, Inc. and Jefferies LLC. Specifically, we and these other persons have agreed, with certain limited exceptions, not to directly or indirectly:

- offer, pledge, sell or contract to sell any common stock,
- sell any option or contract to purchase any common stock,
- purchase any option or contract to sell any common stock,
- grant any option, right or warrant for the sale of any common stock,
- lend or otherwise dispose of or transfer any common stock,
- request or demand that we file or make a confidential submission of a registration statement related to the common stock,
- enter into any swap or other agreement that transfers, in whole or in part, the economic consequence of ownership of any common stock whether any such swap or transaction is to be settled by delivery of shares or other securities, in cash or otherwise, or
- publicly disclose the intention to do any of the foregoing.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for or repayable with common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition. BofA Securities, Inc. and Jefferies LLC, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time with or without notice.

Nasdaq Global Market Listing

We expect the shares to be approved for listing on the Nasdaq Global Market, subject to notice of issuance, under the symbol "LYRA."

Before this offering, there has been no public market for our common stock. The initial public offering price will be determined through negotiations between us and the representatives. In addition to prevailing market conditions, the factors to be considered in determining the initial public offering price are

- the valuation multiples of publicly traded companies that the representatives believe to be comparable to us,

- our financial information,
- the history of, and the prospects for, our company and the industry in which we compete,
- an assessment of our management, its past and present operations, and the prospects for, and timing of, our future revenues,
- the present state of our development, and
- the above factors in relation to market values and various valuation measures of other companies engaged in activities similar to ours.

An active trading market for the shares may not develop. It is also possible that after the offering the shares will not trade in the public market at or above the initial public offering price.

The underwriters do not expect to sell more than 5% of the shares in the aggregate to accounts over which they exercise discretionary authority.

Price Stabilization, Short Positions and Penalty Bids

Until the distribution of the shares is completed, SEC rules may limit underwriters and selling group members from bidding for and purchasing our common stock. However, the representatives may engage in transactions that stabilize the price of the common stock, such as bids or purchases to peg, fix or maintain that price.

In connection with the offering, the underwriters may purchase and sell our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. “Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares described above. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares 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 granted to them. “Naked” short sales are sales in excess of such option. 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 our common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of shares of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Similar to other purchase transactions, the underwriters’ 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. The underwriters may conduct these transactions on the Nasdaq Global Market, in the over-the-counter market or otherwise.

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. In addition, neither we nor any of the underwriters make any representation that the representatives will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Electronic Distribution

In connection with the offering, certain of the underwriters or securities dealers may distribute prospectuses by electronic means, such as e-mail.

Other Relationships

Some of the underwriters and their affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our affiliates. They have received, or may in the future receive, customary fees and commissions for these transactions.

In addition, in the ordinary course of their business activities, the underwriters and their 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. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

European Economic Area

In relation to each member state of the European Economic Area, or a Member State, no shares have been offered or will be offered pursuant to the initial offering to the public in that Member State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, all in accordance with the Prospectus Regulation), except that offers of shares may be made to the public in that Member State at any time under the following exemptions under the Prospectus Regulation:

a. to any legal entity which is a qualified investor as defined under the Prospectus Regulation;

b. to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the representative for any such offer; or

c. in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares shall require the Company or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

Each person in a Member State who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with the Company and the underwriters that it is a qualified investor within the meaning of the Prospectus Regulation.

In the case of any shares being offered to a financial intermediary as that term is used in Article 5(1) of the Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer to the public other than their offer or resale in a relevant Member State to qualified investors, in circumstances in which the prior consent of the underwriters has been obtained to each such proposed offer or resale.

The Company, the underwriters and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

The above selling restriction is in addition to any other selling restrictions set out below.

Notice to Prospective Investors in the United Kingdom

In addition, 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 Directive) (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, or 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"). This document must not be acted on or relied on in the United Kingdom by persons who are not relevant persons. In the United Kingdom, any investment or investment activity to which this document relates is only available to, and will be engaged in with, relevant persons.

Notice to Prospective Investors in Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document 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 document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the shares 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 will not be supervised by, the Swiss Financial Market Supervisory Authority, or FINMA, and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to Prospective Investors in the Dubai International Financial Centre

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority, or DFSA. This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares offered should conduct their own due diligence on the shares. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Notice to Prospective Investors in Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission, or ASIC, in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001, or the Corporations Act, and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of the shares may only be made to persons, or the Exempt Investors, who are "sophisticated investors" (within the meaning of section 708(8) of the Corporations Act), "professional investors" (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the shares without disclosure to investors under Chapter 6D of the Corporations Act.

The shares applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring shares must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take account of the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate to their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Notice to Prospective Investors in Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) 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 that Ordinance. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issue, 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 to do so under the securities laws of Hong Kong) other than with respect to shares 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 and any rules made under that Ordinance.

Notice to Prospective Investors in Japan

The shares have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) and, accordingly, will not be offered or sold, directly or indirectly, in Japan, or for the benefit of any Japanese Person or to others for re-offering or resale, directly or indirectly, in Japan or to any Japanese Person, except in compliance with all applicable laws, regulations and ministerial guidelines promulgated by relevant Japanese governmental or regulatory authorities in effect at the relevant time. For the purposes of this paragraph, "Japanese Person" shall mean any person resident in Japan, including any corporation or other entity organized under the laws of Japan.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, the shares were not offered or sold or caused to be made the subject of an invitation for subscription or purchase and will not be offered or sold or caused to be made the subject of an invitation for subscription or purchase, and this prospectus or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares, has not been circulated or distributed, nor will it be circulated or distributed, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, or, as modified or amended from time to time, the SFA, pursuant to Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) 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 are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) 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

(b) 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 or securities-based derivatives contracts (each term as defined in Section 2(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 pursuant to an offer made under Section 275 of the SFA except:

(a) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(b) where no consideration is or will be given for the transfer;

(c) where the transfer is by operation of law; or

(d) as specified in Section 276(7) of the SFA.

Notice to Prospective Investors in Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) 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 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.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 *Underwriting Conflicts*, or NI 33-105, the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by Latham & Watkins LLP. Certain legal matters will be passed upon for the underwriters by Shearman & Sterling LLP.

EXPERTS

The consolidated financial statements as of December 31, 2018 and for the year then ended included in this Prospectus have been so included in reliance on the report of BDO USA, LLP, an independent registered public accounting firm (the report on the financial statements contains an explanatory paragraph regarding the Company's ability to continue as a going concern), appearing elsewhere herein and in the Registration Statement, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the Securities and Exchange Commission a registration statement on Form S-1 under the Securities Act with respect to the shares of common stock offered hereby. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules filed therewith. For further information about us and the common stock offered hereby, we refer you to the registration statement and the exhibits and schedules filed thereto. Statements contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement. Upon completion of this offering, we will be required to file periodic reports, proxy statements, and other information with the Securities and Exchange Commission pursuant to the Securities Exchange Act of 1934. The Securities and Exchange Commission maintains an Internet website that contains such reports, proxy statements and other information about registrants, like us, that file electronically with the Securities and Exchange Commission. The address of that site is *www.sec.gov*.

We also maintain a website at *www.lyratherapeutics.com*. Information contained in, or accessible through, our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is only as an inactive textual reference.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Lyra Therapeutics, Inc.
Watertown, MA

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of Lyra Therapeutics, Inc. (the "Company") and subsidiary as of December 31, 2018, the related consolidated statements of operations and comprehensive loss, redeemable convertible preferred stock and stockholders' deficit, and cash flows for the year ended December 31, 2018, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018, and the results of its operations and its cash flows for the year ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Going Concern Uncertainty

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has suffered recurring losses from operations and has a net capital deficiency that 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 consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated 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 consolidated 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 consolidated 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 consolidated financial statements. We believe that our audit provide a reasonable basis for our opinion.

/s/ BDO USA, LLP

We have served as the Company's auditor since 2013.
Boston, Massachusetts
November 8, 2019

LYRA THERAPEUTICS, INC.

CONSOLIDATED BALANCE SHEET

(In Thousands, Except Share and Per Share Data)

	December 31, 2018
Assets	
Current assets:	
Cash and cash equivalents	$ 23,888
Grants receivable	167
Prepaid expenses and other current assets	872
Total current assets	24,927
Property and equipment, net	103
Restricted cash	329
Total assets	$ 25,359
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Deficit	
Current liabilities:	
Accounts payable	$ 631
Accrued expenses and other current liabilities	1,329
Total current liabilities	1,960
Deferred rent	120
Total liabilities	2,080
Commitments and contingencies (Note 11)	
Series A-1 redeemable convertible preferred stock, $0.001 par value; 34,017,033 shares authorized, issued and outstanding at December 31, 2018 (aggregate liquidation preference of $14,157 at December 31, 2018)	39,742
Series A-2 redeemable convertible preferred stock, $0.001 par value; 26,680,202 shares authorized, issued and outstanding at December 31, 2018 (aggregate liquidation preference of $9,063 at December 31, 2018)	18,393
Series A-3 redeemable convertible preferred stock, $0.001 par value; 30,070,487 shares authorized, issued and outstanding at December 31, 2018 (aggregate liquidation preference of $18,779 at December 31, 2018)	38,114
Series A-4 redeemable convertible preferred stock, $0.001 par value; 19,999,999 shares authorized, issued and outstanding at December 31, 2018 (aggregate liquidation preference of $6,000 at December 31, 2018)	6,000
Series B redeemable convertible preferred stock, $0.001 par value; 100,018,619 shares authorized at December 31, 2018; 98,351,953 shares issued and outstanding at December 31, 2018 (aggregate liquidation preference of $29,506 at December 31, 2018	28,104
Total redeemable convertible preferred stock	130,353
Stockholders' deficit:	
Common stock, $0.001 par value; 275,000,000 shares authorized at December 31, 2018; 5,868,605 shares issued and outstanding at December 31, 2018	6
Additional paid-in capital	4,371
Accumulated deficit	(111,451)
Total stockholders' deficit	(107,074)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 25,359

See accompanying notes to consolidated financial statements.

LYRA THERAPEUTICS, INC.

CONSOLIDATED STATEMENT OF OPERATIONS AND COMPREHENSIVE LOSS

(In Thousands, Except Share and Per Share Data)

	Year Ended December 31, 2018
Grant revenues	$ 1,244
Operating expenses:	
Research and development	4,975
General and administrative	3,528
Total operating expenses	8,503
Loss from operations	(7,259)
Other income:	
Interest income (expense), net	36
Other income, net	10
Change in fair value of tranche liability	1,184
Total other income, net	1,230
Net loss	$ (6,029)
Comprehensive loss	$ (6,029)
Net loss per share attributable to common stockholders—basic and diluted	$ (1.07)
Weighted-average common shares outstanding—basic and diluted	5,728,033

See accompanying notes to consolidated financial statements.

LYRA THERAPEUTICS, INC.

CONSOLIDATED STATEMENT OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT

(In Thousands, Except Share Amounts)

	Series A-1 Redeemable Convertible Preferred Stock		Series A-2 Redeemable Convertible Preferred Stock		Series A-3 Redeemable Convertible Preferred Stock		Series A-4 Redeemable Convertible Preferred Stock		Series B Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockhold Deficit
	Shares	Value	Shares	Value	Shares	Value	Shares	Value	Shares	Value	Shares	Amount			
Balance at December 31, 2017	34,017,033	$39,742	26,680,202	$18,393	30,070,487	$38,114	19,999,999	$6,000	—	$ —	5,715,234	$ 6	$ 4,034	$ (105,422)	$ (101,
Issuance of Series B redeemable convertible preferred stock, net of issuance costs of $299	—	—	—	—	—	—	—	—	96,666,656	26,618	—	—	—	—	
Issuance of Series B redeemable convertible preferred stock in exchange for convertible debt	—	—	—	—	—	—	—	—	1,685,297	506	—	—	—	—	
Accretion of convertible preferred stock to redemption value	—	—	—	—	—	—	—	—	—	81	—	—	(81)	—	
Settlement of tranche liability	—	—	—	—	—	—	—	—	—	899	—	—	—	—	
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	406	—	
Exercise of common stock options	—	—	—	—	—	—	—	—	—	—	153,371	—	12	—	
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	(6,029)	(6,
Balance at December 31, 2018	34,017,033	$39,742	26,680,202	$18,393	30,070,487	$38,114	19,999,999	$6,000	98,351,953	$28,104	5,868,605	$ 6	$ 4,371	$ (111,451)	$ (107,

See accompanying notes to consolidated financial statements.

LYRA THERAPEUTICS, INC.

CONSOLIDATED STATEMENT OF CASH FLOWS

(In Thousands)

	Year Ended December 31, 2018
Cash flows from operating activities:	
Net loss	$ (6,029)
Adjustments to reconcile net loss to net cash used in operating activities:	
Stock-based compensation	406
Depreciation expense	82
Gain on sale of property and equipment	—
Change in fair value of tranche liability	(1,184)
Non-cash interest expense	6
Changes in assets and liabilities:	
Grants receivable	164
Prepaid expenses and other current assets	(291)
Accounts payable	134
Accrued expenses and other current liabilities	(7)
Deferred rent	79
Net cash used in operating activities	(6,640)
Cash flows from investing activities:	
Purchases of property and equipment	(37)
Net cash used in investing activities	(37)
Cash flows from financing activities:	
Proceeds from the sale of Series B redeemable convertible preferred stock	29,000
Payment of offering costs related to sale of Series B redeemable convertible preferred stock	(299)
Proceeds from exercise of common stock options	12
Proceeds from convertible notes payable	500
Net cash provided by financing activities	29,213
Net increase in cash and cash equivalents	22,536
Cash and cash equivalents and restricted cash, beginning of period	1,681
Cash and cash equivalents and restricted cash, end of period	$ 24,217
Supplemental disclosure of non-cash financing and investing activities:	
Property and equipment purchases included in accounts payable	$ 52
Conversion of convertible notes payable	$ 500
Allocation of redeemable convertible preferred stock to tranche liability	$ 2,083
Settlement of tranche liability	$ (899)
Accretion of redeemable convertible preferred stock to redemption value	$ 81

See accompanying notes to financial statements.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Basis of Presentation

Lyra Therapeutics, Inc. (the "Company") is a clinical-stage therapeutics company focused on the development and commercialization of novel integrated drug and delivery solutions for the localized treatment of patients with ear, nose and throat ("ENT") diseases. The Company's proprietary technology platform, XTreo, is designed to precisely and consistently deliver medicines directly to the affected tissue for sustained periods with a single administration. The Company's initial product candidates, LYR-210 and LYR-220, are bioresorbable polymeric matrices designed to be administered in a brief, non-invasive, in-office procedure and intended to deliver up to six months of continuous drug therapy to the sinonasal passages for the treatment of chronic rhinosinusitis ("CRS"). The Company was incorporated as a Delaware corporation on November 21, 2005 and is located in Watertown, Massachusetts. On July 16, 2018, the Company formerly changed its name from 480 Biomedical, Inc. to Lyra Therapeutics, Inc.

The Company is subject to risks common to companies in the specialty pharmaceuticals industry, including but not limited to, risks of failure of preclinical studies and clinical trials, the need to obtain marketing approval for any drug product candidate that it may identify and develop, the need to successfully commercialize and gain market acceptance of its product candidates, dependence on key personnel, protection of proprietary technology, compliance with government regulations, development by competitors of technological innovations, reliance on third party manufacturers, ability to transition from pilot-scale manufacturing to large-scale production of products and the need to obtain adequate additional financing to fund the development of its product candidates.

Since inception, the Company has funded its operations with proceeds from sales of redeemable convertible preferred stock and funding from government contracts. The Company has incurred recurring net losses since inception of approximately $6.0 million for the year ended December 31, 2018. In addition, the Company has an accumulated deficit of approximately $111.5 million at December 31, 2018. The Company expects to continue to generate operating losses for the foreseeable future. At December 31, 2018, the Company had approximately $23.9 million of cash and cash equivalents.

The Company believes that there is substantial doubt that its cash and cash equivalents as of December 31, 2018 will be sufficient to fund the Company's operating plan for a period of at least one year from the issuance date of the consolidated financial statements. The future viability of the Company beyond that point is dependent on its ability to raise additional capital to finance its future operations. The Company will seek additional funding through an initial public offering of its common stock or private financings, debt financing, collaboration agreements or government grants. The inability to obtain funding, including an initial public offering, as and when needed, would have a negative impact on the Company's financial condition and ability to pursue its business strategies. If the Company is unable to obtain funding, the Company could 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 intends to pursue plans to obtain additional funding to finance its operations, 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. If the Company is unable to complete a sufficient public offering in a timely manner, it would need to pursue other financing alternatives, such as private financing of debt or equity or collaboration agreements.

The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty. Accordingly, the consolidated financial statements have been prepared on a basis that assumes the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standard Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB").

2. Summary of Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of Lyra Therapeutics, Inc. and its wholly owned subsidiary Lyra Therapeutics Security Corporation, which was incorporated in December 2018. All intercompany transactions and balances have been eliminated.

The accompanying consolidated financial statements reflect the application of certain significant accounting policies as described in this note and elsewhere in the accompanying consolidated financial statements and notes.

Use of Estimates

The preparation of the Company's consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, expenses and related disclosure of contingent assets and liabilities at the date of the consolidated financial statements and reported amounts of expenses during the reporting period. On an ongoing basis, the Company's management evaluates its estimates, which include but are not limited to management's judgments of accrued expenses, fair value of common stock, valuation of share-based awards and deferred income taxes. Due to the uncertainty inherent in such estimates, actual results may differ from these estimates.

The Company utilizes significant estimates and assumptions in determining the fair value of its common stock. The Company has utilized various valuation methodologies to estimate the fair value of its common stock. Each valuation methodology includes estimates and assumptions that require the Company's judgment. These estimates and assumptions include a number of objective and subjective factors, including external market conditions, the prices at which the Company sold shares of preferred stock, the superior rights and preferences of securities senior to the Company's common stock at the time of, and the likelihood of, achieving a liquidity event, such as an initial public offering or sale. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock at each valuation date.

Segment Information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision-maker in deciding how to allocate resources and assess performance. The Company and the Company's chief operating decision-maker, the Company's chief executive officer, views the Company's operations and manages its business as a single operating segment, which is the business of developing targeted medicines to address ENT diseases.

Comprehensive Income (Loss)

Comprehensive income (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. As the Company did not have any

element of other comprehensive income (loss), its comprehensive loss is equal to its net loss for all periods presented.

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents. Cash and cash equivalents include cash held in banks and amounts held in money market funds. Cash equivalents are stated at cost, which approximates market value.

Cash and cash equivalents consist of cash held in banks at December 31, 2018.

Restricted Cash

The Company had restricted cash of approximately $0.3 million as of December 31, 2018, which was held in certificates of deposit at the Company's financial institution to secure the Company's letter of credit for its facility lease.

Concentrations of Credit Risk and Off-Balance Sheet Risk

Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash, cash equivalents and grants receivable. The Company maintains all its cash and cash equivalents at a single accredited financial institution, in amounts that exceed federally insured limits. The grants receivable as of December 31, 2018 are from various government agencies as discussed below.

The Company has no significant off-balance sheet risk such as foreign exchange contracts, option contracts, or other foreign exchange hedging arrangements.

Grants Receivable

As of December 31, 2018, the Company had grants receivable of approximately $0.2 million from the National Institute of Health's ("NIH") National Heart, Lung and Blood Institute ("NHLBI"). The Company does not believe a valuation allowance should be assessed against grants receivable as of December 31, 2018 as the Company believes all amounts are fully collectible.

Significant Suppliers

The Company is dependent on third-party manufacturers to supply products for research and development activities in its programs. In particular, the Company relies and expects to continue to rely on a small number of manufacturers to supply it with its requirements for the drug product and associated applicator related to these programs. These programs could be adversely affected by a significant interruption in the supply of the materials required to manufacture the drug product and associated applicator.

Fair Value of Financial Instruments

Fair value is defined as the price that would be received upon sale of an asset or paid to transfer a liability between market participants at a measurement date. ASC Topic 820, *Fair Value Measurements* ("ASC 820"), establishes a three-level valuation hierarchy for instruments measured at fair value that prioritizes the inputs used to measure fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the observable inputs be used when available. Observable inputs are inputs

that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances. The fair value hierarchy applies only to the valuation inputs used in determining the reported or disclosed fair value of the financial instruments and is not a measure of the investment credit quality. The three levels of the fair value hierarchy established by ASC 820 in order of priority are as follows:

Level 1 - Quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date.

Level 2 - Inputs other than quoted prices included within Level 1 that are either directly or indirectly observable, such as quoted market prices, interest rates and yield curves.

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 elect 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 net loss. The Company did not elect to measure any financial instruments or other items at fair value.

Derivative Liabilities

In connection with certain debt and equity financings, the Company may issue financial instruments in which a derivative instrument is "embedded." Upon issuing the financial instrument, the Company assesses whether the economic characteristics of the embedded derivative are clearly and closely related to the economic characteristics of the remaining component of the financial instrument (i.e., the host contract) and whether a separate, non-embedded instrument with the same terms as the embedded instrument would meet the definition of a derivative instrument. When it is determined that (1) the embedded derivative possesses economic characteristics that are not clearly and closely related to the economic characteristics of the host contract, and (2) a separate, stand-alone instrument with the same terms would qualify as a derivative instrument, the embedded derivative is separated from the host contract and carried at fair value until the derivative is settled. Changes in the fair value of the derivative liabilities are recognized as other income (expense) in the consolidated statement of operations and comprehensive loss.

Classification and Accretion of Redeemable Convertible Preferred Shares

The Company has classified the redeemable convertible preferred stock outside of stockholders' deficit in the accompanying consolidated balance sheets in accordance with authoritative guidance for the classification and measurement of redeemable securities as the redeemable convertible preferred stock is redeemable at a determinable price on a fixed date or upon the occurrence of a deemed liquidation event. The carrying values of the redeemable convertible preferred shares are accreted to their redemption values from the date of issuance through the earliest date of redemption.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation. Depreciation expense is recognized using the straight-line method over the estimated useful life of each asset as follows:

	Estimated Useful Life
Laboratory equipment	5 years
Computer software and equipment	3 years
Office furniture and fixtures	7 years
Leasehold improvements	Shorter of useful life or remaining term of related lease

Costs for capital assets not yet placed into service are capitalized as construction in progress and are depreciated in accordance with the above guidelines once placed into service. Upon retirement or sale, the cost of the assets disposed of and the related accumulated depreciation are eliminated from the balance sheet and related gains or losses are reflected in the consolidated statement of operations and comprehensive loss. Repairs and maintenance that do not improve or extend the lives of the respective assets are expensed as incurred, while costs of major additions and betterments are capitalized.

Impairment of Long-Lived Assets

Long-lived assets consist of property and equipment. The Company continually evaluates long-lived assets for potential impairment when events or changes in circumstances indicate the carrying value of the assets may not be recoverable. Recoverability is measured by comparing the book values of the assets to the expected future net undiscounted cash flows that the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the book values of the assets exceed their fair value. The Company did not record any impairment losses on long-lived assets during the year ended December 31, 2018.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development expenses include salaries and benefits, materials and supplies, preclinical and clinical trial expenses, manufacturing expenses, stock-based compensation expense, depreciation of equipment, contract services and other outside expenses. Costs of certain development activities, such as clinical trials, are recognized based on an evaluation of the progress to completion of specific tasks. 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 or accrued research and development costs. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are deferred and capitalized. The capitalized amounts are expensed as the related goods are delivered or the services are performed.

The Company has entered into various research and development contracts with companies both inside and outside of the United States. These agreements are generally cancelable, and related payments are recorded as research and development expenses as incurred. The Company records accruals for estimated ongoing research costs. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the studies or trials, including the phase or completion of events, invoices received and contracted costs. Significant judgments and estimates are made in determining the accrued balances at the end of any reporting period. Actual results could differ from the Company’s estimates. The Company’s historical accrual estimates have not been materially different from the actual costs.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Patent Costs

The Company expenses patent application and related legal costs as incurred and classifies such costs as general and administrative expenses in the accompanying consolidated statements of operations and comprehensive loss.

Accounting for Stock-Based Compensation

The Company accounts for its stock-based compensation in accordance with ASC Topic 718, *Compensation—Stock Compensation* ("ASC 718"). ASC 718 requires all stock-based payments to employees and directors to be recognized as expense in the consolidated statements of operations and comprehensive loss based on their grant date fair values. The Company estimates the fair value of options granted using the Black-Scholes option pricing model for stock option grants to both employees and non-employees. The Company believes the fair value of the stock options granted to non-employees is more reliably determinable than the fair value of the services provided.

The Black-Scholes option pricing model requires inputs based on certain subjective assumptions, including (a) the expected stock price volatility, (b) the expected term of the award, (c) the risk-free interest rate and (d) expected dividends. Due to the lack of a public market for the Company's common stock and a lack of company-specific historical and implied volatility data, the Company has based its computation of expected volatility on the historical volatility of a representative group of public companies with similar characteristics to the Company, including stage of product development and life science industry focus. The historical volatility is calculated based on a period of time commensurate with the expected term assumption. The Company uses the simplified method as prescribed by the SEC Staff Accounting Bulletin No. 107, *Share-Based Payment*, to calculate the expected term for options granted to employees as it does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. The expected term is applied to the stock option grant group as a whole, as the Company does not expect substantially different exercise or post-vesting termination behavior among its employee population. For options granted to non-employees, the Company utilizes the contractual term of the share-based payment as the basis for the expected term assumption. The risk-free interest rate is based on a treasury instrument whose term is consistent with the expected term of the stock options. The expected dividend yield is assumed to be zero as the Company has never paid cash dividends and has no current plans to pay any cash dividends on its common stock.

The Company has elected as a policy to recognize forfeitures as they occur as described in ASU No. 2016-09, *Compensation—Stock Compensation* ("ASU No. 2016-09").

The Company expenses the fair value of its stock-based compensation awards to employees on a straight-line basis over the requisite service period, which is generally the vesting period. The Company records the expense for stock-based compensation awards subject to performance-based milestone vesting when management determines that achievement of the milestone is probable. Management evaluates when the achievement of a performance-based milestone is probable based on the expected satisfaction of the performance conditions as of the reporting date.

The Company adopted ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting* ("ASU No. 2018-07") on January 1, 2019 which permits the valuation of stock-based awards granted to non-employees to be measured at fair value at the grant date rather than on an accelerated attribution basis over the vesting period and recognizes non-employee stock-based compensation expense over the related service period of the non-employee award. Prior to January 1, 2019, the Company accounted for stock-based payments to non-employees in accordance with ASC Topic 505,

Equity-Based Payments to Non-Employees ("ASC 505"). ASC 505 requires that the expense related to stock-based payments to non-employees be recognized in the consolidated statement of operations and comprehensive loss based on the awards' vesting date fair values. Under ASC 505, stock-based compensation awards to non-employees were adjusted through stock-based compensation expense at each reporting period end to reflect the current fair value of such awards and were expensed on a straight-line basis.

Income Taxes

The Company accounts for income taxes using the liability method in accordance with ASC Topic 740, *Income Taxes* ("ASC 740"). The difference between the financial statement and tax basis of the assets and liabilities is determined annually. Deferred income tax assets and liabilities are computed using the tax laws and rates that are expected to apply for periods in which such differences reverse. Valuation allowances are established, if necessary, to reduce the deferred tax asset to the amount that will more likely than not be realized.

The Company recognizes the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

Guarantees

The Company has identified the guarantees described below as disclosable, in accordance with ASC Topic 460, *Guarantees*.

As permitted under Delaware law, the Company indemnifies its officers and directors for certain events or occurrences while the officer or director is, or was, serving at the Company's request in such capacity. The maximum potential amount of future payments the Company could be required to make is unlimited; however, the Company has directors' and officers' insurance coverage that should limit its exposure and enable it to recover a portion of any future amounts paid.

The Company is a party to a number of agreements entered into in the ordinary course of business that contain typical provisions that obligate the Company to indemnify the other parties to such agreements upon the occurrence of certain events. Such indemnification obligations are usually in effect from the date of execution of the applicable agreement for a period equal to the applicable statute of limitations. The aggregate maximum potential future liability of the Company under such indemnification provisions is uncertain.

The Company leases office space under a noncancelable operating lease. The Company has standard indemnification arrangements under the lease that requires it to indemnify the landlord against all costs, expenses, fines, suits, claims, demands, liabilities, and actions directly resulting from any breach, violation, or nonperformance of any covenant or condition of the lease.

As of December 31, 2018, the Company had not experienced any losses related to these indemnification obligations, and no material claims with respect thereto 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 reserves have been established.

Government Contracts and Revenue Recognition

The Company generates revenue from government contracts that reimburse the Company for certain allowable costs for funded projects. For contracts with government agencies, when the Company has concluded

that it is the principal in conducting the research and development activities and where the funding arrangement is considered central to the Company's ongoing operations, the Company classifies the recognized funding received as revenue.

In July 2016, the Company was awarded a grant from the NIH titled "Novel Bioabsorbable, Flexible Polymeric Stent for Pulmonary Artery Stenosis". The amount awarded of approximately $1.0 million relates to the period August 2016 through July 2019.

In September 2016, the Company received a fixed-fee award of approximately $0.4 million from NIH for the development leading to the commercialization of bioresorbable stents ("BRS") for the treatment of coarctation of the aorta in neonates. In November 2017, the Company was awarded an amendment to the contract increasing the amount by approximately $3.0 million.

Grants are invoiced and revenue is recognized as expenses are incurred as that is the depiction of the timing of the transfer of services. Reimbursements are based on actual costs agreed upon in the proposal (salary, fringe benefits, overhead, and direct costs such as materials and subcontractors).

The Company recognizes revenue under these best-efforts, cost-reimbursable and cost-plus fixed-fee awards, as the Company performs services as long as an award agreement has been executed and the fees for these services are fixed or determinable, legally billable and reasonably assured of collection. Recognized amounts reflect the Company's partial performance under the awards and equal direct and indirect costs incurred plus fixed fees, where applicable. The Company does not recognize revenue under these arrangements for amounts related to contract periods where funding is not yet committed, as amounts above committed funding thresholds would not be considered fixed or determinable or reasonably assured of collection. Revenues and expenses under these arrangements are presented gross in the consolidated statements of operations and comprehensive loss, as the Company has determined it is the primary obligor under these arrangements relative to the research and development activities it performs as the lead technical expert.

Total revenue for the year ended December 31, 2018 under the grants was approximately $1.2 million, respectively. Of the amounts recognized during the years ended December 31, 2018, approximately $1.1 million was received as of year-end. The remaining balance of approximately $0.2 million as of December 31, 2018 was recorded as grants receivable.

Net Loss per Share

The Company has reported losses since inception and has computed basic net loss per share attributable to common stockholders by dividing net loss attributable to common stockholders by the weighted-average number of common shares outstanding for the period, without consideration for potentially dilutive securities. The Company has computed diluted net loss per common share after giving consideration to all potentially dilutive common shares, including options to purchase common stock and redeemable convertible preferred stock, outstanding during the period determined using the treasury-stock and if-converted methods, except where the effect of including such securities would be antidilutive. Because the Company has reported net losses since inception, these potential common shares have been anti-dilutive and basic and diluted loss per share have been the same.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Basic and diluted net loss per share attributable to common stockholders was calculated as follows (in thousands, except share and per share data):

	Year Ended December 31, 2018
Numerator:	
Net loss	$ (6,029)
Accretion of redeemable convertible preferred stock	(81)
Net loss attributable to common stockholders	$ (6,110)
Denominator:	
Weighted-average common shares—basic and diluted	5,728,033
Net loss per share attributable to common stockholders—basic and diluted	$ (1.07)

The following table sets forth the potentially dilutive securities that have been excluded from the calculation of diluted net loss per share because to include them would be anti-dilutive (in common stock equivalent shares):

	Year Ended December 31, 2018
Series A-1 redeemable convertible preferred stock	34,017,033
Series A-2 redeemable convertible preferred stock	26,680,202
Series A-3 redeemable convertible preferred stock	30,070,487
Series A-4 redeemable convertible preferred stock	19,999,999
Series B redeemable convertible preferred stock	98,351,953
Stock options	19,092,685
Total	228,212,359

Recently Adopted Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* (“ASU No. 2014-09”), which supersedes existing revenue recognition guidance under GAAP. The standard’s core principle is that a company recognizes revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The standard outlines a five-step process to achieve this principle and will require companies to use more judgment and make more estimates than under the current guidance. The Company expects that these judgments and estimates will include identifying performance obligations in the customer contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. ASU No. 2014-09 also required additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts. The Company adopted ASU 2014-09 on January 1, 2018 using the modified retrospective method. There was no impact to the Company’s consolidated financial position, results of operations or cash flows as a result of the adoption.

In August *2016*, the FASB issued ASU No. 2016-15, *Statement of Cash Flows: Classification of Certain Cash Receipts and Cash Payments* (“ASU No. 2016-15”). This guidance addresses the presentation and

classification of certain cash receipts and cash payments in the statement of cash flows. The Company adopted ASU No. 2016-15 as of January 1, 2018. The adoption of ASU No. 2016-15 did not have any impact on the Company's consolidated financial position, results of operations or cash flows.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash* ("ASU No. 2016-18"). This standard requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The Company adopted this standard as of January 1, 2018 using the required retrospective adoption method. The adoption did not have a material impact on the Company's consolidated financial position, results of operations or cash flows.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting* ("ASU No. 2017-09"). This update clarifies the changes to terms or conditions of a share-based payment award that require an entity to apply modification accounting. The Company adopted ASU No. 2017-09 as of January 1, 2018. The adoption of ASU No. 2017-09 did not have a material impact on the Company's consolidated financial position, results of operations or cash flows.

Recently Issued Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02. The standard requires that all lessees recognize the assets and liabilities that arise from leases on the balance sheet and disclose qualitative and quantitative information about its leasing arrangements. In July 2018, the FASB issued ASU No. 2018-11, *Leases (Topic 842): Targeted Improvements* ("ASU No. 2018-11"), which offers a transition option to entities adopting ASC Topic 842. Under ASU No. 2018-11 entities can elect to apply ASC 842 using a modified-retrospective adoption approach resulting in a cumulative effect adjustment to accumulated deficit at the beginning of the year in which the new lease standard is adopted, rather than adjustments to the earliest comparative period presented in their financial statements. Pursuant to the guidance under ASU No. 2016-02, the Company elected the optional package of practical expedients, which allow the Company to not reassess: (i) whether expired or existing contracts contain leases; (ii) lease classification for any expired or existing leases; and (iii) initial direct costs for any existing leases. The standard also allows entities to make certain policy elections, some of which the Company also plans to elect, including: (i) a policy to not record short-term leases on the balance sheet and (ii) a policy to not separate lease and non-lease components for certain classes of underlying assets. The Company adopted ASC No. 842 as of January 1, 2019 using the modified-retrospective method and recorded a right-of-use asset of approximately $4.0 million and corresponding liability of approximately $4.2 million related to its real estate lease with a term of more than 12 months which is not treated as financing lease under ASC 842, accordingly. These adjustments had no impact on the Company's consolidated statement of operations and comprehensive loss and no material impact on the Company's accumulated deficit.

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480) and Derivatives and Hedging (Topic 815): I. Accounting for Certain Financial Instruments with Down Round Features; II. Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception* ("ASU No. 2017-11"). Part I of ASU No. 2017-11 addresses the complexity of accounting for certain financial instruments with down round features. Down round features are features of certain equity-linked instruments (or embedded features) that result in the strike price being reduced on the basis of the pricing of future equity offerings. Current accounting guidance creates cost and complexity for entities that issue financial instruments (such as warrants and convertible instruments) with down round features

that require fair value measurement of the entire instrument or conversion option. Part II of ASU No. 2017-11 addresses the difficulty of navigating Topic 480, *Distinguishing Liabilities from Equity*, because of the existence of extensive pending content in the FASB Accounting Standards Codification. This pending content is the result of the indefinite deferral of accounting requirements about mandatorily redeemable financial instruments of certain nonpublic entities and certain mandatorily redeemable noncontrolling interests. The amendments in Part II of ASU No. 2017-11 do not have an accounting effect. ASU No. 2017-11 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018. The Company adopted ASU No. 2017-11 as of January 1, 2019. The adoption of ASU No. 2017-11 did not have a material impact on the Company's consolidated financial position, results of operations or cash flows.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting* ("ASU No. 2018-07"). The new standard largely aligns the accounting for share-based payment awards issued to employees and non-employees by expanding the scope of ASC 718 to apply to non-employee share-based transactions, as long as the transaction is not effectively a form of financing. The Company adopted ASU No. 2018-07 as of January 1, 2019. The adoption of ASU No. 2018-07 did not have a material impact on the Company's consolidated financial position, results of operations or cash flows.

In August 2018, the SEC adopted the final rule under SEC Release No. 33-10532, *Disclosure Update and Simplification*, amending certain disclosure requirements that were redundant, duplicative, overlapping, outdated or superseded. In addition, the amendments expanded the disclosure requirements on the analysis of stockholders' equity for interim financial statements. Under the amendments, an analysis of changes in each caption of stockholders' equity presented in the balance sheet must be provided in a note or separate statement. The analysis should present a reconciliation of the beginning balance to the ending balance of each period for which a statement of comprehensive income (loss) is required to be filed. This final rule was effective on November 5, 2018. The adoption of SEC Release No. 33-10532 did not have a material impact on the Company's its financial position, results of operations or cash flows.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU No. 2018-13"), which modifies the disclosure requirements on fair value measurements. The new guidance will become effective for the Company on January 1, 2020. Early adoption is permitted. The Company currently is evaluating the impact the adoption of ASU 2018-13 will have on its consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* ("ASU No. 2018-15"), which clarifies the accounting for implementation costs in cloud computing arrangements. The new guidance will become effective for the Company on January 1, 2020. Early adoption is permitted. The Company is currently evaluating the impact the adoption of ASU 2018-15 will have on its consolidated financial statements.

3. Fair Value Measurements

The Company did not have financial assets and liabilities measured at fair value at December 31, 2018.

There have been no changes to the valuation methods used during the year ended December 31, 2018. There were no transfers within the fair value hierarchy during the year ended December 31, 2018.

The carrying values of the Company's grants receivable, accounts payable and accrued expenses approximate their fair values due to the short-term nature of these liabilities.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Tranche Rights

The Company's sales of Series B redeemable convertible preferred stock ("Series B Preferred Stock") (see Note 6) provided investors with the right to participate in a subsequent offering of Series B Preferred Stock in the event specified development milestone was achieved. The Company classified the tranche rights as a derivative liability on its consolidated balance sheet because it met the definition of a freestanding financial instrument that could have required the Company to transfer assets upon exercise. The Company remeasured the derivative liability associated with the tranche right to fair value at each reporting date, and recognized changes in the fair value of the derivative liability as a component of other income (expense) in the consolidated statements of operations and comprehensive loss.

The fair value of the derivative liability was determined using the Black-Scholes option pricing model, which considered as inputs (a) the expected stock price volatility of the underlying common stock, (b) the expected term of the tranche right, (c) the risk-free interest rate and (d) expected dividends.

The fair value of the tranche right related to the Company's Series B Preferred Stock upon issuance in June 2018 was approximately $2.1 million. Upon the issuance of Series B Preferred Stock in October 2018, the tranche right was cancelled, and the fair value of the derivative liability was $0, with the change in fair value recorded in other income (expense) in the consolidated statements of operations and comprehensive loss.

The following table provides a roll forward of the fair value of the Company's tranche right, for which fair value was determined by Level 3 inputs (in thousands):

	Tranche Right
Balance at December 31, 2017	$ —
Fair value at issuance	2,083
Change in fair value	(1,184)
Settlement	(899)
Balance at December 31, 2018	$ —

4. Property and Equipment

Property and equipment consist of the following at December 31, 2018 (in thousands):

	December 31, 2018
Property and equipment:	
Laboratory equipment	$ 1,715
Computer software and equipment	572
Office furniture and fixtures	301
Leasehold improvements	317
	2,905
Accumulated depreciation	(2,802)
Property and equipment, net	$ 103

The Company recognized approximately $0.1 million of depreciation expense for the year ended December 31, 2018.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

5. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following (in thousands):

	December 31, 2018
Payroll and employee related expenses	$ 484
Third-party research and development expenses	180
Professional and consulting fees	609
Deferred rent	—
Other	56
Total accrued expenses and other current liabilities	$ 1,329

6. Redeemable Convertible Preferred Stock

On June 5, 2018, the Company filed an amended and restated certificate of incorporation which authorizes its Board of Directors to issue up to 210,786,340 shares of preferred stock, par value $0.001 per share.

On August 25, 2011, the Company filed an amended and restated certificate of incorporation to recapitalize its outstanding shares of previously outstanding Series A, Series B and Series C preferred stock into 34,017,033 shares of a new Series A-1 redeemable convertible preferred stock (“Series A-1 Preferred Stock”). As the substance of the transaction was a consolidation of the existing stockholders’ holdings into a single class of shares without conferring any substantive additional rights or obligations between the stockholders and the Company, the transaction was recorded at the then existing book value of the previously outstanding Series A, B and C preferred stock.

During 2011, the Company issued 26,680,202 shares of Series A-2 redeemable convertible preferred stock (“Series A-2 Preferred Stock”) for $0.6894 per share, in exchange for cash proceeds of approximately $13.0 million and the conversion of approximately $5.4 million of convertible promissory notes and accrued interest.

During 2013, the Company issued 16,736,530 shares of Series A-3 redeemable convertible preferred stock (“Series A-3 Preferred Stock”) for $1.2675 per share, in exchange for cash proceeds of approximately $15.0 million and the conversion of approximately $6.2 million of convertible promissory notes and accrued interest.

During 2015, the Company issued 9,205,805 shares of Series A-3 Preferred Stock for $1.2675 per share, in exchange for cash proceeds of approximately $3.3 million and the conversion of approximately $8.4 million of certain convertible promissory notes and accrued interest.

In January 2016, the Company issued 4,128,152 shares of Series A-3 Preferred Stock for $1.2675 per share, in exchange for cash proceeds of approximately $5.2 million. In November 2016, the Company issued 19,999,999 shares of Series A-4 redeemable convertible preferred stock (“Series A-4 Preferred Stock”) for $0.30 per share, in exchange for cash proceeds of approximately $6.0 million.

In June 2018, the Company issued 41,685,292 shares of Series B Preferred Stock for $0.30 per share, in exchange for cash proceeds of approximately $12.0 million and the conversion of approximately $0.5 million of convertible promissory notes originally issued in March and April 2018 and accrued interest. From July 2018 to October 2018, the Company issued 56,666,661 shares of Series B Preferred Stock in exchange for cash proceeds of approximately $17.0 million.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The rights, preferences, and privileges of the Series A-1, A-2, A-3, A-4 and Series B Preferred Stock (collectively, the "Preferred Stock") are the following:

Dividends

The holders of Preferred Stock are entitled to receive dividends in any fiscal year, when, as, and if declared by the Board of Directors provided that such dividend payable on the Series B Preferred Stock shall not be lesser than the amount of any dividend to be paid on any other class or series of capital stock. The Company shall not declare or pay any cash dividends on shares of common stock until each of the holders of the Preferred Stock then outstanding shall have first received, or there shall have been declared and set aside for payment, a cash dividend on each outstanding share of Preferred Stock. No cash dividends have been declared since the Company's inception.

Voting

The holders of Preferred Stock are entitled to vote on all matters with the common stockholders as if they were one class of stock. The holders of Preferred Stock are entitled to the number of votes equal to the number of shares of common stock into which such holders' share of the Preferred Stock is then convertible.

Conversion

Each share of Preferred Stock is convertible, at the option of the holder, at any time, into one share of common stock, adjusted for certain dilutive events and per the conversion rates as defined below under "Liquidation." In addition, all shares of Preferred Stock will automatically convert into shares of common stock upon the earlier of (i) the closing of a firm commitment underwritten public offering in which the per share price to the public is not less than $2.06 per share, and which results in at least $35.0 million of gross proceeds to the Company or (ii) upon the written notice from the holders of at least 75% of the then-outstanding shares of Preferred Stock, voting together as a separate class on an as-converted basis at the then effective conversion rate. The Preferred Stock will convert at 1:1 ratio into shares of common stock.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution, or winding-up of the Company, including a change of control, as defined in its amended and restated certificate of incorporation, the holders of the Preferred Stock will be entitled to be paid a preference payment, prior to any payment to holders of common stock or any other capital stock ranking junior on liquidation to the Preferred Stock. In the case of Series A-1 Preferred Stock, this preference payment is equal to the greater of (a) $0.4162 per share, subject to certain adjustments, as defined, plus any dividends declared but unpaid on such shares, or (b) the amount per share which the holders of Series A-1 Preferred Stock would be entitled to if the shares of Series A-1 Preferred Stock had been converted into shares of common stock immediately prior to such voluntary or involuntary liquidation, dissolution, or winding-up of the Company. In the case of Series A-2 Preferred Stock, this preference payment is equal to the greater of (a) $0.3397 per share, subject to certain adjustments, as defined, plus any dividends declared but unpaid on such shares, or (b) the amount per share which the holders of Series A-2 Preferred Stock would be entitled to if the shares of Series A-2 Preferred Stock had been converted into shares of common stock immediately prior to such voluntary or involuntary liquidation, dissolution, or winding-up of the Company. In the case of Series A-3 Preferred Stock, this preference payment is equal to the greater of (a) $0.6245 per share, subject to certain adjustments, as defined, plus any dividends declared but unpaid on such shares, or (b) the amount per share which the holders of Series A-3 Preferred Stock would be entitled to if the shares of Series A-3 Preferred Stock had been converted into shares of common stock immediately prior to such voluntary or

involuntary liquidation, dissolution, or winding-up of the Company. In the case of Series A-4 Preferred Stock, this preference payment is equal to the greater of (a) $0.30 per share, subject to certain adjustments, as defined, plus any dividends declared but unpaid on such shares, or (b) the amount per share which the holders of Series A-4 Preferred Stock would be entitled to if the shares of Series A-4 Preferred Stock had been converted into shares of common stock immediately prior to such voluntary or involuntary liquidation, dissolution, or winding-up of the Company. In the case of Series B Preferred Stock, this preference payment is equal to the greater of (a) $0.30 per share, subject to certain adjustments, as defined, plus any dividends declared but unpaid on such shares, or (b) the amount per share which the holders of Series B Preferred Stock would be entitled to if the shares of Series B Preferred Stock had been converted into shares of common stock immediately prior to such voluntary or involuntary liquidation, dissolution, or winding-up of the Company.

After the payment of all required preferential amounts to the holders of Preferred Stock, upon the dissolution, liquidation, or winding-up of the Company, any remaining assets and funds of the Company available for distribution shall be distributed among the holders of the then outstanding common stock, pro rata, according to the number of shares of common stock held by such holders.

Redemption

Series A-1, A-2 A-3, A-4 and B Preferred Stock are required to be redeemed by the Company at a price of $0.4162, $0.3397, $0.6245, $0.30 and $0.30 per share, respectively, subject to certain adjustments, as defined in its amended and restated certificate of incorporation, plus all declared but unpaid dividends in three annual installments commencing 60 days after receipt by the Company, at any time on or after June 5, 2023 (the fifth anniversary of the Series B Preferred Stock original issue date), of written notice requesting redemption of all shares of Preferred Stock from the holders of at least 75% of the then outstanding shares of Preferred Stock (which must include at least 50% of the then outstanding shares of Series B Preferred Stock).

7. Common Stock

On June 5, 2018, the Company filed an amended and restated certificate of incorporation which authorizes its Board of Directors to issue up to 275,000,000 shares of common stock, par value $0.001 per share.

The holders of common stock are entitled to one vote for each share held. Common stockholders are not entitled to receive dividends, unless declared by the Board of Directors.

The Company has reserved for future issuances the following shares of common stock as of December 31, 2018:

	As of December 31, 2018
Series A-1 Preferred Stock	34,017,033
Series A-2 Preferred Stock	26,680,202
Series A-3 Preferred Stock	30,070,487
Series A-4 Preferred Stock	19,999,999
Series B Preferred Stock	98,351,953
Stock options	42,897,809
Total	252,017,483

8. Stock-Based Compensation Expense

The Company adopted the 2016 Equity Incentive Plan (“2016 Plan”) in February 2016. Upon adoption of the 2016 Plan, no further grants were made under the 2005 Equity Incentive Plan (“2005 Plan”, together with

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

the 2016 Plan, the "Plans"). The 2016 Plan initially provided for the grant of awards for 4,500,000 shares of common stock. In June 2017, the Company amended the 2016 Plan to provide for the grant of awards for a total of 14,200,000 shares of common stock. In June 2018, the Company amended the 2016 Plan to provide for the grant of awards for a total of 35,200,000 shares of common stock.

All of the Company's employees, officers, directors, consultants and advisors are eligible to be granted options, restricted stock, restricted stock units, and other share-based awards under the terms of the 2016 Plan. As of December 31, 2018, 23,805,124 shares of common stock were available for future grant under the 2016 Plan.

All stock option grants are non-statutory stock options except option grants to employees and officers intended to qualify as incentive stock options under the Internal Revenue Code of 1986, as amended. Stock options may not be granted at less than the fair market value of the Company's common stock on the date of grant. Vesting periods of awards are determined by the Board of Directors. Vesting periods of awards granted to date range from vesting upon grant to vesting over a four-year period. Vesting conditions are generally based on service provisions, whereby the awards vest over time. Additionally, the Company has granted certain awards which vest upon the achievement of certain financing and revenue milestones. Stock options granted under the Plans expire no more than 10 years from the date of grant.

Stock-based compensation expense included in the Company's statements of operations and comprehensive loss is as follows (in thousands):

	Year Ended December 31, 2018
Research and development	$ 21
General and administrative	385
Total	$ 406

In the year ended December 31, 2018, the Company recorded approximately $36,000 of stock-based compensation for the award related to the achievement of a financial-based milestone.

The fair value of each stock option granted to employees and directors was estimated on the date of grant using the Black-Scholes option-pricing model, with the following weighted-average assumptions:

	Year Ended December 31, 2018
Risk-free interest rate	3.1%
Expected dividend yield	— %
Expected term (in years)	6.1
Expected volatility	80.7%

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

A summary of the stock option activity under the Plans for the year ended December 31, 2018 is as follows:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding December 31, 2017	21,356,126	$ 0.21	6.3	$ —
Granted	1,980,500	0.08		
Exercised	(153,371)	0.08		
Cancelled	(4,090,570)	0.08		
Outstanding at December 31, 2018	19,092,685	$ 0.23	6.2	$ 279
Exercisable at December 31, 2018	13,540,675	$ 0.29	5.1	$ 174
Vested and expected to vest at December 31, 2018	19,092,685	$ 0.23	6.2	$ 279

The weighted-average fair value of options granted to employees and directors during the year ended December 31, 2018 was $0.06.

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 total intrinsic value of options exercised during the year ended December 31, 2018 was $0. The Company satisfies stock option exercises with newly issued shares of its common stock.

As of December 31, 2018, total unrecognized stock-based compensation expense relating to unvested stock options was approximately $0.2 million. This amount is expected to be recognized over a weighted-average period of 2.8 years. Additionally, as of December 31, 2018, there was approximately $36,000 of unrecognized stock-based compensation related to a stock option award related to the achievement of a revenue-based milestone. As the Company believes the achievement of the revenue-based milestone is currently not probable, it has not recorded any stock-based compensation related to this award. The Company will continue to assess the probability of achieving the revenue-based milestone at each reporting period.

9. Related Parties

The Company has consulting agreements with two of its founders who are also directors of the Company. Total consulting expense related to these consulting agreements was approximately $50,000 in the year ended December 31, 2018.

The Company entered into a Contribution Agreement, Transition Services Agreement (as amended), Collaboration Agreement, Technology License Agreement and Trademark Coexistence Agreement with Arsenal Medical, Inc. ("Arsenal"), a company which shares certain common owners with the Company. During the year ended December 31, 2018, the Company invoiced Arsenal for an aggregate of approximately $1.0 million primarily for its employee costs and its share of rent and other overhead costs. Additionally, during the year ended December 31, 2018, the Company invoiced Arsenal approximately $0.2 million for certain costs incurred in connection with Arsenal's grants with the government. The Company has reflected these billed amounts as offsets against operating expenses in the accompanying consolidated statements of operations and comprehensive loss. Of these charges, approximately $0.7 million remained unpaid as of December 31, 2018 and are included in

prepaid expenses and other current assets in the accompanying consolidated balance sheet. The Company believes all amounts to be fully collectible.

10. Income Taxes

New Tax Legislation

On December 22, 2017, the President of the United States signed into law the Tax Cuts and Jobs Act ("TCJA"). This legislation reduced the U.S. corporate tax rate from 34% to 21% for tax years beginning after December 31, 2017. As a result of the enacted law, the Company was required to revalue deferred tax assets and liabilities existing as of December 31, 2017 from the 34% federal rate in effect through the end of 2017, to the new 21% rate. The Company has recognized the impact of the Tax Reform Act in its consolidated financial statements and related disclosures. The impact of the remeasurement of the Company's U.S. deferred tax assets and liabilities to 21% resulted in the reduction of deferred tax assets of approximately $11.1 million, which is offset by a full valuation allowance. There was no impact to the Company's consolidated statement of operations and comprehensive loss due to the reduction in the U.S. corporate tax rate.

Income Taxes

The Company records a provision or benefit for income taxes on pre-tax income or loss based on its estimated effective tax rate for the year. During the year ended December 31, 2018, the Company recorded a net loss of approximately $6.0 million and, since it maintains a full valuation allowance on its deferred tax assets, the Company did not record an income tax benefit for the year ended December 31, 2018.

A reconciliation of income tax expense computed at the statutory federal income tax rate to income taxes reflected in the consolidated financial statements is as follows:

	Year Ended December 31, 2018
Income tax computed at federal statutory tax rate	21.0%
Permanent differences	2.8%
State taxes, net of federal benefit	7.1%
Research and development and other tax credits	3.2%
Federal rate change	— %
Change in deferred tax asset valuation allowance	(33.3)%
Other	(0.8)%
	— %

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

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

	December 31, 2018
Deferred tax assets:	
Net operating loss carryforwards	$ 25,653
Research and development credits	4,036
Stock-based compensation	186
Other	269
Total gross deferred tax asset	30,144
Less: Valuation Allowance	(30,144)
Net deferred tax asset	$ —

As of December 31, 2018, the Company had U.S. federal net operating loss carryforwards of approximately $91.3 million which may be able to offset future income tax liabilities and expire at various dates through 2037 and approximately $6.9 million of federal net operating loss carryforwards that may be carried forward indefinitely. As of December 31, 2018, the Company also had state net operating loss carryforwards of approximately $79.6 million which may be available to offset future income tax liabilities and expire at various dates through 2038.

As of December 31, 2018, the Company had federal research and development tax credit carryforwards of approximately $2.7 million available to reduce future tax liabilities which expire at various dates through 2038. As of December 31, 2018, the Company had state research and development tax credit carryforwards of approximately $1.7 million available to reduce future tax liabilities which expire at various dates through 2033. The Company has generated research credits but has not conducted a study to document the qualified activity. This study may result in an adjustment to the Company's research and development credit carryforwards; however, until a study is completed and any adjustment is known, no amounts are being presented as an uncertain tax position. A full valuation allowance has been provided against the Company's research and development credits and, if an adjustment is required, this adjustment would be offset by an adjustment to the deferred tax asset established for the research and development credit carryforwards and the valuation allowance.

Under the provisions of the Internal Revenue Code, the net operating loss and tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service and state tax authorities. Net operating loss and tax credit carryforwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant shareholders over a three-year period in excess of 50%, as defined under Sections 382 and 383 of the Internal Revenue Code, respectively, as well as similar state provisions. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities. The amount of the annual limitation is determined based on the value of the Company immediately prior to the ownership change. Subsequent ownership changes may further affect the limitation in future years. The Company has not conducted a study to assess whether a change of control has occurred or whether there have been multiple changes of control since inception due to the significant complexity and cost associated with such a study. If the Company has experienced a change of control, as defined by Section 382, at any time since inception, utilization of the net operating loss carryforwards or research and development tax credit carryforwards would be subject to an annual limitation under Section 382, which is determined by first multiplying the value of the Company's stock at the time of the ownership change by the applicable long-term tax-exempt rate, and then could be subject to additional adjustments, as required. Any limitation may result in expiration of a portion of the net operating loss carryforwards or research and development tax credit carryforwards before utilization. Further, until a study is completed by the Company and any limitation is known, no amounts are being presented as an uncertain tax position.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

ASC 740 requires a valuation allowance to reduce the deferred tax assets reported if, based on the weight of the evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized. After consideration of all the evidence, both positive and negative, the Company has recorded a valuation allowance against its deferred tax assets at December 31, 2018 because the Company's management has determined that it is more likely than not that the Company will not recognize the benefits of its federal and state deferred tax assets primarily due to its history of cumulative net losses incurred since inception and its lack of commercialization of any products or generation of any revenue from product sales since inception and, as a result, a valuation allowance of approximately $30.1 million has been established at December 31, 2018. Management reevaluates the positive and negative evidence at each reporting period. The valuation allowance increased by approximately $2.0 million during the year ended December 31, 2018 due primarily to the generation of net operating losses.

The Company has recorded adjustments to deferred tax assets for unrecognized tax benefits as of December 31, 2018. The Company's policy is to record interest and penalties related to uncertain tax positions as part of its income tax provision. As of December 31, 2018, the Company had no accrued interest or penalties related to uncertain tax positions and no such amounts have been recognized in the Company's statement of operations and comprehensive loss. In many cases, the Company's uncertain tax positions are related to years that remain subject to examination by relevant tax authorities. The statute of limitations for federal and state tax authorities is closed for years prior to December 31, 2013. However, since the Company is in a loss carryforward position, the Company is generally subject to examination by the U.S. federal, state and local income tax authorities for all tax years in which a loss carryforward is available.

11. Leases

In August 2007, the Company entered into an operating lease, as amended, for approximately 22,343 square feet of office and laboratory space in Watertown, Massachusetts. In November 2017, the Company amended its lease ("2017 Amendment") and extended the lease term through April 2023. Initial base rent under the 2017 Amendment was approximately $1.0 million per year. The 2017 Amendment includes annual rent escalations over the term of the operating lease. The Company maintains a letter of credit of approximately $0.3 million securing its obligations under the operating lease which is secured by approximately $0.3 million of certificate of deposits, which are included as restricted cash in the consolidated balance sheets. At December 31, 2017 and 2018 rent escalations are included in deferred rent in the consolidated balance sheets. Rent expense is recognized on a straight-line basis over the terms of occupancy.

As of December 31, 2018, future minimum payments under the operating lease commitment were as follows (in thousands):

	December 31, 2018
2019	$ 1,029
2020	1,059
2021	1,091
2022	1,124
2023	378
	$ 4,681

Rent expense for the year ended December 31, 2018 was approximately $0.5 million. Rent expense was net of sublease income of approximately $0.5 million for the year ended December 31, 2018.

LYRA THERAPEUTICS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

12. Retirement Plan

The Company has a defined-contribution plan under Section 401(k) of the Internal Revenue Code ("401(k) Plan"). The 401(k) Plan covers all employees who meet defined minimum age and service requirements and allows participants to defer a portion of their annual compensation on a pre-tax basis. As currently established, the Company is not required to make and to date has not made any contributions to the 401(k) Plan. The Company did not make any matching contributions during the year ended December 31, 2018.

Through and including , 2020, (the 25th day after the date of this prospectus), all dealers effecting transactions in the 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.

Shares

Common Stock

PROSPECTUS

BofA Securities

Jefferies

William Blair

BTIG

, 2020

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table indicates the expenses to be incurred in connection with the offering described in this registration statement, other than underwriting discounts and commissions, all of which will be paid by us. All amounts are estimated except the Securities and Exchange Commission registration fee, the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee and the Nasdaq listing fee.

	Amount
Securities and Exchange Commission registration fee	$ *
FINRA filing fee	*
Initial listing fee	*
Accountants' fees and expenses	*
Legal fees and expenses	*
Blue Sky fees and expenses	*
Transfer Agent's fees and expenses	*
Printing and engraving expenses	*
Miscellaneous	*
Total expenses	$ *

* To be filed by amendment.

Item 14. Indemnification of Directors and Officers.

Section 102 of the General Corporation Law of the State of Delaware permits a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our restated certificate of incorporation provides that no director of the Registrant shall be personally liable to it or its stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the General Corporation Law of the State of Delaware prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the General Corporation Law of the State of Delaware provides that a corporation has the power to indemnify a director, officer, employee, or agent of the corporation, or a person serving at the request of the corporation for another corporation, partnership, joint venture, trust or other enterprise in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he was or is a party or is threatened to be made a party to any threatened, ending or completed action, suit or proceeding by reason of such position, if such person acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to 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 the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Our restated certificate of incorporation provides that we will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding (other than an action by or in the right of us) by reason of the fact that he or she is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an "Indemnitee"), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. Our restated certificate of incorporation provides that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favour by reason of the fact that the Indemnitee is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred in connection therewith. Expenses must be advanced to an Indemnitee under certain circumstances.

We have entered into indemnification agreements with each of our directors and officers. These indemnification agreements may require us, among other things, to indemnify our directors and officers for some expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or officer in any action or proceeding arising out of his or her service as one of our directors or officers, or any of our subsidiaries or any other company or enterprise to which the person provides services at our request.

We maintain a general liability insurance policy that covers certain liabilities of directors and officers of our corporation arising out of claims based on acts or omissions in their capacities as directors or officers.

In any underwriting agreement we enter into in connection with the sale of common stock being registered hereby, the underwriters will agree to indemnify, under certain conditions, us, our directors, our officers and persons who control us within the meaning of the Securities Act of 1933, as amended, or the Securities Act, against certain liabilities.

Item 15. Recent Sales of Unregistered Securities.

Set forth below is information regarding shares of capital stock issued by the registrant within the past two years. Also included is the consideration received by us for such shares and information relating to the section of the Securities Act, or rule of the Securities and Exchange Commission, under which exemption from registration was claimed.

(a) Issuance of Capital Stock.

Since January 1, 2017, the registrant issued an aggregate of 98,351,953 shares of Series B preferred stock at for an aggregate consideration of approximately $29.5 million to accredited investors, pursuant to Section 4(a)(2) of the Securities Act and Rule 506 as a transaction not involving a public offering.

(b) Equity Grants.

Since January 1, 2017, the registrant granted stock options to purchase an aggregate of shares of its common stock, at a weighted average exercise price per share of $, to employees, non-employees and directors in connection with services provided to the registrant by such parties.

The issuances of such stock options, the shares of common stock issuable upon the exercise of such options and such restricted shares of common stock were issued pursuant to written compensatory plans or arrangements with the registrant's employees, directors and consultants, in reliance on the exemption provided by Rule 701 promulgated under the Securities Act, or pursuant to Section 4(a)(2) under the Securities Act, relative to transactions by an issuer not involving any public offering, to the extent an exemption from such registration was required.

(c) Issuance of Notes

On March 14, 2018, the registrant issued up to $500,000 in aggregate principal amount of convertible promissory notes to accredited investors pursuant to Section 4(a)(2) of the Securities Act as a transaction not involving a public offering. On June 5, 2018, upon the closing of the Series B preferred stock financing, these convertible promissory notes, as well as accrued interest thereon, converted into 1,685,297 shares of Series B preferred stock.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

Exhibit Number	Description of Exhibit
1.1*	Underwriting Agreement
3.1*	Certificate of Incorporation of the Registrant, as amended (currently in effect)
3.2*	Bylaws of the Registrant (currently in effect)
3.3*	Form of Restated Certificate of Incorporation of the Registrant (to be effective upon the closing of this offering)
3.4*	Form of Restated Bylaws of the Registrant (to be effective upon the closing of this offering)
4.1*	Amended and Restated Investor Rights Agreement
4.2*	Form of Stock Certificate evidencing the shares of common stock
5.1*	Opinion of Latham & Watkins LLP
10.1#**	2005 Equity Incentive Plan, as amended, and form of agreements thereunder
10.2#**	2016 Equity Incentive Plan, as amended, and form of agreements thereunder
10.3#*	2020 Incentive Award Plan and form of agreements thereunder
10.4#*	Non-Employee Director Compensation Program
10.5#*	2020 Employee Stock Purchase Plan
10.6#*	Form of Indemnification Agreement for directors and officers of the Registrant
10.7	Lease Agreement between the Registrant and ARE-480 Arsenal St, LLC, dated August 14, 2007, as amended
10.8#*	Employment Agreement between the Registrant and Maria Palasis, Ph.D.
10.9#*	Offer Letter between the Registrant and R. Don Elsey
10.10#*	Offer Letter between the Registrant and Laura Edgerly-Pflug
21.1**	Subsidiaries of the Registrant
23.1*	Consent of BDO USA, LLP
23.2*	Consent of Latham & Watkins LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on signature page)

* To be filed by amendment.

** Previously Filed

# Indicates management contract or compensatory plan.

(b) Financial Statement Schedules. Schedules not listed above have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings.

The undersigned registrant hereby undertakes to provide to the underwriter, at the closing specified in the underwriting agreement, certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act 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 Securities 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 Securities Act and will be governed by the final adjudication of such issue.

The undersigned 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, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Watertown, Commonwealth of Massachusetts, on this day of , 2020.

LYRA THERAPEUTICS, INC.

By: _____
Maria Palasis, Ph.D.
President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of Lyra Therapeutics, Inc., hereby severally constitute and appoint Maria Palasis, Ph.D. and R. Don Elsey, and each of them singly (with full power to each of them to act alone), our true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution in each of them for him or her and in his or her name, place and stead, and in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement (or any other registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as full to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

Signature	Title	Date
_____ Maria Palasis, Ph.D.	President, Chief Executive Officer and Director (principal executive officer)	, 2020
_____ R. Don Elsey	Chief Financial Officer (principal financial officer and principal accounting officer)	, 2020
_____ Michael Altman	Director	, 2020
_____ Edward Anderson	Director	, 2020
_____ Robert S. Langer, D.Sc.	Director	, 2020
_____ C. Ann Merrifield	Director	, 2020

Signature	Title	Date
W. Bradford Smith	Director	, 2020
George Whitesides, Ph.D.	Director	, 2020

LEASE AGREEMENT

THIS LEASE AGREEMENT is made as of this 14 day of August, 2007, between ARE-480 ARSENAL STREET, LLC, a Delaware limited liability company ("Landlord"), and WMR BIOMEDICAL, INC., a Delaware corporation ("Tenant").

BASIC LEASE PROVISIONS

Address: 480 Arsenal Street, Watertown, Massachusetts

Premises: That portion of the Project comprised of all of Area 2C and a portion of Area 1D of the Building (as hereinafter defined), containing approximately 27,311 rentable square feet in the aggregate, as determined by Landlord, as more particularly shown on **Exhibit A.**

Project: The real property on which the building (the **"Building")** in which the Premises are located, together with all improvements thereon and appurtenances thereto as described on **Exhibit B.**

Base Rent*:	Months 1-12	$75,628.71, per month
	Months 13-24	$80,180.54, per month
	Months 25-36	$84,732.38, per month
	Months 37-48	$89,284.21, per month
	Months 49-60	$93,836.04, per month
	Months 61-63	$96,111.96, per month

Rentable Area of Premises: 27,311 sq. ft.

Rentable Area of Project: 140,744 sq. ft. **Tenant's Share of Operating Expenses:** 19.40%

Security Deposit: $302,514.84 **Target Commencement Date:** February 1, 2008

Rent Commencement Date: Commencement Date

Base Term: Beginning on the Commencement Date and ending sixty-three (63) months from the first day of the first full month of the Term (as defined in Section 2) hereof

Permitted Use: Research and development laboratory, related office and other related uses consistent with the character of the Project and otherwise in compliance with the provisions of Section 6 hereof.

Address for Rent Payment:
385 E. Colorado Boulevard, Suite 299
Pasadena, CA 91101
Attention: Accounts Receivable

Landlord's Notice Address:
385 E. Colorado Boulevard, Suite 299
Pasadena, CA 91101
Attention: Corporate Secretary

Tenant's Notice Address:
Prior to Commencement Date:

790 Memorial Drive
Cambridge, MA 02139
Attention: Carmichael Roberts, CEO

Following Commencement Date:

480 Arsenal Street
Watertown, MA 02472
Attention: Carmichael Roberts, CEO

Guarantor of Lease:
None

The following Exhibits and Addenda are attached hereto and incorporated herein by this reference:

[ ] EXHIBIT A - PREMISES DESCRIPTION
[ ] EXHIBIT B - DESCRIPTION OF PROJECT
[ ] EXHIBIT C - WORK LETTER
[ ] EXHIBIT D - COMMENCEMENT DATE
[ ] EXHIBIT E - RULES AND REGULATIONS
[ ] **EXHIBIT F** - TENANT'S PERSONAL PROPERTY

1. **Lease of Premises.** Upon and subject to all of the terms and conditions hereof, Landlord hereby leases the Premises to Tenant and Tenant hereby leases the Premises from Landlord. The portions of the Project which are for the non-exclusive use of tenants of the Project are collectively referred to herein as the **"Common Areas."** Landlord reserves the right to modify Common Areas, provided that such modifications do not materially adversely affect Tenant's use of the Premises for the Permitted Use.

2. **Delivery; Acceptance of Premises; Commencement Date.** Landlord shall use reasonable efforts to deliver the Premises to Tenant on or before the Target Commencement Date, with Landlord's Work and the Tenant Improvements Substantially Completed **("Delivery"** or **"Deliver").** If Landlord fails to timely Deliver the Premises, Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, and this Lease shall not be void or voidable except as provided herein. If Landlord does not Deliver the Premises on or before the date which is 45 days after the Target Commencement Date (the **"Outside Delivery Date")** for any reason other than Force Majeure Delays and Tenant Delays, and provided that Tenant does not elect to terminate this Lease pursuant to this Section, Tenant shall receive a credit against the Base Rent first payable hereunder in an amount equal to one (1) day's worth of Base Rent for each day between the Target Commencement Date and the date that Delivery actually occurs. In no event shall Tenant receive any such rent reduction if the Premises is Delivered on or before the Outside Delivery Date. In addition, if Landlord does not Deliver the Premises on or before the Outside Delivery Date for any reason other than Force Majeure Delays and Tenant Delays, this Lease may be terminated by Tenant by written notice to Landlord, and if so terminated by Tenant: (a) the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant, and (b) neither Landlord nor Tenant shall have any further rights, duties or obligations under this Lease, except with respect to provisions which expressly survive termination of this Lease. As used herein, the terms **"Landlord's Work," "Tenant Improvements," "Tenant Delays"** and **"Substantially Completed"** shall have the meanings set forth for such terms in the Work Letter. If Tenant does not elect to void this Lease within 5 business days of the lapse of such 45 day period, such right to void this Lease shall be waived and this Lease shall remain in full force and effect. In the event of a dispute with regard to the Delivery of the Premises as provided in this paragraph, either party hereto shall have the right to request arbitration of such dispute pursuant to Section 40 hereof. Notwithstanding said arbitration right, if Landlord fails to Deliver the Premises on or before the Outside Delivery Date, and either party elects to arbitrate such dispute as aforesaid and if, during the pendency of any such arbitration, Tenant takes possession of the Premises notwithstanding such dispute, Tenant shall receive the credit against Base Rent referred to above pending receipt of the arbitrator(s) finding. In no event shall Tenant's failure to pay Base Rent under this Section 2 upon taking possession during the pendency of such arbitration be deemed an Event

of Default or give Landlord any rights with respect to the Security Deposit. Should the arbitrator(s) find in favor of Landlord, Tenant shall promptly reimburse Landlord the amount of Base Rent withheld under the terms of this Section which the arbitrator(s) determine is owed to Landlord. If Tenant does not take possession of the Premises during the pendency of such arbitration, Tenant's sole right shall be to receive the credit against Base Rent following Delivery described in the third sentence of this Section.

The **"Commencement Date"** shall be the earliest of: (i) the date Landlord Delivers the Premises to Tenant; (ii) the date Landlord could have Delivered the Premises but for Tenant Delays; and (iii) the date Tenant conducts any business in the Premises or any part thereof. Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Commencement Date and the expiration date of the Term when such are established in the form of the "Acknowledgement of Commencement Date" attached to this Lease as **Exhibit D;** provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's rights hereunder. The **"Term"** of this Lease shall be the Base Term, as defined above in the Basic Lease Provisions and any Extension Terms which Tenant may elect pursuant to Section 39 hereof.

Except as set forth in the Work Letter, if applicable: (i) Tenant shall accept the Premises in their condition, except with respect to punch list items and Minor Variations, as applicable, as of the Commencement Date, subject to all applicable Legal Requirements (as defined in Section 6 hereof); (ii) Landlord shall have no obligation for any defects in the Premises; and (iii) Tenant's taking possession of the Premises shall be conclusive evidence that Tenant accepts the Premises and that the Premises were in good condition at the time possession was taken, except with respect to punch list items and Minor Variations, as applicable. Any occupancy of the Premises by Tenant before the Commencement Date shall be subject to all of the terms and conditions of this Lease, including the obligation to pay Rent. Tenant shall be provided reasonable opportunity by Landlord to inspect the Premises prior to Delivery to ensure that, except as provided in the Work Letter with respect to punch list items and Minor Variations, as aforesaid, Landlord's Work is Substantially Complete.

Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Premises or the Project, and/or the suitability of the Premises or the Project for the conduct of Tenant's business, and Tenant waives any implied warranty that the Premises or the Project are suitable for the Permitted Use. This Lease constitutes the complete agreement of Landlord and Tenant with respect to the subject matter hereof and supersedes any and all prior representations, inducements, promises, agreements, understandings and negotiations which are not contained herein. Landlord in executing this Lease does so in reliance upon Tenant's representations, warranties, acknowledgments and agreements contained herein.

3. **Rent.**

(a) **Base Rent.** The first month's Base Rent shall be due and payable on the Commencement Date hereof. The Security Deposit shall be due and payable on delivery of an executed copy of this Lease to Landlord. Tenant shall pay to Landlord in advance, without demand, abatement, deduction or set-off, monthly installments of Base Rent in the amounts set forth in the Basic Lease Provisions above, on or before the first day of each calendar month during the Term hereof, in lawful money of the United States of America, at the office of Landlord for payment of Rent set forth above, or to such other person or at such other place as Landlord may from time to time designate in writing. Payments of Base Rent for any fractional calendar month shall be prorated. The obligation of Tenant to pay Base Rent and other sums to Landlord and the obligations of Landlord under this Lease are independent obligations. Tenant shall have no right at any time to abate, reduce, or set-off any Rent (as defined in Section 4) due hereunder except for any abatement as may be expressly provided in this Lease. Notwithstanding the foregoing, Tenant shall receive a one-time rent credit, in the amount of $70,000.00, to be applied against the first month's Base Rent.

(b) **Additional Rent.** In addition to Base Rent, Tenant agrees to pay to Landlord as additional rent **("Additional Rent"):** (i) Tenant's Share of "Operating Expenses" (as defined in Section 4), and (ii) any and all other amounts Tenant assumes or agrees to pay under the provisions of this Lease, including, without limitation, any and all other reasonable sums that may become due by reason of any default of Tenant or failure to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after any applicable notice and cure period.

4. **Operating Expense Payments.** Landlord shall deliver to Tenant a written estimate of Operating Expenses for each calendar year during the Term (the **"Annual Estimate"),** which may be revised by Landlord from time to time during such calendar year. During each month of the Term, on the same date that Base Rent is due, Tenant shall pay Landlord an amount equal to 1/12th of Tenant's Share of the Annual Estimate. Payments for any fractional calendar month shall be prorated.

The term **"Operating Expenses"** means all costs and expenses in connection with the Premises, the Building and the Project, as applicable, including, without limitation, all Building-and Project-related costs and expenses of any kind or description whatsoever incurred or accrued each calendar year by Landlord (including, without limitation, maintenance, Taxes (as defined in Section 8), utilities, transportation services, insurance, capital repairs and capital improvements which are for the purpose of (A) compliance with government regulations promulgated after the date hereof, or (B) reducing Operating Expenses (provided that Landlord shall use its reasonable professional judgment in determining whether a capital repair or improvement is likely to reduce operating Expenses), amortized with interest (at a rate equal to the then current 10 year Treasury bill rate plus 200 basis points) over the lesser of 7 years and the useful life of such capital items, and the costs of Landlord's third party property manager (which shall not exceed the prevailing market rate in the Watertown, Massachusetts area for substantially similar services in similar properties) or, if there is no third party property manager, administrative rent in the amount of 3.0% of Base Rent), excluding only:

(a) the original construction costs of the Project and renovation prior to the date of the Lease and costs of correcting defects in such original construction or renovation;

(b) capital expenditures for expansion of the Project;

(c) interest, principal payments of Mortgage (as defined in Section 26) debts of Landlord, financing costs and amortization of funds borrowed by Landlord, whether secured or unsecured and all payments of base rent (but not taxes or operating expenses) under any ground lease or other underlying lease of all or any portion of the Project;

(d) depreciation of the Project (except for capital improvements, the cost of which are includable in Operating Expenses);

(e) advertising, legal and space planning expenses and leasing commissions and other costs and expenses incurred in procuring and leasing space to tenants for the Project, including any leasing office maintained in the Project, free rent and construction allowances for tenants;

(f) legal and other expenses incurred in the negotiation or enforcement of leases;

(g) completing, fixturing, improving, renovating, painting, redecorating or other work, which Landlord pays for or performs for other tenants within their premises, and costs of correcting defects in such work;

(h) costs of utilities outside normal business hours sold to tenants of the Project;

(i) costs to be reimbursed by other tenants of the Project or Taxes to be paid directly by Tenant or other tenants of the Project, whether or not actually paid;

(j) salaries, wages, benefits and other compensation paid to officers and employees of Landlord who are not assigned in whole or in part to the operation, management, maintenance or repair of the Project;

(k) general organizational, administrative and overhead costs relating to maintaining Landlord's existence, either as a corporation, partnership, or other entity, including general corporate, legal and accounting expenses;

(l) costs (including attorneys' fees and costs of settlement, judgments and payments in lieu thereof) incurred in connection with disputes with tenants, other occupants, or prospective tenants, and costs and expenses, including legal fees, incurred in connection with negotiations or disputes with employees, consultants, management agents, leasing agents, purchasers or mortgagees of the Building;

(m) costs incurred by Landlord due to the violation by Landlord, its employees, agents or contractors or any tenant of the terms and conditions of any lease of space in the Project or any Legal Requirement (as defined in Section 6);

(n) penalties, fines or interest incurred as a result of Landlord's inability or failure to make payment of Taxes and/or to file any tax or informational returns when due, or from Landlord's failure to make any payment of Taxes required to be made by Landlord hereunder before delinquency;

(o) overhead and profit increment paid to Landlord or to subsidiaries or affiliates of Landlord for goods and/or services in or to the Project to the extent the same exceeds the costs of such goods and/or services rendered by unaffiliated third parties on a competitive basis;

(p) costs of Landlord's charitable or political contributions, or of fine art maintained at the Project;

(q) costs in connection with services (including electricity), items or other benefits of a type which are not standard for the Project and which are not available to Tenant without specific charges therefor, but which are provided to another tenant or occupant of the Project, whether or not such other tenant or occupant is specifically charged therefor by Landlord;

(r) costs incurred in the sale or refinancing of the Project;

(s) net income taxes of Landlord or the owner of any interest in the Project, franchise, capital stock, gift, estate or inheritance taxes or any federal, state or local documentary taxes imposed against the Project or any portion thereof or interest therein; and

(t) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by persons other than tenants of the Project under leases for space in the Project.

Within 90 days after the end of each calendar year (or such longer period as may be reasonably required), Landlord shall furnish to Tenant an itemized statement (an **"Annual Statement")** showing in reasonable detail: (a) the total and Tenant's Share of actual Operating Expenses for the previous calendar year, and (b) the total of Tenant's payments in respect of Operating Expenses for such year. If Tenant's Share of actual Operating Expenses for such year exceeds Tenant's payments of Operating Expenses for such year, the excess shall be due and payable by Tenant as Rent within 30 days after delivery of such Annual Statement to Tenant. If Tenant's payments of Operating Expenses for such year exceed Tenant's Share of actual Operating Expenses for such year Landlord shall pay the excess to Tenant within 30 days after delivery of such Annual Statement, except that after the expiration, or earlier termination of the Term or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord.

The Annual Statement shall be final and binding upon Tenant unless Tenant, within 45 days after Tenant's receipt thereof, shall contest any item therein by giving written notice to Landlord, specifying each item contested and the reason therefor. If, during such 45 day period, Tenant reasonably questions or contests the accuracy of Landlord's statement of Tenant's Share of Operating Expenses, Landlord will provide Tenant with access to Landlord's books and records relating to the operation of the Project and such information as may reasonably be required by Tenant and/or its third-party auditor to determine the accuracy of the Annual Statement (the **"Expense Information").** If after Tenant's review of such Expense Information, Landlord and Tenant cannot agree upon the amount of Tenant's Share of Operating Expenses, then Tenant shall have the right to have an independent public accounting firm selected by Tenant from among the 5 largest in the United States, working pursuant to a fee arrangement other than a contingent fee (at Tenant's sole cost and expense) and approved by Landlord (which approval shall not be unreasonably withheld or delayed), audit and/or review the Expense Information for the year in question (the **"Independent Review").** The results of any such Independent Review shall be binding on Landlord and Tenant. If the Independent Review shows that the payments actually made by Tenant with respect to Operating Expenses for the calendar year in question exceeded Tenant's Share of Operating Expenses for such calendar year, Landlord shall at Landlord's option either (i) credit the excess amount to the next succeeding installments of estimated Operating Expenses or (ii) pay the excess to Tenant within 30 days after delivery of such statement, except that after the expiration or earlier termination of this Lease or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. If the Independent Review shows that Tenant's payments with respect to Operating Expenses for such calendar year were less than Tenant's Share of Operating Expenses for the calendar year, Tenant shall pay the deficiency to Landlord within 30 days after delivery of such statement. If the Independent Review shows that Tenant has overpaid with respect to Operating Expenses by more than 5% then Landlord shall reimburse Tenant for all costs incurred by Tenant for the Independent Review. Operating Expenses for the calendar years in which Tenant's obligation to share therein begins and ends shall be prorated. Notwithstanding anything set forth herein to the contrary, if the Project is not at least 95% occupied on average during any year of the Term, Tenant's Share of Operating Expenses for such year shall be computed as though the Project had been 95% occupied on average during such year.

"Tenant's Share" shall be the percentage set forth in the Basic Lease Provisions as Tenant's Share, as equitably adjusted by Landlord following a measurement of the rentable square footage of the Project and the Premises to be done by Landlord within 90 days after the Commencement Date, or as soon as reasonably possible thereafter. Landlord shall provide written notice to Tenant of any such adjustment and this Lease shall be amended to provide for such adjusted Tenant's Share. Landlord may equitably increase Tenant's Share for any item of expense or cost reimbursable by Tenant that relates to a repair, replacement, or service that benefits only the Premises or only a portion of the Project that includes the Premises or that varies with occupancy or use. Base Rent, Tenant's Share of Operating Expenses and all other amounts payable by Tenant to Landlord hereunder are collectively referred to herein as **"Rent."**

5. **Security Deposit.** Tenant shall deposit with Landlord, upon delivery of an executed copy of this Lease to Landlord, a security deposit (the **"Security Deposit")** for the performance of all of Tenant's obligations hereunder in the amount set forth in the Basic Lease Provisions, which Security Deposit shall be in the form of an unconditional and irrevocable letter of credit (the **"Letter of Credit"):** (i) in form and substance satisfactory to Landlord, (ii) naming Landlord as beneficiary, (iii) expressly allowing Landlord to draw upon it at any time from time to time by delivering to the issuer notice that Landlord is entitled to draw thereunder, (iv) issued by an FDIC-insured financial institution satisfactory to Landlord, and (v) redeemable by presentation of a sight draft in the state of Landlord's choice. If Tenant does not provide Landlord with a substitute Letter of Credit complying with all of the requirements hereof at least 10 days before the stated expiration date of any then current Letter of Credit, Landlord shall have the right to draw the full amount of the current Letter of Credit and hold the funds drawn in cash without obligation for interest thereon as the Security Deposit. The Security Deposit shall be held by Landlord as security for the performance of Tenant's obligations under this Lease. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Upon each occurrence of a Default (as defined in Section 19), Landlord may use all or any part of the Security Deposit to pay

delinquent payments due under this Lease, and the cost of any damage, injury, expense or liability caused by such Default, without prejudice to any other remedy provided herein or provided by law. Upon any such use of all or any portion of the Security Deposit, Tenant shall pay Landlord on demand the amount that will restore the Security Deposit to the amount set forth in the Basic Lease Provisions. Tenant hereby waives the provisions of any law, now or hereafter in force, which provide that Landlord may claim from a security deposit only those sums reasonably necessary to remedy defaults in the payment of Rent, to repair damage caused by Tenant or to clean the Premises, it being agreed that Landlord may, in addition, claim those sums reasonably necessary to compensate Landlord for any other loss or damage, foreseeable or unforeseeable, caused by the act or omission of Tenant or any officer, employee, agent or invitee of Tenant. Upon bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for periods prior to the filing of such proceedings. Upon any such use of all or any portion of the Security Deposit, Tenant shall, within 5 days after demand from Landlord, restore the Security Deposit to its original amount. If Tenant shall fully perform every provision of this Lease to be performed by Tenant, the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant (or, at Landlord's option, to the last assignee of Tenant's interest hereunder) within 90 days after the expiration or earlier termination of this Lease.

If Landlord transfers its interest in the Project or this Lease, Landlord shall either (a) transfer any Security Deposit then held by Landlord to a person or entity assuming Landlord's obligations under this Section 5, or (b) return to Tenant any Security Deposit then held by Landlord and remaining after the deductions permitted herein. Upon such transfer to such transferee or the return of the Security Deposit to Tenant, Landlord shall have no further obligation with respect to the Security Deposit, and Tenant's right to the return of the Security Deposit shall apply solely against Landlord's transferee. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Landlord's obligation respecting the Security Deposit is that of a debtor, not a trustee, and no interest shall accrue thereon.

6. **Use.** The Premises shall be used solely for the Permitted Use set forth in the Basic Lease Provisions, and in compliance with all laws, orders, judgments, ordinances, regulations, codes, directives, permits, licenses, covenants and restrictions now or hereafter applicable to the Premises, and to the use and occupancy thereof, including, without limitation, the Americans With Disabilities Act, 42 U.S.C. § 12101, et seq. (together with the regulations promulgated pursuant thereto, **"ADA")** (collectively, **"Legal Requirements"** and each, a **"Legal Requirement").** Tenant shall, upon 5 days' written notice from Landlord, discontinue any use of the Premises which is declared by any Governmental Authority (as defined in Section 8) having jurisdiction to be a violation of a Legal Requirement. Tenant will not use or permit the Premises to be used for any purpose or in any manner that would void Tenant's or Landlord's insurance, increase the insurance risk, or cause the disallowance of any sprinkler or other credits. Tenant shall not permit any part of the Premises to be used as a "place of public accommodation", as defined in the ADA or any similar legal requirement. Tenant shall reimburse Landlord promptly upon demand for any additional premium charged for any such insurance policy by reason of Tenant's failure to comply with the provisions of this Section or otherwise caused by Tenant's use and/or occupancy of the Premises. Tenant will use the Premises in a careful, safe and proper manner and will not commit or permit waste, overload the floor or structure of the Premises, subject the Premises to use that would damage the Premises or obstruct or interfere with the rights of Landlord or other tenants or occupants of the Project, including conducting or giving notice of any auction, liquidation, or going out of business sale on the Premises, or using or allowing the Premises to be used for any unlawful purpose. Tenant shall cause any equipment or machinery to be installed in the Premises so as to reasonably prevent sounds or vibrations from the Premises from extending into Common Areas, or other space in the Project. Tenant shall not place any machinery or equipment weighing 500 pounds or more in or upon the Premises or transport or move such items through the Common Areas of the Project or in the Project elevators without the prior written consent of Landlord. Except as may be provided under the Work Letter, Tenant shall not, without the prior written consent of Landlord, use the Premises in any manner which will require ventilation, air exchange, heating, gas, steam, electricity or water beyond the existing capacity of the Project as proportionately allocated to the Premises based upon Tenant's Share as usually furnished for the Permitted Use.

Landlord shall, as an Operating Expense (to the extent such Legal Requirement is generally applicable to similar buildings in the area in which the Project is located) or at Tenant's expense (to the extent such Legal Requirement is applicable solely by reason of Tenant's, as compared to other tenants of the Project, particular use of the Premises) make any alterations or modifications to the Common Areas or the exterior of the Building that are required by Legal Requirements, including the ADA. Tenant, at its sole expense, shall make any alterations or modifications to the interior of the Premises that are required by Legal Requirements (including, without limitation, compliance of the Premises with the ADA. Notwithstanding any other provision herein to the contrary, Tenant shall be responsible for any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages or judgments, and all reasonable expenses incurred in investigating or resisting the same (including, without limitation, reasonable attorneys' fees, charges and disbursements and costs of suit) (collectively, **"Claims")** arising out of or in connection with Legal Requirements applicable to Tenant and/or Tenant's use of the Building or the Premises, and Tenant shall indemnify, defend, hold and save Landlord harmless from and against any and all Claims arising out of or in connection with any failure of the Premises to comply with any Legal Requirement.

7. **Holding Over.** If, with Landlord's express written consent, Tenant retains possession of the Premises after the termination of the Term, (i) unless otherwise agreed in such written consent, such possession shall be subject to immediate termination by Landlord at any time, (ii) all of the other terms and provisions of this Lease (including, without limitation, the adjustment of Base Rent during the Renewal Term pursuant to Section 39(a) hereof) shall remain in full force and effect (excluding any expansion or renewal option or other similar right or option) during such holdover period, (iii) Tenant shall continue to pay Base Rent in the amount payable upon the date of the expiration or earlier termination of this Lease or such other amount as Landlord may indicate, in Landlord's sole and absolute discretion, in such written consent, and (iv) all other payments shall continue under the terms of this Lease. If Tenant remains in possession of the Premises after the expiration or earlier termination of the Term without the express written consent of Landlord, (A) Tenant shall become a tenant at sufferance upon the terms of this Lease except that the monthly rental shall be equal to 200% of Rent in effect during the last 30 days of the Term, and (B) Tenant shall be responsible for all damages suffered by Landlord resulting from or occasioned by Tenant's holding over, including consequential damages. No holding over by Tenant, whether with or without consent of Landlord, shall operate to extend this Lease except as otherwise expressly provided, and this Section 7 shall not be construed as consent for Tenant to retain possession of the Premises. Acceptance by Landlord of Rent after the expiration of the Term or earlier termination of this Lease shall not result in a renewal or reinstatement of this Lease.

8. **Taxes.** Landlord shall pay, as part of Operating Expenses, all taxes, levies, assessments and governmental charges of any kind (collectively referred to as **"Taxes")** imposed by any federal, state, regional, municipal, local or other governmental authority or agency, including, without limitation, quasipublic agencies (collectively, **"Governmental Authority")** during the Term, including, without limitation, all Taxes: (i) imposed on or measured by or based, in whole or in part, on rent payable to Landlord under this Lease and/or from the rental by Landlord of the Project or any portion thereof, or (ii) based on the square footage, assessed value or other measure or evaluation of any kind of the Premises or the Project, or (iii) assessed or imposed by or on the operation or maintenance of any portion of the Premises or the Project, including parking, or (iv) assessed or imposed by, or at the direction of, or resulting from statutes or regulations, or interpretations thereof, promulgated by, any Governmental Authority, or (v) imposed as a license or other fee on Landlord's business of leasing space in the Project. Landlord may contest by appropriate legal proceedings the amount, validity, or application of any Taxes or liens securing Taxes. Taxes shall not include any net income taxes (unless such net income taxes are in substitution for any Taxes payable hereunder), franchise taxes or estate taxes imposed on Landlord. If any such Tax is levied or assessed directly against Tenant, then Tenant shall be responsible for and shall pay the same at such times and in such manner as the taxing authority shall require. Tenant shall pay, prior to delinquency, any and all Taxes levied or assessed against any personal property or trade fixtures placed by Tenant in the Premises, whether levied or assessed against Landlord or Tenant. If any Taxes

on Tenant's personal property or trade fixtures are levied against Landlord or Landlord's property, or if the assessed valuation of the Project is increased by a value attributable to improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, higher than the base valuation on which Landlord from time-to-time allocates Taxes to all tenants in the Project, Landlord shall have the right, but not the obligation, to pay such Taxes. Landlord's determination of any excess assessed valuation shall be binding and conclusive, absent manifest error. The amount of any such payment by Landlord shall constitute Additional Rent due from Tenant to Landlord immediately upon demand.

9. **Parking; Shuttle.**

(a) Subject to all matters of record, Force Majeure, a Taking (as defined in Section 18 below) and the exercise by Landlord of its rights hereunder, Tenant shall have the right, in common with other tenants of the Project pro rata in accordance with the rentable area of the Premises and the rentable areas of the Project occupied by such other tenants, to park in those areas designated for non-reserved parking, subject in each case to Landlord's rules and regulations. Landlord may allocate parking spaces among Tenant and other tenants in the Project pro rata as described above if Landlord determines that such parking facilities are becoming crowded. Landlord agrees that, in the event such allocation of parking spaces becomes necessary, Landlord shall allocate spaces to Tenant only within the area indicated on Exhibit A hereto. Landlord shall not be responsible for enforcing Tenant's parking rights against any third parties, including other tenants of the Project.

(b) On or before the Commencement Date, Landlord shall, as an Operating Expense, commence a commuter shuttle service to and from the Harvard Square transit station during morning and evening commuter hours on business days (holidays excluded). Such service shall be provided for a minimum period of one year after the Commencement Date. Thereafter, Landlord shall undertake a survey of the tenants in the Project, including Tenant, to determine if shuttle service should be continued beyond such initial 1-year period. Each tenant shall be free to "opt in" or "opt out" of such shuttle service by their response to such survey. If tenants representing 30% or more of the leased area of the Project desire to continue such shuttle service, Landlord shall continue to provide such shuttle service as an Operating Expense. In such event, the tenants "opting in" to the shuttle service shall thereafter pay for such service on a pro rata basis with the other "opt in" tenants. Neither Landlord nor any "opt out" tenant shall be required to pay for such service.

10. **Utilities, Services.**

Landlord shall provide, subject to the terms of this Section 10, water, electricity, heat, light, power, telephone, sewer, and other utilities (including gas and fire sprinklers to the extent the Project is plumbed for such services), refuse and trash collection and janitorial services (collectively, **"Utilities").** Landlord shall pay, as Operating Expenses or subject to Tenant's reimbursement obligation, for all Utilities used on the Premises, all maintenance charges for Utilities, and any storm sewer charges or other similar charges for Utilities imposed by any Governmental Authority or Utility provider, and any taxes, penalties, surcharges or similar charges thereon. Landlord may cause, at Tenant's expense, any Utilities to be separately metered or charged directly to Tenant by the provider. Landlord represents that the Premises are currently submetered with respect to electrical service and that Landlord shall pass through to Tenant the actual amount charged by the electrical provider, as measured by such submeter, without any markup by Landlord. Tenant shall pay directly to the Utility provider, prior to delinquency, any separately metered Utilities and services which may be furnished to Tenant or the Premises during the Term. Tenant shall pay, as part of Operating Expenses, its share of all charges for jointly metered Utilities based upon consumption, as reasonably determined by Landlord. No interruption or failure of Utilities, from any cause whatsoever other than Landlord's willful misconduct, shall result in eviction or constructive eviction of Tenant, termination of this Lease or the abatement of Rent. Tenant agrees to limit use of water and sewer with respect to Common Areas to normal restroom use.

Landlord's sole obligation for either providing standby generators or providing standby back-up power to Tenant shall be: (i) to provide standby generators with not less than the stated capacity of the standby generators located in the Building as of the Commencement Date, and (ii) to contract with a third party to maintain the standby generators as per the manufacturer's standard maintenance guidelines. Landlord shall have no obligation to provide Tenant with operational standby generators or back-up power or to supervise, oversee or confirm that the third party maintaining the standby generators is maintaining the generators as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the standby generators when the standby generators are not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative back-up generator or generators or alternative sources of back-up power. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such standby generators will be operational at all times or that standby power will be available to the Premises when needed.

11. **Alterations and Tenant's Property**. Any alterations, additions, or improvements made to the Premises by or on behalf of Tenant, including additional locks or bolts of any kind or nature upon any doors or windows in the Premises, but excluding installation, removal or realignment of furniture systems (other than removal of furniture systems owned or paid for by Landlord) not involving any modifications to the structure or connections (other then by ordinary plugs or jacks) to Building Systems (as defined in Section 12) ("**Alterations**") shall be subject to Landlord's prior written consent, which may be given or withheld in Landlord's sole discretion if any such Alteration affects the structure or Building Systems, but which shall otherwise not be unreasonably withheld or delayed. If Landlord approves any Alterations, Landlord may impose such conditions on Tenant in connection with the commencement, performance and completion of such Alterations as Landlord may deem appropriate in Landlord's reasonable discretion. Any request for approval shall be in writing, delivered not less than 15 business days in advance of any proposed construction, and accompanied by plans, specifications, bid proposals, work contracts and such other information concerning the nature and cost of the alterations as may be reasonably requested by Landlord, including the identities and mailing addresses of all persons performing work or supplying materials. Landlord's right to review plans and specifications and to monitor construction shall be solely for its own benefit, and Landlord shall have no duty to ensure that such plans and specifications or construction comply with applicable Legal Requirements. Tenant shall cause, at its sole cost and expense, all Alterations to comply with insurance requirements and with Legal Requirements and shall implement at its sole cost and expense any alteration or modification required by Legal Requirements as a result of any Alterations. Tenant shall pay to Landlord, as Additional Rent, on demand an amount equal to the lesser of (i) 10% of all charges incurred by Tenant or its contractors or agents in connection with any Alteration, and (ii) the actual documented cost of Landlord's overhead and expenses for plan review, coordination, scheduling and supervision. Before Tenant begins any Alteration, Landlord may post on and about the Premises notices of non-responsibility pursuant to applicable law. Tenant shall reimburse Landlord for, and indemnify and hold Landlord harmless from, any expense incurred by Landlord by reason of faulty work done by Tenant or its contractors, delays caused by such work, or inadequate cleanup.

Tenant shall furnish security or make other arrangements satisfactory to Landlord to assure payment for the completion of all Alterations work free and clear of liens, and shall provide (and cause each contractor or subcontractor to provide) certificates of insurance for workers' compensation and other coverage in amounts and from an insurance company satisfactory to Landlord protecting Landlord against liability for personal injury or property damage during construction. Upon completion of any Alterations, Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and subcontractors who did the work and final lien waivers from all such contractors and subcontractors; and (ii) "as built" plans for any such Alteration.

Other than (i) the items, if any, listed on **Exhibit F** attached hereto, (ii) any items agreed by Landlord in writing to be included on **Exhibit F** in the future, and (iii) any trade fixtures, machinery, equipment and other personal property not paid for out of the Tl Budget (as defined in the Work Letter) which may be removed without material damage to the Premises, which damage shall be repaired (including capping or terminating utility hook-ups behind walls) by Tenant during the Term (collectively, "**Tenant's Property**"), all property of any kind paid for with the Tl Budget, all Alterations, real property fixtures, built-in machinery and equipment, built-in casework and cabinets and other similar additions and

improvements built into the Premises so as to become an integral part of the Premises such as fume hoods which penetrate the roof or plenum area, built-in cold rooms, built-in warm rooms, walk-in cold rooms, walk-in warm rooms, deionized water systems, glass washing equipment, autoclaves, chillers, built-in plumbing, electrical and mechanical equipment and systems, and any power generator and transfer switch (collectively, **"Installations")** shall be and shall remain the property of Landlord during the Term and following the expiration or earlier termination of the Term, shall not be removed by Tenant at any time during the Term and shall remain upon and be surrendered with the Premises as a part thereof in accordance with Section 27 following the expiration or earlier termination of this Lease; provided, however, that Landlord shall, at the time its approval of such Installation is requested notify Tenant if it has elected to cause Tenant to remove such Installation upon the expiration or earlier termination of this Lease. If Landlord so elects, Tenant shall remove such Installation upon the expiration or earlier termination of this Lease and restore any damage caused by or occasioned as a result of such removal, including, when removing any of Tenant's Property which was plumbed, wired or otherwise connected to any of the Building Systems, capping off all such connections behind the walls of the Premises and repairing any holes. During any such restoration period that extends beyond the date of expiration or termination hereof, Tenant shall pay Rent to Landlord as provided herein as if said space were otherwise occupied by Tenant, unless said restoration period is extended past such date of expiration or termination by causes solely attributable to Landlord.

12. **Landlord's Repairs.** Landlord, as an Operating Expense, shall maintain all of the structural, exterior, parking and other Common Areas of the Project, including HVAC, plumbing, fire sprinklers, elevators and all other building systems serving the Premises and other portions of the Project (**"Building Systems"**), in good repair, reasonable wear and tear and uninsured losses and damages caused by Tenant, or by any of Tenant's agents, servants, employees, invitees and contractors (collectively, **"Tenant Parties"**) excluded. Losses and damages caused by Tenant or any Tenant Party shall be repaired by Landlord, to the extent not covered by insurance, at Tenant's sole cost and expense. Landlord reserves the right to stop Building Systems services when necessary (i) by reason of accident or emergency, or (ii) for planned repairs, alterations or improvements, which are, in the judgment of Landlord, desirable or necessary to be made, until said repairs, alterations or improvements shall have been completed. Landlord shall have no responsibility or liability for failure to supply Building Systems services during any such period of interruption; provided, however, that Landlord shall, except in case of emergency, give Tenant 72 hours advance notice of any planned stoppage of Building Systems services for routine maintenance, repairs, alterations or improvements, which notice may, at Landlord's election, be given either in accordance with the provisions of Section 41(a) hereof, or orally by telephone or in person. Tenant shall promptly give Landlord written notice of any repair required by Landlord pursuant to this Section, after which Landlord shall have a reasonable opportunity to effect such repair. Landlord shall not be liable in any legal action for any failure to make any repairs or to perform any maintenance for which Landlord is responsible hereunder unless such failure shall persist for an unreasonable time after Tenant's written (or, in the event of an emergency, oral followed immediately by written) notice of the need for such repairs. In no event shall Landlord be responsible for any consequential damages arising from Landlord's failure to make any such repairs and Tenant shall not have the right to abate, reduce or set-off any Rent due hereunder as a result of any such failure. Nothing in this Section 12 shall be deemed to supersede or otherwise affect the limitation on Landlord's liability set forth in Section 35 of this Lease. Tenant waives its rights under any state or local law to terminate this Lease or to make such repairs at Landlord's expense and agrees that the parties' respective rights with respect to such matters shall be solely as set forth herein. Repairs required as the result of fire, earthquake, flood, vandalism, war, or similar cause of damage or destruction shall be controlled by Section 17.

13. **Tenant's Repairs.** Subject to Section 12 hereof, Tenant, at its expense, shall repair, replace and maintain in good condition all portions of the Premises, including, without limitation, entries, doors, ceilings, interior windows, interior walls, and the interior side of demising walls. Such repair and replacement may include capital expenditures and repairs whose benefit may extend beyond the Term. Should Tenant fail to make any such repair or replacement or fail to maintain the Premises, Landlord shall give Tenant notice of such failure. If Tenant fails to commence cure of such failure within 10 days of Landlord's notice, and thereafter diligently prosecute such cure to completion, Landlord may perform such work and shall be reimbursed by Tenant within 10 days after demand therefor; provided, however, that if

such failure by Tenant creates or could create an emergency, Landlord may immediately commence cure of such failure and shall thereafter be entitled to recover the costs of such cure from Tenant. Subject to Sections 16 and 17, Tenant shall bear the full uninsured cost of any repair or replacement to any part of the Project that results from damage caused by Tenant or any Tenant Party and any repair that benefits only the Premises.

14. **Mechanic's Liens.** Tenant shall discharge, by bond or otherwise, any mechanic's lien filed against the Premises or against the Project for work claimed to have been done for, or materials claimed to have been furnished to, Tenant within 10 days after the filing thereof, at Tenant's sole cost and shall otherwise keep the Premises and the Project free from any liens arising out of work performed, materials furnished or obligations incurred by Tenant. Should Tenant fail to discharge any lien described herein, Landlord shall have the right, but not the obligation, to pay such claim or post a bond or otherwise provide security to eliminate the lien as a claim against title to the Project and the cost thereof shall be immediately due from Tenant as Additional Rent. If Tenant shall lease or finance the acquisition of office equipment, furnishings, or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code Financing Statement filed as a matter of public record by any lessor or creditor of Tenant will upon its face or by exhibit thereto indicate that such Financing Statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Project be furnished on the statement without qualifying language as to applicability of the lien only to removable personal property, located in an identified suite held by Tenant.

15. **Indemnification.** Tenant hereby indemnifies and agrees to defend, save and hold Landlord harmless from and against any and all Claims for injury or death to persons or damage to property occurring within or about the Premises, arising directly or indirectly out use or occupancy of the Premises or a breach or default by Tenant in the performance of any of its obligations hereunder, unless caused by the willful misconduct or negligence of Landlord. Landlord shall not be liable to Tenant for, and Tenant assumes all risk of damage to, personal property (including, without limitation, loss of records kept within the Premises). Tenant further hereby irrevocably waives any and all Claims for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property (including, without limitation, any loss of records), unless caused by the willful misconduct or negligence of Landlord. Landlord shall not be liable for any damages arising from any act, omission or neglect of any tenant in the Project or of any other third party.

16. **Insurance.** Landlord shall maintain all risk property and, if applicable, sprinkler damage insurance covering the full replacement cost of the Project or such lesser coverage amount as Landlord may elect provided such coverage amount is not less than 90% of such full replacement cost. Landlord shall further procure and maintain commercial general liability insurance with a single loss limit of not less than $2,000,000 for bodily injury and property damage with respect to the Project. Landlord may, but is not obligated to, maintain such other insurance and additional coverages as it may deem necessary, including, but not limited to, flood, environmental hazard and earthquake, loss or failure of building equipment, errors and omissions, rental loss during the period of repair or rebuilding, workers' compensation insurance and fidelity bonds for employees employed to perform services and insurance for any improvements installed by Tenant or which are in addition to the standard improvements customarily furnished by Landlord without regard to whether or not such are made a part of the Project. All such insurance shall be included as part of the Operating Expenses. The Project may be included in a blanket policy (in which case the cost of such insurance allocable to the Project will be determined by Landlord based upon the insurer's cost calculations).

Tenant, at its sole cost and expense, shall maintain during the Term: all risk property insurance with business interruption and extra expense coverage, covering the full replacement cost of all property and improvements installed or placed in the Premises by Tenant at Tenant's expense; workers' compensation insurance with no less than the minimum limits required by law; employer's liability insurance with such limits as required by law; and commercial general liability insurance, with a minimum limit of not less than $2,000,000 per occurrence for bodily injury and property damage with respect to the Premises. The commercial general liability insurance policy shall name Landlord and Alexandria Real

Estate Equities, Inc. and their respective officers, directors, employees, managers, agents, invitees and contractors (collectively, **"Landlord Parties"),** as additional insureds; insure on an occurrence and not a claims-made basis; be issued by insurance companies which have a rating of not less than policyholder rating of A and financial category rating of at least Class X in "Best's Insurance Guide"; shall not be cancelable for nonpayment of premium unless 30 days prior written notice shall have been given to Landlord from the insurer; contain a hostile fire endorsement and a contractual liability endorsement; and provide primary coverage to Landlord (any policy issued to Landlord providing duplicate or similar coverage shall be deemed excess over Tenant's policies). Copies of such policies (if requested by Landlord), or certificates of insurance showing the limits of coverage required hereunder and showing Landlord and Alexandria Real Estate Equities, Inc. as additional insureds, along with reasonable evidence of the payment of premiums for the applicable period, shall be delivered to Landlord by Tenant upon commencement of the Term and upon each renewal of said insurance. Tenant's policy may be a "blanket policy" with an aggregate per location endorsement which specifically provides that the amount of insurance shall not be prejudiced by other losses covered by the policy. Tenant shall, at least 5 days prior to the expiration of such policies, furnish Landlord with renewal certificates.

In each instance where insurance is to name Landlord as an additional insured, Tenant shall upon written request of Landlord also designate and furnish certificates so evidencing Landlord as additional insured to: (i) any lender of Landlord holding a security interest in the Project or any portion thereof, (ii) the landlord under any lease wherein Landlord is tenant of the real property on which the Project is located, if the interest of Landlord is or shall become that of a tenant under a ground or other underlying lease rather than that of a fee owner, and/or (iii) any management company retained by Landlord to manage the Project.

The property insurance obtained by Landlord and Tenant shall include a waiver of subrogation by the insurers and all rights based upon an assignment from its insured, against Landlord or Tenant, and their respective officers, directors, employees, managers, agents, invitees and contractors **("Related Parties"),** in connection with any loss or damage thereby insured against. Neither party nor its respective Related Parties shall be liable to the other for loss or damage caused by any risk insured against under property insurance required to be maintained hereunder, and each party waives any claims against the other party, and its respective Related Parties, for such loss or damage. The failure of a party to insure its property shall not void this waiver. Landlord and its respective Related Parties shall not be liable for, and Tenant hereby waives all claims against such parties for, business interruption and losses occasioned thereby sustained by Tenant or any person claiming through Tenant resulting from any accident or occurrence in or upon the Premises or the Project from any cause whatsoever. If the foregoing waivers shall contravene any law with respect to exculpatory agreements, the liability of Landlord or Tenant shall be deemed not released but shall be secondary to the other's insurer.

Landlord may require insurance policy limits to be raised to conform with requirements of Landlord's lender and/or to bring coverage limits to levels then being generally required of new tenants within the Project.

17. **Restoration.** If, at any time during the Term, the Project or the Premises are damaged or destroyed by a fire or other insured casualty, Landlord shall notify Tenant within 45 days after discovery of such damage as to the amount of time Landlord reasonably estimates it will take to restore the Project or the Premises, as applicable (the **"Restoration Period").** If the Restoration Period is estimated to exceed 12 months (the **"Maximum Restoration Period"),** either Landlord or Tenant may, by written notice to the other within 10 days after the date of such estimate, elect to terminate this Lease as of the date that is 45 days after the date of discovery of such damage or destruction. Notwithstanding the foregoing, if any such casualty occurs during the last 2 years of the Base Term (unless Tenant has previously exercised the Extension Option [as hereinafter defined], in which case this provision shall not apply) or during the last 2 years of the Extension Term (as hereinafter defined), if applicable, and the Restoration Period is estimated to exceed 6 months, either Landlord or Tenant may terminate by written notice to the other as aforesaid. Unless Landlord or Tenant so elects to terminate this Lease, Landlord shall, subject to receipt of sufficient insurance proceeds (with any deductible to be treated as a current Operating Expense unless it is determined that said fire or other casualty was caused by Landlord's gross

negligence or willful misconduct), promptly restore the Premises (excluding the improvements installed by Tenant or by Landlord and paid for by Tenant), subject to delays arising from the collection of insurance proceeds, from Force Majeure events or as needed to obtain any license, clearance or other authorization of any kind required to enter into and restore the Premises issued by any Governmental Authority having jurisdiction over the use, storage, handling, treatment, generation, release, disposal, removal or remediation of Hazardous Materials (as defined in Section 29) in, on or about the Premises (collectively referred to herein as **"Hazardous Materials Clearances");** provided, however, that if repair or restoration of the Premises is not substantially complete as of the end of the Maximum Restoration Period or, if longer, the Restoration Period, (a) Landlord may, in its sole and absolute discretion, elect not to proceed with such repair and restoration, or (b) Tenant may elect to terminate this Lease by notice thereof to Landlord, and, in either case, Landlord shall be relieved of its obligation to make such repairs or restoration and this Lease shall terminate as of the date that is 45 days after the later of: (i) discovery of such damage or destruction, or (ii) the date all required Hazardous Materials Clearances are obtained, but Landlord shall retain any Rent paid and the right to any Rent payable by Tenant prior to such election by Landlord or Tenant. Notice of the foregoing elections by Landlord and Tenant, respectively, shall be given to the other party no later than 10 business days after the end of the Maximum Restoration Period or the Restoration Period, as applicable. Notwithstanding the foregoing, Tenant's right to terminate this Lease shall expire and be of no further force and effect upon notice by Landlord to Tenant, during such 10 business day period, that such repair or restoration is substantially complete.

Tenant, at its expense, shall promptly perform, subject to delays arising from the collection of insurance proceeds, from Force Majeure (as defined in Section 33) events or to obtain Hazardous Material Clearances, all repairs or restoration not required to be done by Landlord and shall promptly re-enter the Premises and commence doing business in accordance with this Lease. Notwithstanding the foregoing, Landlord may terminate this Lease if the Premises are damaged during the last 6 months of the Term and Landlord reasonably estimates that it will take more than 2 months to repair such damage, or if insurance proceeds are not available for such restoration. Rent shall be abated from the date all required Hazardous Material Clearances are obtained until the Premises are repaired and restored, in the proportion which the area of the Premises, if any, which is not usable by Tenant bears to the total area of the Premises, unless Landlord provides Tenant with other space during the period of repair that is suitable for the temporary conduct of Tenant's business. Such abatement shall be the sole remedy of Tenant, and except as provided in this Section 17, Tenant waives any right to terminate the Lease by reason of damage or casualty loss.

The provisions of this Lease, including this Section 17, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, all or any part of the Premises, or any other portion of the Project, and any statute or regulation which is now or may hereafter be in effect shall have no application to this Lease or any damage or destruction to all or any part of the Premises or any other portion of the Project, the parties hereto expressly agreeing that this Section 17 sets forth their entire understanding and agreement with respect to such matters.

18. **Condemnation.** If the whole or any material part of the Premises or the Project is taken for any public or quasi-public use under governmental law, ordinance, or regulation, or by right of eminent domain, or by private purchase in lieu thereof (a **"Taking"** or **"Taken"),** and the Taking would in Landlord's reasonable judgment either prevent or materially interfere with Tenant's use of the Premises or materially interfere with or impair Landlord's ownership or operation of the Project, then upon written notice by Landlord or Tenant to the other, this Lease shall terminate and Rent shall be apportioned as of said date. If part of the Premises shall be Taken, and this Lease is not terminated as provided above, Landlord shall promptly restore the Premises and the Project as nearly as is commercially reasonable under the circumstances to their condition prior to such partial Taking and the rentable square footage of the Building, the rentable square footage of the Premises, Tenant's Share of Operating Expenses and the Rent payable hereunder during the unexpired Term shall be reduced to such extent as may be fair and reasonable under the circumstances. Upon any such Taking, Landlord shall be entitled to receive the entire price or award from any such Taking without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant's interest, if any, in such award. Tenant shall have the right, to the extent that same shall not diminish Landlord's award, to make a separate claim against the condemning authority (but not

Landlord) for such compensation as may be separately awarded or recoverable by Tenant for moving expenses and damage to Tenant's trade fixtures, if a separate award for such items is made to Tenant. Tenant hereby waives any and all rights it might otherwise have pursuant to any provision of state law to terminate this Lease upon a partial Taking of the Premises or the Project. Notwithstanding the foregoing, Tenant shall have the right, to the extent that same shall not diminish Landlord's award, to make a separate claim against the condemning authority (but not Landlord) for such compensation as may be separately awarded or recoverable by Tenant for moving expenses and damage to Tenant's trade fixtures, if a separate award for such items is made to Tenant.

19. **Events of Default.** Each of the following events shall be a default **("Default")** by Tenant under this Lease:

(a) **Payment Defaults.** Tenant shall fail to pay any installment of Rent or any other payment hereunder when due.

(b) **Insurance.** Any insurance required to be maintained by Tenant pursuant to this Lease shall be canceled or terminated or shall expire or shall be reduced or materially changed, or Landlord shall receive a notice of nonrenewal of any such insurance and Tenant shall fail to obtain replacement insurance at least 20 days before the expiration of the current coverage.

(c) **Abandonment.** Tenant shall abandon the Premises.

(d) **Improper Transfer.** Tenant shall assign, sublease or otherwise transfer or attempt to transfer all or any portion of Tenant's interest in this Lease or the Premises except as expressly permitted herein, and fail to cure such improper transfer within 30 days after notice thereof by Landlord (provided, however, that Landlord shall only be required to give such notice and cure period in the first such instance of an improper transfer), or Tenant's interest in this Lease shall be attached, executed upon, or otherwise judicially seized and such action is not released within 90 days of the action.

(e) **Liens.** Tenant shall fail to discharge or otherwise obtain the release of any lien placed upon the Premises in violation of this Lease within 10 days after any such lien is filed against the Premises.

(f) **Insolvency Events.** Tenant or any guarantor or surety of Tenant's obligations hereunder shall: (A) make a general assignment for the benefit of creditors; (B) commence any case, proceeding or other action seeking to have an order for relief entered on its behalf as a debtor or to adjudicate it a bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of it or its debts or seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or of any substantial part of its property (collectively a **"Proceeding for Relief');** (C) become the subject of any Proceeding for Relief which is not dismissed within 90 days of its filing or entry; or (D) die or suffer a legal disability (if Tenant, guarantor, or surety is an individual) or be dissolved or otherwise fail to maintain its legal existence (if Tenant, guarantor or surety is a corporation, partnership or other entity).

(g) **Estoppel Certificate or Subordination Agreement.** Tenant fails to execute any document required from Tenant under Sections 22 or 26 within 5 days after a second notice requesting such document.

(h) **Other Defaults.** Tenant shall fail to comply with any provision of this Lease other than those specifically referred to in this 19, and, except as otherwise expressly provided herein, such failure shall continue for a period of 10 days after written notice thereof from Landlord to Tenant.

Any notice given under Section 19(h) hereof shall: (i) specify the alleged default, (ii) demand that Tenant cure such default, (iii) be in lieu of, and not in addition to, or shall be deemed to be, any notice required under any provision of applicable law, and (iv) not be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice; provided that if the nature of Tenant's default pursuant to Section 19(h) is such that it cannot be cured by the payment of money and reasonably requires more than 10 days to cure, then Tenant shall not be deemed to be in default if Tenant commences such cure within said 10 day period and thereafter diligently prosecutes the same to completion; provided, however, that such cure shall be completed no later than 30 days from the date of Landlord's notice.

20. **Landlord's Remedies.**

(a) **Payment By Landlord; Interest.** Upon a Default by Tenant hereunder, Landlord may, without waiving or releasing any obligation of Tenant hereunder, make such payment or perform such act. All sums so paid or incurred by Landlord, together with interest thereon, from the date such sums were paid or incurred, at the annual rate equal to 12% per annum or the highest rate permitted by law (the "Default Rate"), whichever is less, shall be payable to Landlord on demand as Additional Rent. Nothing herein shall be construed to create or impose a duty on Landlord to mitigate any damages resulting from Tenant's Default hereunder.

(b) **Late Payment Rent.** Late payment by Tenant to Landlord of Rent and other sums due will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult and impracticable to ascertain. Such costs include, but are not limited to, processing and accounting charges and late charges which may be imposed on Landlord under any Mortgage covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within 5 days after the date such payment is due, Tenant shall pay to Landlord an additional sum equal to 6% of the overdue Rent as a late charge. The parties agree that this late charge represents a fair and reasonable estimate of the costs Landlord will incur by reason of late payment by Tenant. In addition to the late charge, Rent not paid when due shall bear interest at the Default Rate from the 5th day after the date due until paid.

(c) **Remedies.** Upon the occurrence of a Default, Landlord, at its option, without further notice or demand to Tenant, shall have in addition to all other rights and remedies provided in this Lease, at law or in equity, the option to pursue any one or more of the following remedies, each and all of which shall be cumulative and nonexclusive, without any notice or demand whatsoever.

(i) Terminate this Lease, or at Landlord's option, Tenant's right to possession only, in which event Tenant shall immediately surrender the Premises to Landlord, and if Tenant fails to do so, Landlord may, to the extent permitted by and in accordance with law, without prejudice to any other remedy which it may have for possession or arrearages in rent, enter upon and take possession of the Premises and expel or remove Tenant and any other person who may be occupying the Premises or any part thereof, without being liable for prosecution or any claim or damages therefor;

(ii) Upon any termination of this Lease, whether pursuant to the foregoing Section 20(c)(i) or otherwise, Landlord may recover from Tenant (as an alternative to further recovery under Section 20(c)(iii) below) the following:

(A) The worth at the time of award of any unpaid rent which has been earned at the time of such termination; plus

(B) The worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(C) The worth at the time of award of the amount by which the unpaid rent for the balance of the Term after the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(D) Any other amount necessary to compensate Landlord for all costs incurred by Landlord as a result of Tenant's Default hereunder, specifically including, but not limited to, brokerage commissions and advertising expenses incurred, expenses of remodeling the Premises or any portion thereof for a new tenant, whether for the same or a different use, and any special concessions made to obtain a new tenant; and

(E) At Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable law.

The term "rent" as used in this Section 20 shall be deemed to be and to mean all sums of every nature required to be paid by Tenant pursuant to the terms of this Lease, whether to Landlord or to others. As used in Sections 20(c)(ii) (A) and (B) above, the "worth at the time of award" shall be computed by allowing interest at the Default Rate through the date of payment by Tenant, but in no case greater than the maximum amount of such interest permitted by law. As used in Section 20(c)(ii)(C) above, the "worth at the time of award" shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus 1%.

(iii) In lieu of the remedies provided by Section 20(c)(ii) hereof, Landlord may continue this Lease in effect after Tenant's Default and recover rent as it becomes due (Landlord and Tenant hereby agreeing that Tenant has the right to sublet or assign hereunder, subject only to reasonable limitations). Accordingly, if Landlord does not elect to terminate this Lease following a Default by Tenant, Landlord may, from time to time, without terminating this Lease, enforce all of its rights and remedies hereunder, including the right to recover all Rent as it becomes due.

(iv) Whether or not Landlord elects to terminate this Lease following a Default by Tenant, Landlord shall have the right to terminate any and all subleases, licenses, concessions or other consensual arrangements for possession entered into by Tenant and affecting the Premises or may, in Landlord's sole discretion, succeed to Tenant's interest in such subleases, licenses, concessions or arrangements. Upon Landlord's election to succeed to Tenant's interest in any such subleases, licenses, concessions or arrangements, Tenant shall, as of the date of notice by Landlord of such election, have no further right to or interest in the rent or other consideration receivable thereunder.

(v) Independent of the exercise of any other remedy of Landlord hereunder or under applicable law, Landlord may conduct an environmental test of the Premises as generally described in Section 29(d) hereof, at Tenant's expense.

(d) **Effect of Exercise.** Exercise by Landlord of any remedies hereunder or otherwise available shall not be deemed to be an acceptance of surrender of the Premises and/or a termination of this Lease by Landlord, it being understood that such surrender and/or termination can be effected only by the express written agreement of Landlord and Tenant. Any law, usage, or custom to the contrary notwithstanding, Landlord shall have the right at all times to enforce the provisions of this Lease in strict accordance with the terms hereof; and the failure of Landlord at any time to enforce its rights under this Lease strictly in accordance with same shall not be construed as having created a custom in any way or manner contrary to the specific terms, provisions, and covenants of this Lease or as having modified the same and shall not be deemed a waiver of Landlord's right to enforce one or more of its rights in connection with any subsequent default. A receipt by Landlord of Rent or other payment with knowledge of the breach of any covenant hereof shall not be deemed a waiver of such breach, and no waiver by Landlord of any provision of this Lease shall be deemed to have been made unless expressed in writing and signed by Landlord. To the greatest extent permitted by law, Tenant waives the service of notice of Landlord's intention to re-enter, re-take or otherwise obtain possession of the Premises as provided in any statute, or to institute legal proceedings to that end, and also waives all right of redemption in case Tenant shall be dispossessed by a judgment or by warrant of any court or judge. Any reletting of the Premises or any portion thereof shall be on such terms and conditions as Landlord in its sole discretion may determine. Landlord shall not be liable for, nor shall Tenant's obligations hereunder be diminished because of, Landlord's failure to relet the Premises or collect rent due in respect of such reletting or otherwise to mitigate any damages arising by reason of Tenant's Default.

21. **Assignment and Subletting.**

(a) **General Prohibition.** Without Landlord's prior written consent which, subject to and on the conditions described in this Section 21, shall not be unreasonably withheld, conditioned or delayed, Tenant shall not, directly or indirectly, voluntarily or by operation of law, assign this Lease or sublease the Premises or any part thereof or mortgage, pledge, or hypothecate its leasehold interest or grant any concession or license within the Premises, and any attempt to do any of the foregoing shall be void and of no effect.

(b) **Transfers.** If Tenant desires to assign, sublease, hypothecate or otherwise transfer this Lease or sublet the Premises, other than pursuant to a Permitted Assignment (as defined below), then at least 15 business days, but not more than 45 business days, before the date Tenant desires the assignment or sublease to be effective (the **"Assignment Date"),** Tenant shall give Landlord a notice (the **"Assignment Notice")** containing such information about the proposed assignee or sublessee, including the proposed use of the Premises and any Hazardous Materials proposed to be used, stored handled, treated, generated in or released or disposed of from the Premises, the Assignment Date, any relationship between Tenant and the proposed assignee or sublessee, and all material terms and conditions of the proposed assignment or sublease, including a copy of any proposed assignment or sublease in its final form, and such other information as Landlord may deem reasonably necessary or appropriate to its consideration whether to grant its consent. Landlord may, by giving written notice to Tenant within 15 business days after receipt of the Assignment Notice: (i) grant such consent, (ii) refuse such consent, in its reasonable discretion, or (iii) if the proposed assignment or sublease is for (A) greater than 50% of the rentable floor area of the Premises, and (B) for the remainder of the Base Term or Extension Term (as hereinafter defined), as applicable, terminate this Lease with respect to the space described in the Assignment Notice as of the Assignment Date (an **"Assignment Termination").** If Landlord delivers notice of its election to exercise an Assignment Termination, Tenant shall have the right to withdraw such Assignment Notice by written notice to Landlord of such election within a reasonable time after Landlord's notice electing to exercise the Assignment Termination. If Tenant withdraws such Assignment Notice, this Lease shall continue in full force and effect. If Tenant does not withdraw such Assignment Notice, this Lease, and the term and estate herein granted, shall terminate as of the Assignment Date with respect to the space described in such Assignment Notice. No failure of Landlord to exercise any such option to terminate this Lease, or to deliver a timely notice in response to the Assignment Notice, shall be deemed to be Landlord's consent to the proposed assignment, sublease or other transfer. Tenant shall reimburse Landlord for all of Landlord's reasonable and documented out-of-pocket expenses in connection with its consideration of any Assignment Notice.

(c) **Equity Financing.** Notwithstanding the forgoing, the transfer or issuance of stock in Tenant shall be permitted without Landlord's consent provided that following any such transfer or issuance no single entity or investor who is not a majority shareholder as of the date hereof, taken together with such entity's or investor's affiliates and related entities, owns more than 50% of the beneficial ownership of Tenant; provided, however, that in no event shall any initial public offering of shares by Tenant require Landlord's consent.

(d) **Change in Control and Roberts Entity Transfers.** Notwithstanding the foregoing, Tenant shall have the right to assign this Lease, upon 30 days prior written notice to Landlord but without Landlord's prior written consent:

(i) to a corporation or other entity which is a successor-in-interest to Tenant, by way of merger, consolidation or corporate reorganization, or by the purchase of all or substantially all of the assets or the ownership interests of Tenant provided that (A) such merger or consolidation, or such acquisition or assumption, as the case may be, is for a good business purpose and not principally for the purpose of transferring the Lease, and (B) the net worth (as determined in accordance with generally accepted accounting principles **("GAAP"))** of the assignee is not less than Fifty Million Dollars ($50,000,000.00);

(ii) to any entity of which Carmichael Roberts is the founder or co-founder or owns at least 5% of the beneficial interests thereof (any of the foregoing being referred to as a **"Roberts Entity"),** or to any entity which shares at least 15% common ownership with Tenant, provided that if Tenant assigns this Lease to any entity which shares 15% common ownership with Tenant, Tenant agrees that Landlord shall have the right to request financial information from Tenant and from any such assignee, of the sorts permitted by Section 41(c) hereof, on a quarterly basis, notwithstanding the provisions of Section 41(c) permitting Landlord to request such information on a semi-annual basis only;

(iii) to any publicly traded medical or pharmaceutical company with a market capitalization of more than Twenty Billion Dollars ($20,000,000,000.00) who becomes a franchisee or licensee of Tenant; or

(iv) in connection with a transfer or series of transfers whereby 50% or more of the issued and outstanding shares or other ownership interests of Tenant are, or voting control is, transferred (but excepting transfers upon deaths of individual owners) to persons or entities who were not owners of shares or other ownership interests of Tenant at time of execution of this Lease, provided that (A) such transfer or series of transfers, as the case may be, is for a good business purpose and not principally for the purpose of transferring the Lease, and (B) the net worth (as determined in accordance with generally accepted accounting principles **("GAAP"))** of Tenant following such transfer or series of transfers, as the case may be, is not less than Fifty Million Dollars ($50,000,000.00);

provided, however, that in each case, the assignee shall agree, in writing, to assume all of the terms, covenants and conditions of this Lease arising after the effective date of the assignment; and provided further that: (A) any assignment or sublease, as described in clauses (i) through (iv) above, shall be subject to Landlord's consent only to the extent necessary to ascertain that such transferee does not violate any of the environmental requirements set forth in the first sentence of Section 21(h) hereof; (B) the intended use by or identity of the transferee will not adversely impact the reputation or value of the building; and (C) the transferee does not have an objectionable business reputation. The transfers described in subsections (i) through (iv) above are sometimes referred to herein as a **"Permitted Assignment").**

(e) **Additional Conditions.** As a condition to any such assignment or subletting, whether or not Landlord's consent is required, Landlord may require:

(i) that any assignee or subtenant agree, in writing at the time of such assignment or subletting, that if Landlord gives such party notice that Tenant is in default under this Lease, such party shall thereafter make all payments otherwise due Tenant directly to Landlord, which payments will be received by Landlord without any liability except to credit such payment against those due under the Lease, and any such third party shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, in no event shall Landlord or its successors or assigns be obligated to accept such attornment; and

(ii) A list of Hazardous Materials, certified by the proposed assignee or sublessee to be true and correct, which the proposed assignee or sublessee intends to use, store, handle, treat, generate in or release or dispose of from the Premises, together with copies of all documents relating to such use, storage, handling, treatment, generation, release or disposal of Hazardous Materials by the proposed assignee or subtenant in the Premises or on the Project, prior to the proposed assignment or subletting, including, without limitation: permits; approvals; reports and correspondence; storage and management plans; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given its written consent to do so, which consent may be

withheld in Landlord's sole and absolute discretion); and all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks. Neither Tenant nor any such proposed assignee or subtenant is required, however, to provide Landlord with any portion(s) of the such documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities.

(f) **No Release of Tenant, Sharing of Excess Rents.** Notwithstanding any assignment or subletting, whether in connection with a Permitted Assignment or otherwise, Tenant and any guarantor or surety of Tenant's obligations under this Lease shall at all times remain fully and primarily responsible and liable for the payment of Rent and for compliance with all of Tenant's other obligations under this Lease. If the Rent due and payable by a sublessee or assignee (or a combination of the rental payable under such sublease or assignment plus any bonus or other consideration therefor or incident thereto in any form) exceeds the rental payable under this Lease, (excluding however, any Rent payable under this Section), plus Tenant's reasonable sublease expenses, including but not limited to tenant improvement costs, brokerage commissions, legal expenses and architectural/engineering costs **("Excess Rent"),** then Tenant shall be bound and obligated to pay Landlord as Additional Rent hereunder 50% of such Excess Rent within 10 days following receipt thereof by Tenant. If Tenant shall sublet the Premises or any part thereof, Tenant hereby immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and Landlord as assignee and as attorney-in-fact for Tenant, or a receiver for Tenant appointed on Landlord's application, may collect such rent and apply it toward Tenant's obligations under this Lease; except that, until the occurrence of a Default, Tenant shall have the right to collect such rent.

(g) **No Waiver.** The consent by Landlord to an assignment or subletting shall not relieve Tenant or any assignees of this Lease or any sublessees of the Premises from obtaining the consent of Landlord to any further assignment or subletting nor shall it release Tenant or any assignee or sublessee of Tenant from full and primary liability under the Lease. The acceptance of Rent hereunder, or the acceptance of performance of any other term, covenant, or condition thereof, from any other person or entity shall not be deemed to be a waiver of any of the provisions of this Lease or a consent to any subletting, assignment or other transfer of the Premises. Landlord shall provide the Tenant named herein with a copy of any notice of default sent to any assignee or sublessee hereunder.

(h) **Conduct and Nature of Proposed Transferee.** Notwithstanding any other provision of this Section 21, if (i) the proposed assignee or sublessee of Tenant has been required by any prior landlord, lender or Governmental Authority to take remedial action in connection with Hazardous Materials contaminating a property, where the contamination resulted from such party's action or use of the property in question, (ii) the proposed assignee or sublessee is subject to an enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority), or (iii) because of the existence of a pre-existing environmental condition in the vicinity of or underlying the Project, the risk that Landlord would be targeted as a responsible party in connection with the remediation of such pre-existing environmental condition would be materially increased or exacerbated by the proposed use of Hazardous Materials by such proposed assignee or sublessee, Landlord shall have the absolute right to refuse to consent to any assignment or subletting to any such party. In addition, it shall be reasonable for Landlord to withhold its consent (other than any consent under Section 21(d), which shall be limited as set forth therein) to any assignment or sublease as a result of (A) objectionable business reputation, (B) any controversial intended use of the Premises, and (only in the case of an assignment) (C) the failure of the net worth of the proposed assignee to be equal to or greater than the greater of (x) the net worth of the Tenant immediately following its Series B equity financing, and (y) the net worth of the Tenant at the time of the proposed assignment. In addition, Landlord may reasonably object to a proposed subtenant which has requested and is currently considering a proposal from Landlord for a direct lease of space for a space of similar size and type, and term in the Building.

22. **Estoppel Certificate.** Tenant shall, within 10 business days of written notice from Landlord, execute, acknowledge and deliver a statement in writing in any form reasonably requested by a proposed lender or purchaser, (i) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which the rental and other charges are paid in advance, if any, (ii) acknowledging that there are not any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (iii) setting forth such further information with respect to the status of this Lease or the Premises as may be requested thereon. Any such statement may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the real property of which the Premises are a part. Tenant's failure to deliver such statement within such time shall, at the option of Landlord, be conclusive upon Tenant that the Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution.

23. **Quiet Enjoyment.** So long as Tenant shall perform all of the covenants and agreements herein required to be performed by Tenant, Tenant shall, subject to the terms of this Lease, at all times during the Term, have peaceful and quiet enjoyment of the Premises against any person claiming by, through or under Landlord.

24. **Prorations.** All prorations required or permitted to be made hereunder shall be made on the basis of a 360 day year and 30 day months.

25. **Rules and Regulations.** Tenant shall, at all times during the Term and any extension thereof, comply with all reasonable rules and regulations at any time or from time to time established by Landlord covering use of the Premises and the Project. The current rules and regulations are attached hereto as **Exhibit E.** If there is any conflict between said rules and regulations and other provisions of this Lease, the terms and provisions of this Lease shall control. Landlord shall not have any liability or obligation for the breach of any rules or regulations by other tenants in the Project and shall not enforce such rules and regulations in a discriminatory manner.

26. **Subordination.** This Lease and Tenant's interest and rights hereunder are hereby made and shall be subject and subordinate at all times to the lien of any Mortgage now existing or hereafter created on or against the Project or the Premises, and all amendments, restatements, renewals, modifications, consolidations, refinancing, assignments and extensions thereof, without the necessity of any further instrument or act on the part of Tenant; provided, however that so long as there is no Default hereunder, Tenant's right to possession of the Premises shall not be disturbed by the Holder of any such Mortgage. Tenant agrees, at the election of the Holder of any such Mortgage, to attorn to any such Holder. Tenant agrees upon demand to execute, acknowledge and deliver such instruments, confirming such subordination, and such instruments of attornment as shall be requested by any such Holder, provided any such instruments contain appropriate non-disturbance provisions assuring Tenant's quiet enjoyment of the Premises as set forth in Section 23 hereof. If Tenant fails to execute, acknowledge and deliver such instruments within 10 business days after written notice from Landlord, Tenant hereby appoints Landlord attorney-in-fact for Tenant irrevocably (such power of attorney being coupled with an interest) to execute, acknowledge and deliver any such instrument and instruments for and in the name of Tenant and to cause any such instrument to be recorded. Notwithstanding the foregoing, any such Holder may at any time subordinate its Mortgage to this Lease, without Tenant's consent, by notice in writing to Tenant, and thereupon this Lease shall be deemed prior to such Mortgage without regard to their respective dates of execution, delivery or recording and in that event such Holder shall have the same rights with respect to this Lease as though this Lease had been executed prior to the execution, delivery and recording of such Mortgage and had been assigned to such Holder. The term **"Mortgage"** whenever used in this Lease shall be deemed to include deeds of trust, security assignments and any other encumbrances, and any reference to the **"Holder"** of a Mortgage shall be deemed to include the beneficiary under a deed of trust.

27. **Surrender.** Upon the expiration of the Term or earlier termination of Tenant's right of possession, Tenant shall surrender the Premises to Landlord in the same condition as received, subject to any Alterations or Installations permitted by Landlord to remain in the Premises, free of Hazardous

Materials brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Premises by any person other than a Landlord Party (collectively, **"Tenant HazMat Operations")** and released of all Hazardous Materials Clearances, broom clean, ordinary wear and tear and casualty loss and condemnation covered by Sections 17 and 18 excepted. At least 3 months prior to the surrender of the Premises, Tenant shall deliver to Landlord a narrative description of the actions proposed (or required by any Governmental Authority) to be taken by Tenant in order to surrender the Premises (including any Installations permitted by Landlord to remain in the Premises) at the expiration or earlier termination of the Term, free from any residual impact from the Tenant HazMat Operations and otherwise released for unrestricted use and occupancy (the **"Surrender Plan").** Such Surrender Plan shall be accompanied by a current listing of (i) all Hazardous Materials licenses and permits held by or on behalf of any Tenant Party with respect to the Premises, and (ii) all Hazardous Materials used, stored, handled, treated, generated, released or disposed of from the Premises, and shall be subject to the review and approval of Landlord's environmental consultant. In connection with the review and approval of the Surrender Plan, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such additional non-proprietary information concerning Tenant HazMat Operations as Landlord shall request. On or before such surrender, Tenant shall deliver to Landlord evidence that the approved Surrender Plan shall have been satisfactorily completed and Landlord shall have the right, subject to reimbursement at Tenant's expense as set forth below, to cause Landlord's environmental consultant to inspect the Premises and perform such additional procedures as may be deemed reasonably necessary to confirm that the Premises are, as of the effective date of such surrender or early termination of the Lease, free from any residual impact from Tenant HazMat Operations. Tenant shall reimburse Landlord, as Additional Rent, for the actual out-of pocket expense incurred by Landlord for Landlord's environmental consultant to review and approve the Surrender Plan and to visit the Premises and verify satisfactory completion of the same, which cost shall not exceed $2,500. Landlord shall have the unrestricted right to deliver such Surrender Plan and any report by Landlord's environmental consultant with respect to the surrender of the Premises to third parties.

If Tenant shall fail to prepare or submit a Surrender Plan approved by Landlord, or if Tenant shall fail to complete the approved Surrender Plan, or if such Surrender Plan, whether or not approved by Landlord, shall fail to adequately address any residual effect of Tenant HazMat Operations in, on or about the Premises, Landlord shall have the right to take such actions as Landlord may deem reasonable or appropriate to assure that the Premises and the Project are surrendered free from any residual impact from Tenant HazMat Operations, the actual, documented cost of which actions shall be reimbursed by Tenant as Additional Rent, without regard to the limitation set forth in the first paragraph of this Section 27.

Tenant shall immediately return to Landlord all keys and/or access cards to parking, the Project, restrooms or all or any portion of the Premises furnished to or otherwise procured by Tenant. If any such access card or key is lost, Tenant shall pay to Landlord, at Landlord's election, either the cost of replacing such lost access card or key or the cost of reprogramming the access security system in which such access card was used or changing the lock or locks opened by such lost key. Any Tenant's Property, Alterations and property not so removed by Tenant as permitted or required herein shall be deemed abandoned and may be stored, removed, and disposed of by Landlord at Tenant's expense, and Tenant waives all claims against Landlord for any damages resulting from Landlord's retention and/or disposition of such property. All obligations of Tenant hereunder not fully performed as of the termination of the Term, including the obligations of Tenant under Section 29 hereof, shall survive the expiration or earlier termination of the Term, including, without limitation, indemnity obligations, payment obligations with respect to Rent and obligations concerning the condition and repair of the Premises.

28. **Intentionally Deleted**

29. **Environmental Requirements.**

(a) **Prohibition/Compliance/Indemnity.** Tenant shall not cause or permit any Hazardous Materials (as hereinafter defined) to be brought upon, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises or the Project in violation of applicable Environmental Requirements (as hereinafter defined) by Tenant or any Tenant Party. If Tenant breaches the obligation stated in the preceding sentence, or if the presence of Hazardous Materials in the Premises during the Term or any holding over results in contamination of the Premises, the Project or any adjacent property or if contamination of the Premises, the Project or any adjacent property by Hazardous Materials brought into, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises by anyone other than Landlord and Landlord's employees, agents and contractors otherwise occurs during the Term or any holding over, Tenant hereby indemnifies and shall defend and hold Landlord, its officers, directors, employees, agents and contractors harmless from any and all actions (including, without limitation, remedial or enforcement actions of any kind, administrative or judicial proceedings, and orders or judgments arising out of or resulting therefrom), costs, claims, damages (including, without limitation, punitive damages and damages based upon diminution in value of the Premises or the Project, or the loss of, or restriction on, use of the Premises or any portion of the Project), expenses (including, without limitation, attorneys', consultants' and experts' fees, court costs and amounts paid in settlement of any claims or actions), fines, forfeitures or other civil, administrative or criminal penalties, injunctive or other relief (whether or not based upon personal injury, property damage, or contamination of, or adverse effects upon, the environment, water tables or natural resources), liabilities or losses (collectively, **"Environmental Claims")** which arise during or after the Term as a result of such contamination. This indemnification of Landlord by Tenant includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, treatment, remedial, removal, or restoration work required by any federal, state or local Governmental Authority because of Hazardous Materials present in the air, soil or ground water above, on, or under the Premises. Without limiting the foregoing, if the presence of any Hazardous Materials on the Premises, the Project or any adjacent property caused or permitted by Tenant or any Tenant Party results in any contamination of the Premises, the Project or any adjacent property, Tenant shall promptly take all actions at its sole expense and in accordance with applicable Environmental Requirements as are necessary to return the Premises, the Project or any adjacent property to the condition existing prior to the time of such contamination, provided that Landlord's approval of such action shall first be obtained, which approval shall not unreasonably be withheld so long as such actions would not potentially have any material adverse long-term or short-term effect on the Premises or the Project.

(b) **Business.** Landlord acknowledges that it is not the intent of this Section 29 to prohibit Tenant from using the Premises for the Permitted Use. Tenant may operate its business according to prudent industry practices so long as the use or presence of Hazardous Materials is strictly and properly monitored according to all then applicable Environmental Requirements. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord prior to the Commencement Date a list identifying each type of Hazardous Materials to be brought upon, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises and setting forth any and all governmental approvals or permits required in connection with the presence, use, storage, handling, treatment, generation, release or disposal of such Hazardous Materials on or from the Premises **("Hazardous Materials List").** Tenant shall deliver to Landlord an updated Hazardous Materials List at least once a year and shall also deliver an updated list before any new Hazardous Material is brought onto, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises. Tenant shall deliver to Landlord true and correct copies of the following documents (the **"Haz Mat Documents")** relating to the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials prior to the Commencement Date, or if unavailable at that time, concurrent with the receipt from or submission to a Governmental Authority: permits; approvals; reports and correspondence; storage and management plans, notice of violations of any Legal Requirements; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks; and a Surrender Plan (to the extent surrender in accordance with Section 27 cannot be accomplished in 3 months). Tenant is not required, however, to provide Landlord with any portion(s) of the Haz Mat Documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities. It is not the intent of this Section to provide Landlord with information which could be detrimental to Tenant's business should such information become possessed by Tenant's competitors.

(c) **Tenant Representation and Warranty.** Tenant hereby represents and warrants to Landlord that (i) neither Tenant nor any of its legal predecessors has been required by any prior landlord, lender or Governmental Authority at any time to take remedial action in connection with Hazardous Materials contaminating a property which contamination was permitted by Tenant of such predecessor or resulted from Tenant's or such predecessor's action or use of the property in question, and (ii) Tenant is not subject to any enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority). If Landlord determines that this representation and warranty was not true as of the date of this lease, Landlord shall have the right to terminate this Lease in Landlord's sole and absolute discretion.

(d) **Testing.** Landlord shall have the right to conduct annual tests of the Premises to determine whether any contamination of the Premises or the Project has occurred as a result of Tenant's use. Tenant shall be required to pay the cost of such annual test of the Premises; provided, however, that if Tenant conducts its own tests of the Premises using third party contractors and test procedures acceptable to Landlord which tests are certified to Landlord, Landlord shall accept such tests in lieu of the annual tests to be paid for by Tenant. In addition, at any time, and from time to time, prior to the expiration or earlier termination of the Term, Landlord shall have the right to conduct appropriate tests of the Premises and the Project to determine if contamination has occurred as a result of Tenant's use of the Premises. In connection with such testing, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such non-proprietary information concerning the use of Hazardous Materials in or about the Premises by Tenant or any Tenant Party. If contamination has occurred for which Tenant is liable under this Section 29, Tenant shall pay all costs to conduct such tests. If no such contamination is found, Landlord shall pay the costs of such tests (which shall not constitute an Operating Expense). Landlord shall provide Tenant with a copy of all third party, non-confidential reports and tests of the Premises made by or on behalf of Landlord during the Term without representation or warranty and subject to a confidentiality agreement. Tenant shall, at its sole cost and expense, promptly and satisfactorily remediate any environmental conditions identified by such testing in accordance with all Environmental Requirements. Landlord's receipt of or satisfaction with any environmental assessment in no way waives any rights which Landlord may have against Tenant.

(e) **Underground Tanks.** If underground or other storage tanks storing Hazardous Materials located on the Premises or the Project are used by Tenant or are hereafter placed on the Premises or the Project by Tenant, Tenant shall install, use, monitor, operate, maintain, upgrade and manage such storage tanks, maintain appropriate records, obtain and maintain appropriate insurance, implement reporting procedures, properly close any underground storage tanks, and take or cause to be taken all other actions necessary or required under applicable state and federal Legal Requirements, as such now exists or may hereafter be adopted or amended in connection with the installation, use, maintenance, management, operation, upgrading and closure of such storage tanks.

(f) **Tenant's Obligations.** Tenant's obligations under this Section 29 shall survive the expiration or earlier termination of the Lease. During any period of time after the expiration or earlier termination of this Lease required by Tenant or Landlord to complete the removal from the Premises of any Hazardous Materials (including, without limitation, the release and termination of any licenses or permits restricting the use of the Premises and the completion of the approved Surrender Plan), Tenant shall continue to pay the full Rent in accordance with this Lease for any portion of the Premises not relet by Landlord in Landlord's sole discretion, which Rent shall be prorated daily.

(g) **Definitions.** As used herein, the term **"Environmental Requirements"** means all applicable present and future statutes, regulations, ordinances, rules, codes, judgments, orders or other similar enactments of any Governmental Authority regulating or relating to health, safety, or environmental conditions on, under, or about the Premises or the Project, or the environment, including without limitation, the following: the Comprehensive Environmental Response, Compensation and

Liability Act; the Resource Conservation and Recovery Act; and all state and local counterparts thereto, and any regulations or policies promulgated or issued thereunder. As used herein, the term **"Hazardous Materials"** means and includes any substance, material, waste, pollutant, or contaminant listed or defined as hazardous or toxic, or regulated by reason of its impact or potential impact on humans, animals and/or the environment under any Environmental Requirements, asbestos and petroleum, including crude oil or any fraction thereof, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). As defined in Environmental Requirements, Tenant is and shall be deemed to be the **"operator"** of Tenant's **"facility"** and the **"owner"** of all Hazardous Materials brought on the Premises by Tenant or any Tenant Party, and the wastes, by-products, or residues generated, resulting, or produced therefrom.

30. **Tenant's Remedies/Limitation of Liability.** Landlord shall not be in default hereunder unless Landlord fails to perform any of its obligations hereunder within 30 days after written notice from Tenant specifying such failure (unless such performance will, due to the nature of the obligation, require a period of time in excess of 30 days, then after such period of time as is reasonably necessary). Upon any default by Landlord, Tenant shall give notice to Landlord as required pursuant to Section 41(a) hereof. All obligations of Landlord hereunder shall be construed as covenants, not conditions; and, except as may be otherwise expressly provided in this Lease, Tenant may not terminate this Lease for breach of Landlord's obligations hereunder.

All obligations of Landlord under this Lease will be binding upon Landlord only during the period of its ownership of the Premises and not thereafter. The term **"Landlord"** in this Lease shall mean only the owner for the time being of the Premises. Upon the transfer by such owner of its interest in the Premises, such owner shall thereupon be released and discharged from all obligations of Landlord thereafter accruing, but such obligations shall be binding during the Term upon each new owner for the duration of such owner's ownership.

31. **Inspection and Access.** Landlord and its agents, representatives, and contractors may enter the Premises at any reasonable time to inspect the Premises and to make such repairs as may be required or permitted pursuant to this Lease and for any other business purpose. Landlord and Landlord's representatives may enter the Premises during business hours on not less than 48 hours advance written notice (except in the case of emergencies in which case no such notice shall be required and such entry may be at any time) for the purpose of effecting any such repairs, inspecting the Premises, showing the Premises to prospective purchasers and, during the last year of the Term, to prospective tenants or for any other business purpose. Landlord may erect a suitable sign on the Premises stating the Premises are available to let or that the Project is available for sale. Landlord may grant easements, make public dedications, designate Common Areas and create restrictions on or about the Premises, provided that no such easement, dedication, designation or restriction materially, adversely affects Tenant's use or occupancy of the Premises for the Permitted Use. At Landlord's request, Tenant shall execute such instruments as may be necessary for such easements, dedications or restrictions. Tenant shall at all times, except in the case of emergencies, have the right to escort Landlord or its agents, representatives, contractors or guests while the same are in the Premises, provided such escort does not materially and adversely affect Landlord's access rights hereunder.

32. **Security.** Tenant acknowledges and agrees that security devices and services, if any, while intended to deter crime may not in given instances prevent theft or other criminal acts and that Landlord is not providing any security services with respect to the Premises. Tenant agrees that Landlord shall not be liable to Tenant for, and Tenant waives any claim against Landlord with respect to, any loss by theft or any other damage suffered or incurred by Tenant in connection with any unauthorized entry into the Premises or any other breach of security with respect to the Premises. Tenant shall be solely responsible for the personal safety of Tenant's officers, employees, agents, contractors, guests and invitees while any such person is in, on or about the Premises and/or the Project. Tenant shall at Tenant's cost obtain insurance coverage to the extent Tenant desires protection against such criminal acts.

33**. Force Majeure.** Landlord shall not responsible or liable for delays in the performance of its obligations hereunder when caused by, related to, or arising out of acts of God, strikes, lockouts, or other labor disputes, embargoes, quarantines, weather, national, regional, or local disasters, calamities, or catastrophes, inability to obtain labor or materials (or reasonable substitutes therefor) at reasonable costs or failure of, or inability to obtain, utilities necessary for performance, governmental restrictions, orders, limitations, regulations, or controls, national emergencies, delay in issuance or revocation of permits, enemy or hostile governmental action, terrorism, insurrection, riots, civil disturbance or commotion, fire or other casualty, and other causes or events beyond the reasonable control of Landlord **("Force Majeure")**.

34**. Brokers.** Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, **"Broker)** in connection with this transaction and that no Broker brought about this transaction other than Meredith & Grew and CB Richard Ellis/Whittier Partners. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than the broker, if any, named in this Section 34, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction.

35**. Limitation on Landlord's Liability.** NOTWITHSTANDING ANYTHING SET FORTH HEREIN OR IN ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT TO THE CONTRARY: (A) LANDLORD SHALL NOT BE LIABLE TO TENANT OR ANY OTHER PERSON FOR (AND TENANT AND EACH SUCH OTHER PERSON ASSUME ALL RISK OF) LOSS, DAMAGE OR INJURY, WHETHER ACTUAL OR CONSEQUENTIAL TO: TENANT'S PERSONAL PROPERTY OF EVERY KIND AND DESCRIPTION, INCLUDING, WITHOUT LIMITATION TRADE FIXTURES, EQUIPMENT, INVENTORY, SCIENTIFIC RESEARCH, SCIENTIFIC EXPERIMENTS, LABORATORY ANIMALS, PRODUCT, SPECIMENS, SAMPLES, AND/OR SCIENTIFIC, BUSINESS, ACCOUNTING AND OTHER RECORDS OF EVERY KIND AND DESCRIPTION KEPT AT THE PREMISES AND ANY AND ALL INCOME DERIVED OR DERIVABLE THEREFROM; (B) THERE SHALL BE NO PERSONAL RECOURSE TO LANDLORD FOR ANY ACT OR OCCURRENCE IN, ON OR ABOUT THE PREMISES OR ARISING IN ANY WAY UNDER THIS LEASE OR ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT WITH RESPECT TO THE SUBJECT MATTER HEREOF AND ANY LIABILITY OF LANDLORD HEREUNDER SHALL BE STRICTLY LIMITED SOLELY TO LANDLORD'S INTEREST IN THE PROJECT OR ANY PROCEEDS FROM SALE OR CONDEMNATION THEREOF AND ANY INSURANCE PROCEEDS PAYABLE IN RESPECT OF LANDLORD'S INTEREST IN THE PROJECT OR IN CONNECTION WITH ANY SUCH LOSS; AND (C) IN NO EVENT SHALL ANY PERSONAL LIABILITY BE ASSERTED AGAINST ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS. UNDER NO CIRCUMSTANCES SHALL LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS BE LIABLE FOR INJURY TO TENANT'S BUSINESS OR FOR ANY LOSS OF INCOME OR PROFIT THEREFROM.

36**. Severability.** If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, then and in that event, it is the intention of the parties hereto that the remainder of this Lease shall not be affected thereby. It is also the intention of the parties to this Lease that in lieu of each clause or provision of this Lease that is illegal, invalid or unenforceable, there be added, as a part of this Lease, a clause or provision as similar in effect to such illegal, invalid or unenforceable clause or provision as shall be legal, valid and enforceable.

37**. Signs; Exterior Appearance.** Tenant shall not, without the prior written consent of Landlord, which may be granted or withheld in Landlord's sole discretion: (i) attach any awnings, exterior lights, decorations, balloons, flags, pennants, banners, painting or other projection to any outside wall of the Project, (ii) use any curtains, blinds, shades or screens other than Landlord's standard window coverings, (iii) coat or otherwise sunscreen the interior or exterior of any windows, (iv) place any bottles, parcels, or other articles on the window sills, (v) place any equipment, furniture or other items of personal property on any exterior balcony, or (vi) paint, affix or exhibit on any part of the Premises or the Project any signs, notices, window or door lettering, placards, decorations, or advertising media of any type which

can be viewed from the exterior of the Premises. Interior signs on doors and the directory tablet shall be inscribed, painted or affixed for Tenant by Landlord at the sole cost and expense of Tenant, and shall be of a size, color and type acceptable to Landlord. Nothing may be placed on the exterior of corridor walls or corridor doors other than Landlord's standard lettering. The directory tablet shall be provided exclusively for the display of the name and location of tenants.

38. **Expansion Option.** Beginning upon the date of execution of this Lease and continuing through the date which is fifteen (15) months after the Commencement Date (the **"Option Period"),** Tenant shall have an option to expand (the **"Expansion Option")** into the remaining space in Section 1D, comprising 8,023 rentable square feet, being depicted as the **"Expansion Space"** on **Exhibit A** hereto. The Expansion Option shall expire automatically without the necessity of any further notice or action by either party hereto if not exercised by Tenant as provided herein prior to the expiration of the Option Period. Tenant's exercise of its Expansion Option shall be triggered in two ways:

(a) **Landlord Trigger.** Upon Landlord's receipt of a written counter-proposal from a prospective third party tenant to a prior proposal by Landlord with respect to all or any portion of the Expansion Space (each such circumstance, an **"Active Negotiation"),** Landlord shall promptly notify Tenant of said Active Negotiation. Following receipt of such notice, Tenant shall have seven (7) days to exercise its Expansion Option with respect to the Expansion Space (or such portion thereof which is the subject of the instant Active Negotiation) by notifying Landlord of its election in writing (such notice by Tenant being hereinafter referred to as an **"Exercise Notice").** If Tenant does not deliver the Exercise Notice prior to the expiration of such 7-day period, Landlord shall be free to lease the Expansion Space or such portion thereof to the proposed tenant under the Active Negotiation; provided, however, that if Landlord does not consummate a lease pursuant to an Active Negotiation, Landlord shall re-offer such space to Tenant upon the next Active Negotiation. If Tenant timely delivers an Exercise Notice, the Lease shall be amended as described below.

(b) **Tenant Trigger.** In addition to the foregoing, at any time during the Option Period, Tenant may deliver an Exercise Notice to Landlord, whereupon the Lease shall be amended as described below.

(c) **Amendment to Lease.** Upon receipt of Tenant's Exercise Notice, the Lease shall be amended to provide as follows: (i) Base Rent for the Expansion Space shall be equivalent to the then-current Base Rent for the balance of the Premises; (ii) Tenant's obligation to pay Base Rent and Operating Expenses on the Expansion Space shall commence on the earlier of (x) the date of substantial completion of the construction of Tenant Improvements within the Expansion Space and (y) six (6) months after the date of Tenant's Exercise Notice; and (iii) Landlord shall provide an allowance **("Expansion Tl Allowance")** in the amount calculated by multiplying the rentable area of the Expansion Space (i.e., 8,023 rentable square feet) times $137.32, and the product thereof times the percentage of the initial Term of the Lease remaining after the rent commencement date of the Expansion Space. For example only, if the rent commencement date of the Expansion Space is 15 months after the Commencement Date, then the Expansion Tl Allowance shall be calculated as follows: 8,023 rsf x $137.32/rsf x [48/63] = $839,404.47.

(d) **Spec Lab.** Nothing in the above paragraphs shall preclude Landlord from improving the Expansion Space speculatively as generic laboratory/office space **("Spec Lab")** during the Option Period; provided, however, if Landlord does elect to improve the Spec Lab during the Option Period; before commencement of construction of the Spec Lab, Landlord shall first offer the Spec Lab to Tenant upon market terms and conditions for such space. Tenant shall have fourteen (14) days to notify Landlord of its intention to lease the Spec Lab by notifying Landlord of its election in writing. If Tenant does not elect to lease the Spec Lab, Landlord shall be free to construct the Spec Lab and to lease such available space or portion thereof to others, and Landlord shall have no obligation to re-offer such space to Tenant. In the event Tenant elects to lease the Spec Lab, (i) Base Rent for the Spec Lab shall be an amount mutually agreed upon by the parties; and (ii) Tenant's obligation to pay Base Rent and Operating Expenses for the Spec Lab shall commence on the date of substantial completion of the Spec Lab. If the parties are unable to agree on Base Rent for the Spec Lab, despite good faith efforts to do so, either party shall have

the right to request arbitration of the Market Rent for such space (as hereinafter defined) pursuant to Section 40 hereof. In no event shall Tenant have the right to occupy any portion of the Spec Lab until such Base Rent has been agreed to in writing by the parties hereto. Tenant's rights with respect to the Spec Lab, unless exercised during the Option Period as set forth in this Section 38(d), shall expire automatically without the necessity of any further notice or action by either party hereto upon the expiration of the Option Period.

(e) **Nano-Terra Premises Expansion.** Reference is made to that certain Lease Agreement, to be dated within 60 days after the date hereof (the **"Nano-Terra Lease"),** by and between Landlord and Nano-Terra Co-Development, Inc. **("Nano-Terra")** for additional premises in the Project. Pursuant to the provision of the Nano-Terra Lease entitled "Expansion Option" (the **"Nano-Terra Expansion Option Provision"),** Nano-Terra has the right to expand into certain additional space in the Project, as more particularly described in the Nano-Terra Expansion Option Provision (the **"Nano-Terra Expansion Space").** For so long as Nano-Terra is an affiliate of Tenant, Tenant shall have the right to expand the Premises into the Nano-Terra Expansion Space, subject to Nano-Terra's prior right to such space (the **"Nano-Terra Space Expansion Option").** The Nano-Terra Space Expansion Option shall be exercisable by Tenant hereunder only during the Option Period as defined in the Nano-Terra Expansion Option Provision. Upon Tenant's exercise of the Nano-Terra Expansion Option as provided herein, the Lease shall be amended to provide as follows: (i) Base Rent for the Nano-Terra Expansion Space shall be equivalent to the then-current Base Rent for the Premises under the Nano-Terra Lease; (ii) Tenant's obligation to pay Base Rent and Operating Expenses on the Nano-Terra Expansion Space shall commence on the earlier of (x) the date of substantial completion of the construction of Tenant Improvements within the Nano-Terra Expansion Space and (y) six (6) months after the date of Tenant's exercise of the Nano-Terra Expansion Option and shall expire on the expiration date set forth in the Nano-Terra Lease; and (iii) Landlord shall provide an Expansion Tl Allowance in an amount equivalent to the Expansion Tl Allowance set forth in the Nano-Terra Lease The Nano-Terra Space Expansion Option shall expire automatically without the necessity of any further notice or action by either party hereto if not exercised by Tenant as provided herein prior to the expiration of the Option Period set forth in the Nano- Terra Expansion Option Provision. Landlord shall provide a copy of any Landlord Trigger notice with respect to the Nano-Terra Expansion Space to Tenant simultaneously with Nano-Terra. In order to exercise the Nano-Terra Expansion Space Option, Tenant must provide Landlord with a written waiver by Nano-Terra of its expansion rights as provided in the Nano-Terra Expansion Option Provision.

(f) **Roberts Entity Expansion Rights.** Provided that Carmichael Roberts is still at that time a board member or officer of Tenant hereunder (i.e., WMR Biomedical, Inc.), Tenant shall have the right, prior to exercising the Nano-Terra Space Expansion Option as described in Section 38(e) above, to notify Landlord, in writing, that Tenant has elected to permit a Roberts Entity to exercise the Nano-Terra Space Expansion Option in Tenant's stead (the **"Roberts Entity Expansion Option"),** provided Tenant and any such Roberts Entity comply with all requirements for assignment of this Lease to a Roberts Entity as set forth in Section 21 hereof. Notwithstanding the foregoing, nothing herein shall be construed to require actual assignment of this Lease in order for a Roberts Entity to exercise the Roberts Entity Expansion Option. Any such exercise of the Roberts Entity Expansion Option by a Roberts Entity shall be under and subject to the prior rights of Nano-Terra and Tenant hereunder in the Nano-Terra Expansion Space. The Roberts Entity Expansion Option shall expire automatically without the necessity of any further notice or action by either party hereto if not exercised by Tenant as provided herein prior to the expiration of the Option Period set forth in the Nano-Terra Expansion Option Provision. In order to permit a Roberts Entity to exercise the Roberts Entity Expansion Option, Tenant must provide Landlord with a written waiver by Nano-Terra of its expansion rights as provided in the Nano-Terra Expansion Option Provision. Upon the exercise of the Roberts Entity Expansion Option, Landlord shall enter into a lease with such Roberts Entity, upon Landlord's standard terms and conditions, provided however, that the Base Rent, Commencement Date, expiration date and Expansion Tl Allowance shall be as set forth in the Nano- Terra Lease, as more particularly set forth in Section 38(e) hereof.

(g) **Exceptions.** Notwithstanding the above, neither the Expansion Option nor the Nano- Terra Space Expansion Option shall be in effect and neither may be exercised by Tenant:

(i) during any period of time that Tenant is in Default under any provision of the Lease; or

(ii) if Tenant has been in Default under any provision of the Lease 3 or more times, whether or not the Defaults are cured, during the 12 month period prior to the date on which Tenant seeks to exercise the Expansion Option or the Nano-Terra Space Expansion Option, as applicable.

(h) **Termination.** The Expansion Option, the Nano-Terra Space Expansion Option and the Roberts Entity Expansion Option shall terminate and be of no further force or effect even after Tenant's due and timely exercise of either the Expansion Option, the Nano-Terra Space Expansion Option or the Roberts Entity Expansion Option, if, after such exercise, but prior to the commencement date of the lease of such Expansion Space, the Nano-Terra Expansion Space or the Spec Lab, as applicable, (i) Tenant fails to timely cure any default by Tenant under the Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of the Expansion Option, the Nano-Terra Space Expansion Option or the Roberts Entity Expansion Option to the date of the commencement of the lease of the Expansion Space, the Nano-Terra Expansion Space or Spec Lab, as applicable, whether or not such Defaults are cured.

(i) **Rights Personal.** The Expansion Option, the Nano-Terra Space Expansion Option and the Roberts Entity Expansion Option are personal to Tenant and are not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned in connection with any Permitted Assignment of this Lease.

(j) **No Extensions.** The period of time within which the Expansion Option, the Nano-Terra Space Expansion Option or the Roberts Entity Expansion Option may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Expansion Option, the Nano-Terra Space Expansion Option or the Roberts Entity Expansion Option, as applicable.

39. **Right to Extend Term.** Tenant shall have the right to extend the Term of the Lease upon the following terms and conditions:

(a) **Extension Rights.** Tenant shall have 1 right (the **"Extension Right")** to extend the term of this Lease for 3 years (the **"Extension Term")** on the same terms and conditions as this Lease (other than Base Rent) by giving Landlord written notice of its election to exercise the Extension Right no later than the date which is 9 months prior to the expiration of the Base Term of the Lease. Base Rent during the first year of the Extension Term shall be the greater of (i) 95% of the then-current **"Market Rent",** which shall be defined as the fair market rental value for space in Watertown of comparable age, quality, level of finish, and proximity to amenities and public transit, and (ii) the annualized Base Rent during the final month of the Base Term, but in either case shall in no event be less than the Base Rent payable as of the date immediately preceding the commencement of the Extension Term. Thereafter, Base Rent shall increase by 3.5% on each annual anniversary of the commencement of such Extension Term by multiplying the Base Rent payable immediately before such adjustment by 3.5% and adding the resulting amount to the Base Rent payable immediately before such adjustment. In addition, Landlord may impose a market rent for the parking rights provided hereunder. Within 10 days of Tenant's notice to Landlord of its election to arbitrate Market Rate and escalations, each party shall deliver to the other a proposal containing the Market Rate and escalations that the submitting party believes to be correct **("Extension Proposal").** If either party fails to timely submit an Extension Proposal, the other party's submitted proposal shall determine the Base Rent and escalations for the Extension Term. If both parties submit Extension Proposals, then Landlord and Tenant shall proceed to arbitrate as provided in Section 40 hereof.

Provided Tenant provides Landlord with timely notice of Tenant's election to exercise the Extension Right, then, no later than the date which is 15 days after the date which is 9 months prior to the expiration of the Base Term of the Lease, Landlord shall give Tenant written notice of Landlord's determination of the Market Rent and the rent escalations for the Extension Term. Tenant may, at any time after Tenant's receipt of Landlord's determination, elect arbitration as described in Section 40 below by written notice to Landlord. If Tenant does not elect such arbitration on or before the date which is 120 days prior to the expiration of the Base Term of this Lease, Tenant shall be deemed to have waived the Extension Right and the Term of the Lease shall terminate upon the expiration date thereof.

(b) **Nano-Terra Extension Right.** Pursuant to the provision of the Nano-Terra Lease entitled "Right to Extend Term" (the **"Nano-Terra Extension Option Provision"),** Nano-Terra has the right to extend the term of the Nano-Terra Lease, as more particularly described in the Nano-Terra Extension Option Provision (the **"Nano-Terra Extension Right").** For so long as Nano-Terra is an affiliate of Tenant hereunder, Tenant shall have the right to exercise the Nano-Terra Extension Right, subject to Nano-Terra's prior right to exercise such extension right, and upon such exercise as provided herein, to occupy the Nano-Terra Premises during the Extension Term (as defined in the Nano-Terra Lease) under all of the terms and provisions hereof, provided however, that the Base Rent, Commencement Date, expiration date and Expansion Tl Allowance shall be as set forth in the Nano- Terra Lease, as more particularly set forth in Section 38(e) hereof. Such Nano-Terra Extension Right shall only be exercisable by Tenant hereunder by giving Landlord written notice of its election to exercise the Nano-Terra Extension Right not less than 15 days after the date which is 9 months prior to the expiration of the Base Term of the Nano-Terra Lease, and Tenant's exercise thereof shall otherwise be under and subject to all of the terms and conditions of this Section 39. In order to exercise the Nano-Terra Extension Right, Tenant must provide Landlord with a written waiver by Nano-Terra of its extension rights as provided in the Nano-Terra Extension Option Provision.

(c) **Roberts Entity Extension Rights.** Provided that Carmichael Roberts is still at that time a board member or officer of Tenant hereunder (i.e., WMR Biomedical, Inc.), Tenant shall have the right, prior to exercising the Nano-Terra Space Extension Option as described in Section 39(b) above, to notify Landlord, in writing, that Tenant has elected to permit a Roberts Entity to exercise the Nano-Terra Space Extension Option in Tenant's stead (the **"Roberts Entity Extension Option").** Any such exercise of the Roberts Entity Extension Option by a Roberts Entity shall be under and subject to the prior rights of Nano-Terra and Tenant hereunder in the Nano-Terra Extension Option. In addition, Landlord shall have the right to approve any such Roberts Entity as a tenant of the Project in accordance with Landlord's rights of approval with respect to Permitted Assignments as more particularly described in Section 21 (d)(ii) hereof. The Roberts Entity Extension Option shall expire automatically without the necessity of any further notice or action by either party hereto if not exercised by Tenant as provided herein prior to the expiration of the Option Period set forth in the Nano-Terra Expansion Option Provision. In order to permit a Roberts Entity to exercise the Roberts Entity Extension Option, Tenant must provide Landlord with a written waiver by Nano-Terra of its extension rights as provided in the Nano-Terra Extension Option Provision. Upon the exercise of the Roberts Entity Extension Option, Landlord shall enter into a lease with such Roberts Entity, upon Landlord's standard terms and conditions, provided however, that the Base Rent, Commencement Date, expiration date and Expansion Tl Allowance shall be as set forth in the Nano-Terra Lease, as more particularly set forth in Section 38(e) hereof.

(d) **Rights Personal.** The Extension Right, the Nano-Terra Extension Right and the Roberts Entity Extension Right are personal to Tenant and are not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned in connection with any Permitted Assignment of this Lease.

(e) **Exceptions.** Notwithstanding anything set forth above to the contrary, neither the Extension Right, the Nano-Terra Extension Right nor the Roberts Entity Extension Right shall be in effect and Tenant may not exercise either the Extension Right, the Nano-Terra Extension Right or the Roberts Entity Extension Right:

(i) during any period of time that Tenant is in Default under any provision of this Lease; or

(ii) if Tenant has been in Default under any provision of this Lease 3 or more times, whether or not the Defaults are cured, during the 12 month period immediately prior to the date that Tenant intends to exercise the Extension Right, the Nano-Terra Extension Right or the Roberts Entity Extension Right, as applicable, whether or not the Defaults are cured.

(f) **No Extensions.** The period of time within which the Extension Right, the Nano-Terra Extension Right or the Roberts Entity Extension Right may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Extension Right, the Nano-Terra Extension Right or the Roberts Entity Extension Right, as applicable.

(g) **Termination.** The Extension Right, the Nano-Terra Extension Right and the Roberts Entity Extension Right shall terminate and be of no further force or effect even after Tenant's due and timely exercise of the Extension Right, the Nano-Terra Extension Right or the Roberts Entity Extension Right, as applicable, if, after such exercise, but prior to the commencement date of the Extension Term or the Nano-Terra Extension Term, as applicable, (i) Tenant fails to timely cure any default by Tenant under this Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of the Extension Right, the Nano-Terra Extension Right or the Roberts Entity Extension Right, as applicable, to the date of the commencement of the Extension Term or the Nano-Terra Extension Term, as applicable, whether or not such Defaults are cured.

40. **Arbitration.**

(a) Within 7 days after (i) the request of either party to arbitrate the issue of Delivery of the Premises, as provided in Section 2 hereof, or (ii) the delivery of the last Extension Proposal as provided in Section 39(a) hereof, the parties hereto shall meet and make a good faith attempt to mutually appoint a single Arbitrator (and defined below) to arbitrate such issue. If Landlord and Tenant are unable to agree upon a single Arbitrator, then each shall, by written notice delivered to the other within 10 days after the meeting, select an Arbitrator. If either party fails to timely give notice of its selection for an Arbitrator, the other party's determination of the date of Delivery or submitted Extension Proposal, as applicable, shall be determinative of the issue to be arbitrated. The 2 Arbitrators so appointed shall, within 5 business days after their appointment, appoint a third Arbitrator. If the 2 Arbitrators so selected cannot agree on the selection of the third Arbitrator within the time above specified, then either party, on behalf of both parties, may request such appointment of such third Arbitrator by application to any state court of general jurisdiction in the jurisdiction in which the Premises are located, upon 10 days prior written notice to the other party of such intent.

(b) The decision of the Arbitrator(s) shall be made within 30 days after the appointment of a single Arbitrator or the third Arbitrator, as applicable. The decision of the single Arbitrator shall be final and binding upon the parties. The average of the two closest Arbitrators in a three Arbitrator panel shall be final and binding upon the parties. Each party shall pay the fees and expenses of the Arbitrator appointed by or on behalf of such party and the fees and expenses of the third Arbitrator shall be borne equally by both parties. With respect to an arbitration of Market Rent, If the Market Rate and escalations are not determined by the first day of the Extension Term, then Tenant shall pay Landlord Base Rent in an amount equal to the Base Rent in effect immediately prior to the Extension Term and increased by the Rent Adjustment Percentage until such determination is made. After the determination of the Market Rate and escalations, the parties shall make any necessary adjustments to such payments made by Tenant. Landlord and Tenant shall then execute an amendment recognizing the Market Rate and escalations for the Extension Term. With respect to an arbitration of the date of Delivery, after determination of the date of Delivery, the parties shall execute and deliver the Acknowledgement of Commencement Date as provided in Section 2 hereof.

(c) An **"Arbitrator"** shall be any person appointed by or on behalf of either party or appointed pursuant to the provisions hereof and: (i) shall be (A) a member of the American Institute of Real Estate Appraisers with not less than 10 years of experience in the appraisal of improved office and high tech industrial real estate in the Watertown, Massachusetts market, or (B) a licensed commercial real estate broker with not less than 15 years experience representing landlords and/or tenants in the leasing of high tech or life sciences space in the Watertown, Massachusetts market, (ii) devoting substantially all of their time to professional appraisal or brokerage work, as applicable, at the time of appointment and (iii) be in all respects impartial and disinterested.

41. **Miscellaneous.**

(a) **Notices.** All notices or other communications between the parties shall be in writing and shall be deemed duly given upon delivery or refusal to accept delivery by the addressee thereof if delivered in person, or upon actual receipt if delivered by reputable overnight guaranty courier, addressed and sent to the parties at their addresses set forth above. Landlord and Tenant may from time to time by written notice to the other designate another address for receipt of future notices.

(b) **Joint and Several Liability.** If and when included within the term **"Tenant,"** as used in this instrument, there is more than one person or entity, each shall be jointly and severally liable for the obligations of Tenant.

(c) **Financial Information.** Tenant shall furnish to Landlord, upon Landlord's request (which requests shall be made not more than semi-annually, unless Tenant is in default hereunder, in which event such requests may be made quarterly), limited financial information or summaries demonstrating Tenant's solvency and financial strength. If Tenant shall become a publicly-traded company, Tenant's periodic filings with the Securities and Exchange Commission shall satisfy the requirements of this section.

(d) **Recordation.** Neither this Lease nor a memorandum of lease shall be filed by or on behalf of Tenant in any public record. Landlord may prepare and file, and upon request by Landlord Tenant will execute, a memorandum of lease.

(e) **Interpretation.** The normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Lease or any exhibits or amendments hereto. Words of any gender used in this Lease shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires. The captions inserted in this Lease are for convenience only and in no way define, limit or otherwise describe the scope or intent of this Lease, or any provision hereof, or in any way affect the interpretation of this Lease.

(f) **Not Binding Until Executed.** The submission by Landlord to Tenant of this Lease shall have no binding force or effect, shall not constitute an option for the leasing of the Premises, nor confer any right or impose any obligations upon either party until execution of this Lease by both parties.

(g) **Limitations on Interest.** It is expressly the intent of Landlord and Tenant at all times to comply with applicable law governing the maximum rate or amount of any interest payable on or in connection with this Lease. If applicable law is ever judicially interpreted so as to render usurious any interest called for under this Lease, or contracted for, charged, taken, reserved, or received with respect to this Lease, then it is Landlord's and Tenant's express intent that all excess amounts theretofore collected by Landlord be credited on the applicable obligation (or, if the obligation has been or would thereby be paid in full, refunded to Tenant), and the provisions of this Lease immediately shall be deemed reformed and the amounts thereafter collectible hereunder reduced, without the necessity of the execution of any new document, so as to comply with the applicable law, but so as to permit the recovery of the fullest amount otherwise called for hereunder.

(h) **Choice of Law.** Construction and interpretation of this Lease shall be governed by the internal laws of the state in which the Premises are located, excluding any principles of conflicts of laws.

(i) **Time.** Time is of the essence as to the performance of Tenant's obligations under this Lease.

(j) **Incorporation by Reference.** All exhibits and addenda attached hereto are hereby incorporated into this Lease and made a part hereof. If there is any conflict between such exhibits or addenda and the terms of this Lease, such exhibits or addenda shall control.

(k) **Hazardous Activities.** Notwithstanding any other provision of this Lease, Landlord, for itself and its employees, agents and contractors, reserves the right to refuse to perform any repairs or services in any portion of the Premises which, pursuant to Tenant's routine safety guidelines, practices or custom or prudent industry practices, require any form of protective clothing or equipment other than safety glasses. In any such case, Tenant shall contract with parties who are acceptable to Landlord, in Landlord's reasonable discretion, for all such repairs and services, and Landlord shall, to the extent required, equitably adjust Tenant's Share of Operating Expenses in respect of such repairs or services to reflect that Landlord is not providing such repairs or services to Tenant.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease as of the day and year first above written.

TENANT:

WMR BIOMEDICAL, INC.,
a Delaware corporation

By: /s/ Carmichael Roberts
Carmichael Roberts, Chief Executive Officer

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

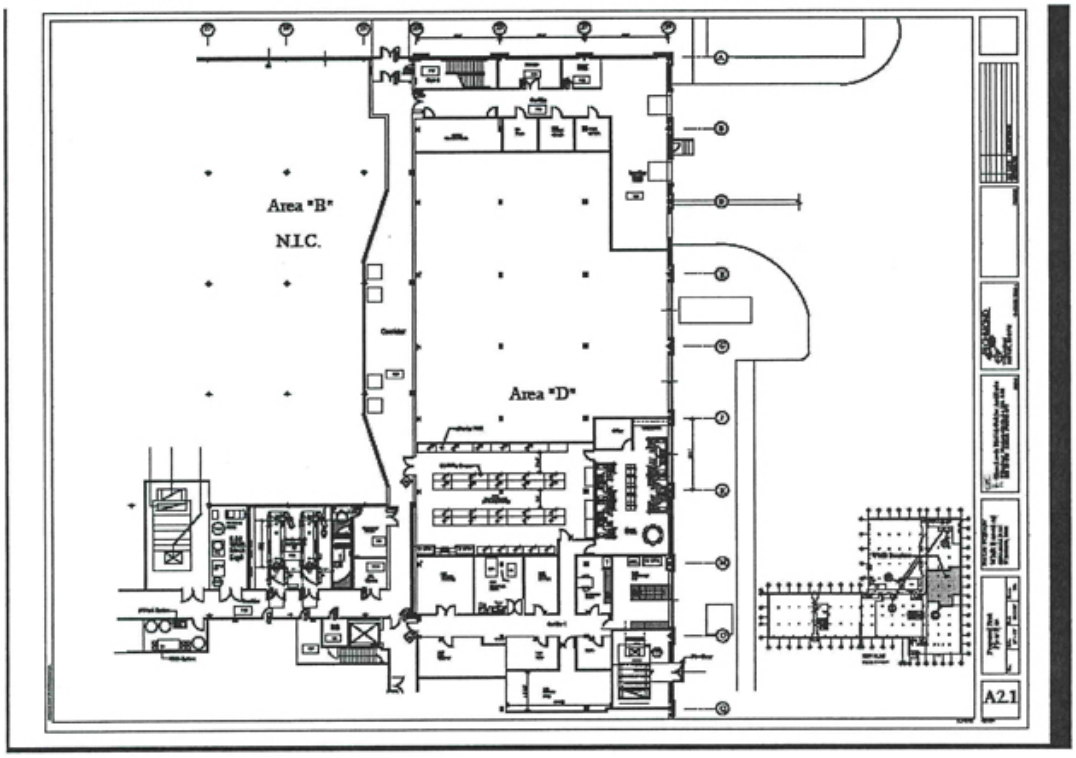
By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: /s/ Gary Dean
GARY DEAN
VP - RE LEGAL AFFAIRS

EXHIBIT A TO LEASE

DESCRIPTION OF PREMISES



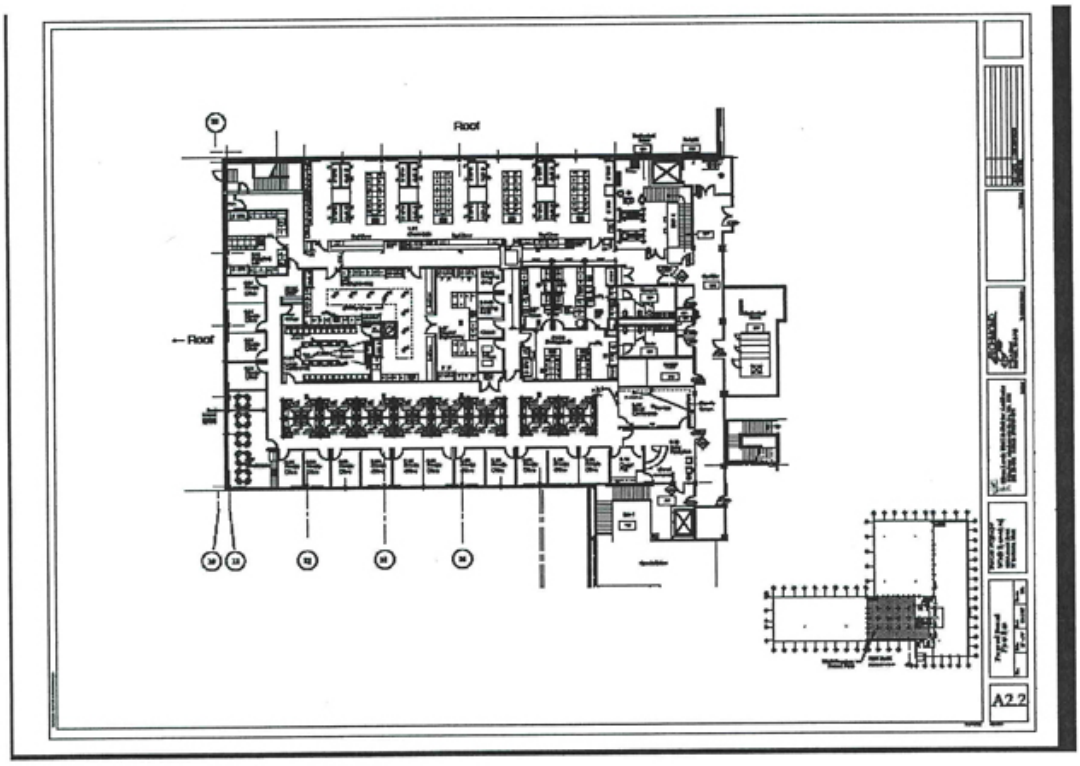


EXHIBIT B TO LEASE

DESCRIPTION OF PROJECT

Legal Description of 480 Arsenal Street

The Land in Watertown, Middlesex County, Massachusetts located on Arsenal Street, Cypress Street, Quimby Street and Laurel Street, consisting of the following:

Beginning at a point on the southerly sideline of Cypress Street in the Town of Watertown, Middlesex County, Massachusetts, said point being 224.16 feet west of the intersection of Cypress Street with Quimby Street and being the northeast corner of the herein described parcel;

Thence running along the southerly sideline of Cypress Street N 88’-36’-46” E, 224.16 feet to the easterly sideline of Quimby Street;

Thence turning and running by the easterly sideline of Quimby Street N 01’-20’-07” W, 210.02 feet to a point of the southerly sideline of Laurel Street;

Thence turning and running along a curve to the right of radius 20.00 feet and length 31.40 feet to a point;

Thence continuing along the southerly sideline of Laurel Street N 88’-35’-52” E, 508.35 feet to a point on the easterly sideline of Melendy Avenue;

Thence turning and running along the easterly sideline of Lot 2, S 03’-24’-45” W, 74.28 feet to a point;

Thence turning and running along a curve to the right of radius 371.63 feet and length 152.00 feet to a point;

Thence turning and running S 02’-02’-53” E, 270.00 feet to a point;

Thence turning and running by the Northerly line of Lot 4 S 71 ’-16-06” W, 258.22 feet to a point;

Thence turning and running S 77’-33’-41” W, 150.00 feet to a point;

Thence turning and running along a curve to the left of radius 63.85 feet and length 67.42 feet to a point;

Thence turning and running S 17’-03’-32” W, 33.54 feet to a point;

Thence turning and running along a curve to the right of radius 1947.63 feet and length 285.68 feet to a point, by land now or formerly of the Boston & Maine Railroad Company;

Thence turning and running N 01’-23’-14” W, 439.51 feet by land now or formerly of United Electric Controls to the point of beginning.

For title reference see the deed from AMB Property, L.P., a Delaware limited partnership, to ARE-480 Arsenal Street, LLC, a Delaware limited liability company, dated June 19, 2001 and recorded with the Middlesex South Registry of Deeds in Book 33088, Page 527.

EXHIBIT C TO LEASE

WORK LETTER

THIS WORK LETTER dated August 14, 2007 (this "**Work Letter**") is made and entered into by and between ARE-480 Arsenal Street, LLC, a Delaware limited liability company ("**Landlord**"), and WMR Biomedical, Inc., a Delaware corporation ("**Tenant**"), and is attached to and made a part of the Lease dated August 14, 2007 (the "**Lease**"), by and between Landlord and Tenant. Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

1. **General Requirements.**

(a) **Tenant's Authorized Representative.** Tenant designates Carmichael Roberts and PJ Anand (either such individual acting alone, "**Tenant's Representative**") as the only persons authorized to act for Tenant pursuant to this Work Letter. Landlord shall not be obligated to respond to or act upon any request, approval, inquiry or other communication ("**Communication**") from or on behalf of Tenant in connection with this Work Letter unless such Communication is in writing from Tenant's Representative. Tenant may change either Tenant's Representative at any time upon not less than 5 business days advance written notice to Landlord. Neither Tenant nor Tenant's Representative shall be authorized to direct Landlord's contractors in the performance of Landlord's Work (as hereinafter defined).

(b) **Landlord's Authorized Representative.** Landlord designates Tom Andrews and Stuart Berry (either such individual acting alone, "**Landlord's Representative**") as the only persons authorized to act for Landlord pursuant to this Work Letter. Tenant shall not be obligated to respond to or act upon any request, approval, inquiry or other Communication from or on behalf of Landlord in connection with this Work Letter unless such Communication is in writing from Landlord's Representative. Landlord may change either Landlord's Representative at any time upon not less than 5 business days advance written notice to Tenant. Landlord's Representative shall be the sole persons authorized to direct Landlord's contractors in the performance of Landlord's Work.

(c) **Architects, Consultants and Contractors.** Landlord and Tenant hereby acknowledge and agree that: (i) the general contractor for the construction of the Tenant Improvements shall be the Richmond Group, Inc. **("Construction Manager"),** (ii) any subcontractors for the Tenant Improvements shall be selected by Landlord, subject to Tenant's approval, which approval shall not be unreasonably withheld, conditioned or delayed, and (iii) Olson Lewis Dioli & Doktor Architects & Planners, Inc. shall be the architect (the "**TI Architect**") for the Tenant Improvements.

2. **Tenant Improvements.**

(a) **Tenant Improvements Defined.** As used herein, "**Tenant Improvements**" shall mean all improvements to the Project of a fixed and permanent nature as shown on the TI Construction Drawings, as defined in Section 2(b) below and the written requirements for materials, equipment, systems, standards and workmanship for the Tenant Improvements (collectively, the "**TI Specifications**"). The Tenant Improvements are described on the attached Schedule B, which includes both plans and preliminary TI Specifications (collectively, "**Preliminary TI Plans**"). Landlord and Tenant have each approved the Preliminary TI Plans. Other than Landlord's Work, Landlord shall not have any obligation whatsoever with respect to the finishing of the Premises for Tenant's use and occupancy. Based on the Preliminary TI Plans, the Construction Manager has prepared a budget showing an estimated cost of the Tenant Improvements of $3,750,304.40 (the "**TI Budget**").

(b) **TI Construction Drawings and TI Specifications.** Not later than 12 business days following the execution and delivery of the Lease, Landlord shall cause the TI Architect to prepare and deliver to Tenant for review and comment a set of plans and specifications for the Tenant Improvements in appropriate form for filing with Landlord's application for the TI Permit (as hereinafter defined). Promptly after Tenant's review and approval of such TI Permit plan set, Landlord shall cause the TI Architect to prepare and deliver to Tenant for review and comment the TI Specifications and

construction plans, specifications and drawings for the Tenant Improvements ("**TI Construction Drawings**"). Tenant shall be solely responsible for ensuring that the TI Construction Drawings and the TI Specifications reflect Tenant's requirements for the Tenant Improvements. Tenant shall deliver its written comments on the TI Construction Drawings and the TI Specifications to Landlord not later than 9 business days after Tenant's receipt of the same. If Tenant disapproves any matter in the TI Construction Drawings or the TI Specifications that is consistent with the Preliminary TI Plans, and any change arising from such disapproval results in an increase in the TI Cost above that calculated based on the Preliminary TI Plans, Tenant shall pay such increase as an Excess TI Cost (as defined in Section 5(b) hereof). Landlord and the TI Architect shall consider all such comments in good faith and shall, within 3 business days after receipt, notify Tenant how Landlord proposes to respond to such comments, but Tenant's review rights pursuant to the foregoing sentence shall not (a) delay the design or construction schedule, or (b) except pursuant to a Change Request, increase the cost of the Tenant Improvements to an amount greater than the TI Budget. Any disputes in connection with such comments shall be resolved in accordance with Section 2(c) hereof. Provided that the design reflected in the TI Construction Drawings and TI Specifications is consistent with the Preliminary TI Plans, Tenant shall approve the TI Construction Drawings and TI Specifications submitted by Landlord, unless Tenant submits a Change Request. Once approved by Tenant, subject to the provisions of Section 4 below, Landlord shall not materially modify the TI Construction Drawings or the TI Specifications except as may be reasonably required in connection with the issuance of the TI Permit (as defined in Section 3(b) below).

(c) **Approval and Completion.** Landlord and Tenant have each approved the Development Schedule attached hereto as Schedule A. Upon any dispute regarding the design of the Tenant Improvements, which is not settled within 10 business days after notice of such dispute is delivered by one party to the other, Tenant may make the final decision regarding the design of the Tenant Improvements, provided (i) Tenant acts reasonably and such final decision is either consistent with or a compromise between Landlord's and Tenant's positions with respect to such dispute, (ii) Tenant's decision will not increase the cost of the Tenant Improvements to an amount greater than the TI Budget, except pursuant to a Change Request, so long as the design reflected in the TI Construction Drawings and TI Specifications is consistent with the Preliminary TI Plans, and (iii) Tenant's decision will not affect the base Building, structural components of the Building, any Building systems or Landlord's Base Building Work. Any changes to the TI Construction Drawings or TI Specifications following Landlord's and Tenant's approval of same requested by Tenant shall be processed as provided in Section 4 hereof.

3. **Performance of Landlord's Work.**

(a) **Definition of Landlord's Work.** As used herein, "**Landlord's Work**" shall mean the work of constructing the Tenant Improvements and the completion of the items described on Schedule C and Schedule D hereto. The items described on Schedule C and Schedule D hereto are sometimes referred to herein as Landlord's Base Building Work.

(b) **Commencement and Permitting.** Landlord shall commence construction of the Tenant Improvements upon obtaining a building permit (the "**TI Permit**") authorizing the construction of the Tenant Improvements consistent with the TI Construction Drawings and TI Specifications approved by Tenant. The cost of obtaining the TI Permit shall be paid by Landlord as part of the cost of the Tenant Improvements. Tenant shall assist Landlord in obtaining the TI Permit. If any Governmental Authority having jurisdiction over the construction of Landlord's Work or any portion thereof shall impose terms or conditions upon the construction thereof that: (i) are inconsistent with Landlord's obligations hereunder, (ii) increase the cost of constructing Landlord's Work, or (iii) will materially delay the construction of Landlord's Work, Landlord and Tenant shall reasonably and in good faith seek means by which to mitigate or eliminate any such adverse terms and conditions.

(c) **Completion of Landlord's Work.** On or before the Target Commencement Date (subject to Tenant Delays and Force Majeure), Landlord shall substantially complete or cause to be substantially completed Landlord's Work in a good and workmanlike manner, in accordance with the TI Permit subject, in each case, to Minor Variations and normal "punch list" items of a non-material nature

that do not interfere with the use of the Premises, and obtain either a certificate of occupancy for the Premises from the City of Watertown Building Department, or authorization from the City of Watertown Building Inspector for the occupancy of the Premises for the Permitted Use, with the certificate of occupancy to follow in due course ("**Substantial Completion**" or "**Substantially Complete**"). Upon Substantial Completion of Landlord's Work, Landlord shall require the TI Architect and the general contractor to execute and deliver, for the benefit of Tenant and Landlord, a Certificate of Substantial Completion in the form of the American Institute of Architects ("**AIA**") document G704. For purposes of this Work Letter, "**Minor Variations**" shall mean any modifications reasonably required: (i) to comply with all applicable Legal Requirements and/or to obtain or to comply with any required permit (including the TI Permit); (ii) to comply with any request by Tenant for modifications to the Tenant Improvements; (iii) to comport with good design, engineering, and construction practices that are not material; or (iv) to make reasonable adjustments for field deviations or conditions encountered during the construction of Landlord's Work.

(d) **Selection of Materials.** Where more than one type of material or structure is indicated on the TI Construction Drawings and TI Specifications approved by Landlord and Tenant, Landlord shall select the option (to the extent available at the time of such selection) which is superior to the other options in the professional opinion and sole discretion of the TI Architect. As to all building materials and equipment that Landlord is obligated to supply under this Work Letter in connection with Landlord's Base Building Work, Landlord shall select the manufacturer thereof in its sole and absolute subjective discretion.

(e) **Delivery of the Premises.** When Landlord's Work is Substantially Complete, subject to the remaining terms and provisions of this Section 3(e), Tenant shall accept the Premises. Tenant's acceptance of the Premises shall not constitute a waiver of: (i) any warranty with respect to workmanship (including installation of equipment) or material (exclusive of equipment provided directly by manufacturers), (ii) any non-compliance of Landlord's Work with applicable Legal Requirements, or (iii) any claim that the Tenant Improvements were not completed substantially in accordance with the TI Construction Drawings and TI Specifications (subject to Minor Variations and such other changes as are permitted hereunder) (collectively, a "**Construction Defect**"). Tenant shall have one year after Substantial Completion within which to notify Landlord of any such Construction Defect discovered by Tenant, and Landlord shall remedy or cause the responsible contractor to remedy any such Construction Defect within 30 days thereafter (or such additional time as may be reasonably necessary to permit Landlord to remedy or cause the responsible contractor to remedy such Construction Defect); provided, however, that Landlord's obligation to remedy or cause the responsible contractor to remedy such Construction Defect shall be Landlord's sole obligation hereunder and Tenant hereby waives any claim against Landlord for any injuries to persons or damage to the Premises or any personal property of Tenant or any employee of Tenant located in the Premises arising from any such Construction Defect. Tenant shall be entitled to receive the benefit of all construction warranties and manufacturer's equipment warranties relating to the construction of the Tenant Improvements and any equipment installed in the Premises. Landlord shall obtain a one year construction warranty from the Construction Manager. If requested by Tenant, Landlord shall attempt to obtain extended warranties from manufacturers and suppliers of such equipment, provided, however, that, if the cost of such extended warranties shall cause the cost of the Tenant Improvements to exceed the TI Budget, Landlord shall promptly so notify Tenant and Landlord shall not be required to obtain such extended warranties unless Tenant pays such excess cost. Landlord shall promptly undertake and complete, or cause to be completed, all punch list items.

(f) **Commencement Date Delay.** Except as otherwise provided in the Lease, Delivery of the Tenant Improvements shall occur when Landlord's Work has been Substantially Completed, except to the extent that completion of Landlord's Work shall have been actually delayed by any one or more of the following causes ("**Tenant Delay**"):

(i) Tenant's Representative was not available to give or receive any Communication or to take any other action required to be taken by Tenant hereunder;

(ii) Tenant's request for Change Requests (as defined in Section 4(a) below) whether or not any such Change Requests are actually performed;

(iii) Construction of any Change Requests;

(iv) Tenant's request for materials, finishes or installations requiring unusually long lead times;

(v) Tenant's delay in reviewing, revising or approving plans and specifications beyond the periods set forth herein;

(vi) Tenant's delay in providing information critical to the normal progression of the Project. Tenant shall provide such information as soon as reasonably possible, but in no event longer than one week after receipt of any request for such information from Landlord;

(vii) Tenant's delay in making payments to Landlord for Excess TI Costs (as defined in Section 5(b) below); or

(viii) Any other act or omission by Tenant or any Tenant Party (as defined in the Lease), or persons employed by any of such persons.

If Delivery is delayed for any of the foregoing reasons, then Landlord shall cause the TI Architect to certify the date on which Landlord's Work would have been completed but for such Tenant Delay and such certified date shall be the date of Delivery.

(g) **Insurance.** Landlord shall purchase and maintain or shall require the Construction Manager to purchase and maintain throughout the duration of Landlord's Work a builders' risk and property insurance policy, which shall insure against physical loss or damage to all property incorporated or to be incorporated into the Landlord's Work, and shall cover reasonable compensation for the Construction Manager's services and expenses required as a result of such insured loss. Landlord, or Construction Manager, as the case may be, shall pay all costs, including deductibles, as well as any self-insured aspects of such policy. Such insurance shall be in an amount equal to the value of the Landlord's Work, on a replacement-cost basis. Landlord agrees (and will include a similar requirement in its agreement with Construction Manager, if applicable) to cause its insurer for said policy to waive all of its rights, if any, of subrogation against Tenant.

Landlord shall purchase and maintain or shall require the Construction Manager to purchase and maintain throughout the duration of Landlord's Work primary general liability insurance written in a form providing coverage not less than a Commercial General Liability insurance policy with total limits of not less than $2,000,000 each occurrence

Landlord shall require the Construction Manager to provide, and require all subcontractors to provide, Workers' Compensation Insurance in Statutory Limits of the applicable Worker's Compensation law.

(h) **Casualty During Course of Landlord's Work.** If, at any time prior to Substantial Completion, any Tenant Improvements completed to date are damaged or destroyed by a fire or other insured casualty, Landlord shall notify Tenant within 30 days after discovery of such damage as to the amount of time, if any, that Landlord reasonably estimates that the Target Commencement Date will be extended as a result of such casualty. If Landlord estimates that the Target Commencement Date will be extended by more than 4 months as a result of such casualty, either Landlord or Tenant may, by written notice to the other within 10 days after the date of such estimate, elect to terminate the Lease, effective immediately. If neither Landlord nor Tenant elects to terminate as aforesaid (or if the estimated extension of the Target Commencement Date shall be for less than 4 months), the Target Commencement Date shall be deemed for all purposes under the Lease to be the date estimated by Landlord in such notice, and all other terms and conditions of the Lease shall remain in full force and effect. Notwithstanding the foregoing, if any such casualty shall occur prior to the Target Commencement Date, but after Tenant has (i) commenced occupying some or all of the Premises, or (ii) placed any

chemicals or other hazardous materials in the Premises in anticipation of occupying the same, this provision shall be of no effect and the provisions of Section 17 of the Lease shall govern.

4. **Changes.** Any changes requested by Tenant to the Tenant Improvements after the delivery and approval by Landlord of the TI Construction Drawings and TI Specifications shall be requested and instituted in accordance with the provisions of this Section 4 and shall be subject to the written approval of Landlord and the TI Architect, such approval not to be unreasonably withheld, conditioned or delayed.

(a) **Tenant's Request For Changes.** If Tenant shall request changes to the Tenant Improvements ("**Changes"**), Tenant shall request such Changes by notifying Landlord in writing in substantially the same form as the AIA standard change order form (a "**Change Request**"), which Change Request shall detail the nature and extent of any such Change. Such Change Request must be signed by Tenant's Representative. Landlord shall, before proceeding with any Change, use commercially reasonable efforts to respond to Tenant as soon as is reasonably possible with an estimate of: (i) the time it will take, and (ii) the architectural and engineering fees and costs that will be incurred, to analyze such Change Request (which costs shall be paid from the Excess TI Fund [as defined in Section 5(b) hereof] to the extent actually incurred, whether or not such change is implemented), and (iii) the cost or savings that will be incurred to construct such Change (which costs shall be paid from or credited to the Excess TI Fund). Landlord shall thereafter submit to Tenant in writing, within 5 business days of receipt of the Change Request (or such longer period of time as is reasonably required depending on the extent of the Change Request), an analysis of the additional cost or savings involved, including, without limitation, architectural and engineering costs and the period of time, if any, that the Change will extend the date on which Landlord's Work will be Substantially Complete. Any such delay in the completion of Landlord's Work caused by a Change, including any suspension of Landlord's Work while any such Change is being evaluated and/or designed, shall be a Tenant Delay.

(b) **Implementation of Changes.** If Tenant approves in writing the cost or savings and the estimated extension in the time for completion of Landlord's Work, if any, Landlord shall cause the approved Change to be instituted. Notwithstanding any approval or disapproval by Tenant of any estimate of the delay caused by such proposed Change, the TI Architect's determination of the amount of Tenant Delay in connection with such Change shall be final and binding on Landlord and Tenant.

(c) **Landlord-caused Changes.** Any material change to the Tenant Improvements which (i) was not requested by Tenant, (ii) does not arise as a result of any prior Change or Change Request by Tenant, and (iii) does not arise as a result of Force Majeure, shall be deemed a "**Landlord-caused Change**". Landlord cannot institute or approve a Landlord-caused Change without Tenant's approval, which approval shall not be unreasonably withheld, conditioned or delayed. Tenant shall be deemed to have approved any Landlord-caused Change if Tenant fails to deliver any objections, in writing, to Landlord within 3 business days after Tenant's receipt from Landlord of a reasonably detailed description of such proposed Landlord-caused Change. If a Landlord-caused Change has been approved by the Tenant, it shall be instituted in accordance with the provisions of this Section 4 and, to the extent the same shall materially, adversely affect Tenant's access to the Premises, the location or availability of utility lines within the Premises, or the physical layout of the Tenant Improvements, shall be subject to the written approval of the TI Architect. Any delay in the completion of Landlord's Work caused by a Landlord-caused Change, including any suspension of Landlord's Work while any such Landlord-caused Change is being evaluated and/or designed, shall be a "**Landlord Delay**". Landlord shall be responsible for any increase in cost due to a Landlord-caused Change.

5. **Costs.**

(a) **TI Costs.** "**TI Costs**" shall include all costs incurred in connection with the design and construction of the Tenant Improvements, including, without limitation, (i) the cost of preparing the Preliminary TI Plans, the TI Construction Drawings and TI Specifications and any additional required plans or drawings, and (ii) all construction costs and equipment and installation costs. Landlord shall pay for the TI Costs, subject to the provisions of Section 5(b) hereof.

(b) **Excess TI Costs.** "**Excess TI Costs**" shall include (a) all costs incurred in connection with the design and construction of Changes, net of any savings achieved on account of any Change(s); provided, however, that Landlord-caused Changes shall not be included in Excess TI Costs but shall be paid by Landlord as set forth in Section 4(b), and (b) Landlord's out-of-pocket expenses resulting from Tenant Delays. Prior to the Commencement Date, Tenant shall pay to Landlord an amount adequate to cover 100% of the Excess TI Costs (such amount, the "**Excess TI Fund**"). If Tenant fails to deposit, or is late in depositing, the Excess TI Fund with Landlord, Landlord shall have all of the rights and remedies set forth in the Lease for nonpayment of Rent (including, but not limited to, the right to interest at the Default Rate and the right to assess a late charge), and for purposes of any litigation instituted with regard to such amounts the same will be considered Rent.

(c) **Disbursements and Base Rent Adjustment.** Landlord shall pay the TI Costs incurred during the design and construction of the Tenant Improvements and, to the extent Tenant has funded the Excess TI Costs as provided in Section 5(b) hereof, Landlord shall pay the cost of Changes. Notwithstanding anything to the contrary set forth in this Section 5(c), Tenant shall be fully and solely liable for the Excess TI Costs. Landlord shall provide for at least 5% retainage to be held from the Construction Manager and the construction subcontractors until the time of final completion (i.e., the completion of punchlist items), and shall obtain final lien waivers from the Construction Manager and the construction subcontractors upon issuance of final payments thereto. If upon completion of the Tenant Improvements and any Changes and the payment of all sums due in connection therewith there remain any undisbursed funds in the Excess TI Fund, Landlord shall return to Tenant such undisbursed Excess TI Fund solely to the extent of any Excess TI Costs deposit Tenant has actually made with Landlord. Tenant shall be entitled to review, at Landlord's office, all records maintained by or under the control of Landlord regarding the determination of TI Costs and Excess TI Costs. Within 60 days after delivery of the Premises to Tenant, Landlord shall furnish to Tenant an itemized Statement of TI Costs, showing in reasonable detail the total actual cost of the Tenant Improvements including all approved Changes. If the TI Budget is greater than the TI Costs, the Landlord shall within 30 days after delivery of such Statement of TI Costs pass on such cost savings to the Tenant by adjusting (retroactive to the Commencement Date) the Base Rent of the Lease as follows: for each $1.00 per rentable square foot that the TI Budget is greater than the TI Costs, the Base Rent in the Lease shall be reduced $.10 per rentable square foot per year during the Base Term. For example, if the TI Budget is $6.00 per rentable square foot greater than the TI Costs, Base Rent shall be reduced by $.60 per rentable square foot per year during each year of the Base Term. If such Base Rent adjustment is required, the parties shall execute a Lease amendment memorializing such adjustment and setting forth a revised Expansion TI Allowance equal to the actual TI Costs per rentable square foot of the Premises.

6. **Tenant Access.**

(a) **Tenant's Access Rights.** Landlord hereby agrees to permit Tenant access, at Tenant's sole risk and expense, to the portions of the Premises in which Landlord's Work is being constructed prior to completion of Landlord's Work to perform any work ("**Tenant's Work**") required by Tenant other than Landlord's Work, provided that such Tenant's Work is coordinated with the TI Architect and the general contractor, and complies with the Lease and all other reasonable restrictions and conditions Landlord may impose, and (ii) prior to the completion of Landlord's Work, to inspect and observe work in process; all such access shall be during normal business hours or at such other times as are reasonably designated by Landlord. Notwithstanding the foregoing, Tenant shall have no right to enter onto the Premises or the Project unless and until Tenant shall deliver to Landlord evidence reasonably satisfactory to Landlord demonstrating that any insurance reasonably required by Landlord in connection with such pre-commencement access (including, but not limited to, any insurance that Landlord may require pursuant to the Lease) is in full force and effect. Any entry by Tenant shall comply with all established safety practices of Landlord's contractor and Landlord until completion of Landlord's Work and acceptance thereof by Tenant.

(b) **No Interference.** Neither Tenant nor any Tenant Party (as defined in the Lease) shall interfere with the performance of Landlord's Work, nor with any inspections or issuance of final approvals by applicable Governmental Authorities, and upon any such interference, Landlord shall have

the right to exclude Tenant and any Tenant Party from the portion of the Premises in which the Tenant Improvements are being constructed until Substantial Completion of Landlord's Work.

(c) **No Acceptance of Premises.** The fact that Tenant has entered into the Premises prior to the date Landlord's Work is Substantially Complete for the purpose of performing Tenant's Work therein shall not be deemed an acceptance by Tenant of possession of the Premises, but in such event Tenant shall defend with counsel reasonably acceptable by Landlord, indemnify and hold Landlord harmless from and against any loss of or damage to Tenant's property, completed work, fixtures, equipment, materials or merchandise, and from liability for death of, or injury to, any person, caused by the act or omission of Tenant or any Tenant Party.

7. **Miscellaneous.**

(a) **Consents.** Whenever consent or approval of either party is required under this Work Letter, that party shall not unreasonably withhold, condition or delay such consent or approval, unless expressly set forth herein to the contrary.

(b) **Modification.** No modification, waiver or amendment of this Work Letter or of any of its conditions or provisions shall be binding upon Landlord or Tenant unless in writing signed by Landlord and Tenant.

(c) **Counterparts.** This Work Letter may be executed in any number of counterparts but all counterparts taken together shall constitute a single document.

(d) **Governing Law.** This Work Letter shall be governed by, construed and enforced in accordance with the internal laws of the state in which the Premises are located, without regard to choice of law principles of such State.

(e) **Time of the Essence.** Time is of the essence of this Work Letter and of each and all provisions thereof.

(f) **Default.** Notwithstanding anything set forth herein or in the Lease to the contrary, Landlord shall not have any obligation to perform any work hereunder or to fund any portion of the TI Costs during any period Tenant is in Default under the Lease.

(g) **Severability.** If any term or provision of this Work Letter is declared invalid or unenforceable, the remainder of this Work Letter shall not be affected by such determination and shall continue to be valid and enforceable.

(h) **Merger.** All understandings and agreements, oral or written, heretofore made between the parties hereto and relating to Landlord's Work and Tenant's Work are merged in this Work Letter, which alone (but inclusive of provisions of the Lease incorporated herein and the final approved TI Constructions Drawings and TI Specifications prepared pursuant hereto) fully and completely expresses the agreement between Landlord and Tenant with regard to the matters set forth in this Work Letter.

(i) **Entire Agreement.** This Work Letter is made as a part of and pursuant to the Lease and, together with the Lease, constitutes the entire agreement of the parties with respect to the subject matter hereof. This Work Letter is subject to all of the terms and limitation set forth in the Lease, and neither party shall have any rights or remedies under this Work Letter separate and apart from their respective remedies pursuant to the Lease.

SCHEDULE A TO WORK LETTER

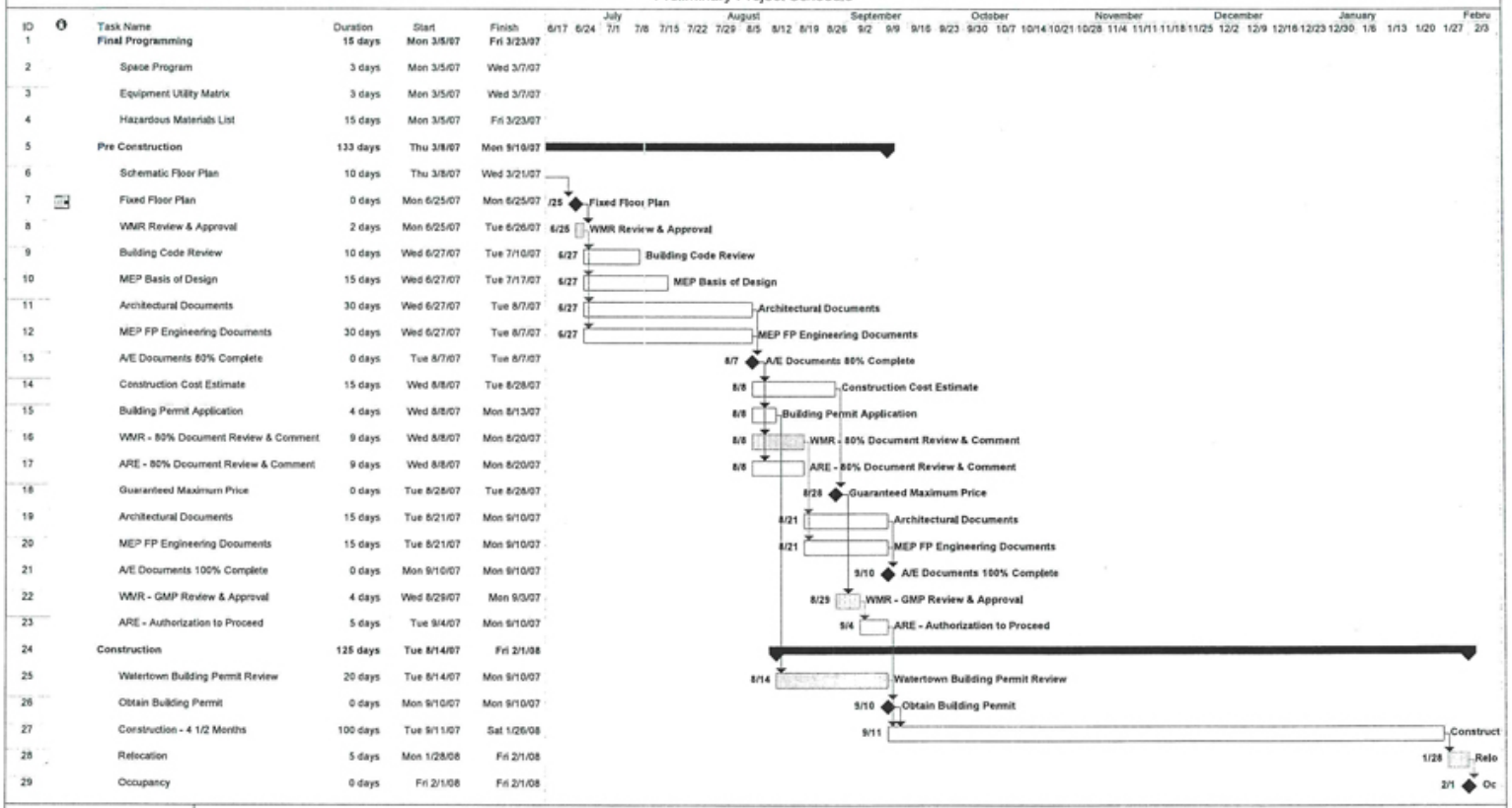
Development Schedule

See attached

Alexandria Real Estate

WMR BioMedical
480 Arsenal St, Watertown, MA
Preliminary Project Schedule

The Richmond Group
Thu 7/12/07



ID	Task Name	Duration	Start	Finish
1	**Final Programming**	**15 days**	**Mon 3/5/07**	**Fri 3/23/07**
2	Space Program	3 days	Mon 3/5/07	Wed 3/7/07
3	Equipment Utility Matrix	3 days	Mon 3/5/07	Wed 3/7/07
4	Hazardous Materials List	15 days	Mon 3/5/07	Fri 3/23/07
5	**Pre Construction**	**133 days**	**Thu 3/8/07**	**Mon 9/10/07**
6	Schematic Floor Plan	10 days	Thu 3/8/07	Wed 3/21/07
7	Fixed Floor Plan	0 days	Mon 6/25/07	Mon 6/25/07
8	WMR Review & Approval	2 days	Mon 6/25/07	Tue 6/26/07
9	Building Code Review	10 days	Wed 6/27/07	Tue 7/10/07
10	MEP Basis of Design	15 days	Wed 6/27/07	Tue 7/17/07
11	Architectural Documents	30 days	Wed 6/27/07	Tue 8/7/07
12	MEP FP Engineering Documents	30 days	Wed 6/27/07	Tue 8/7/07
13	A/E Documents 80% Complete	0 days	Tue 8/7/07	Tue 8/7/07
14	Construction Cost Estimate	15 days	Wed 8/8/07	Tue 8/28/07
15	Building Permit Application	4 days	Wed 8/8/07	Mon 8/13/07
16	WMR - 80% Document Review & Comment	9 days	Wed 8/8/07	Mon 8/20/07
17	ARE - 80% Document Review & Comment	9 days	Wed 8/8/07	Mon 8/20/07
18	Guaranteed Maximum Price	0 days	Tue 8/28/07	Tue 8/28/07
19	Architectural Documents	15 days	Tue 8/21/07	Mon 9/10/07
20	MEP FP Engineering Documents	15 days	Tue 8/21/07	Mon 9/10/07
21	A/E Documents 100% Complete	0 days	Mon 9/10/07	Mon 9/10/07
22	WMR - GMP Review & Approval	4 days	Wed 8/29/07	Mon 9/3/07
23	ARE - Authorization to Proceed	5 days	Tue 9/4/07	Mon 9/10/07
24	**Construction**	**125 days**	**Tue 8/14/07**	**Fri 2/1/08**
25	Watertown Building Permit Review	20 days	Tue 8/14/07	Mon 9/10/07
26	Obtain Building Permit	0 days	Mon 9/10/07	Mon 9/10/07
27	Construction - 4 1/2 Months	100 days	Tue 9/11/07	Sat 1/26/08
28	Relocation	5 days	Mon 1/28/08	Fri 2/1/08
29	Occupancy	0 days	Fri 2/1/08	Fri 2/1/08

Project: \\trg-01\monster\Public Folder
Date: Thu 7/12/07

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

SCHEDULE B TO WORK LETTER

Tenant Improvements

See attached

B-1. Budget Estimate

B-2. Proposed First Floor Plan A2.1

B-3. Proposed Second Floor Plan A2.2

B-4. Basis of Design

B-5. Finish Schedule

B-6. Equipment Utility Matrix.

Schedule B-1

Budget Estimate

REV 7.23.07 REV 7/18/2007
REV 7/12/2007
REV 7/10/07
Estimate Date 7/6/2007
AREA = 27,311 RSF

WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
EXCAVATION WORK & CUTTING SLABS				
CORING FLOOR SLABS	1 LS	3,000	3,000	
CUT IN NEW FLOOR OPENING	1 LS	2,200	2,200	
TRENCHING	110 LF	22	2,420	
				$ 7,620
CONCRETE				
CONCRETE PIT FOR LIFT STATION	1 LS	7,500	7,500	
MECHANICAL ROOM HOUSEKEEPING PADS	3 EA	1,200	3,600	
				$ 11,100
STRUCTURAL METALS & MISC. IRON				
ANGLE OPENINGS AT EXHAUST FANS THRU ROOF	5 EA	600	3,000	
OPENING FRAMING FOR FRESH AIR FROM 1ST FLR TO 2ND FLR OFFICI	1 LS	1,500	1,500	
LIFT STATION PIT ANGLES & GRATE	1 LS	1,750	1,750	
MISCELLANEOUS IRON	1 LS	7,500	7,500	
				$ 13,750
CARPENTRY / MILLWORK				
SECOND FLOOR OFFICE AND LABS				
COPY AND PRINTER P-LAM COUNTERS	18 LF	100	1,800	
RECEPTIONIST COUNTER & ATTACHED CASEWORK	1 ALW	7,500	7,500	
UNDERCOUNTER CABINETS	18 LF	225	4,050	
COFFEE COUNTER & UPPER & LOWER CABINETRY	9 LF	475	4,275	
P-LAM SHELVING (MISC 2 ROWS ON STANDARDS)	18 LF	45	810	
P-LAM SILL AT WINDOWS	230 LF	20	4,600	
STORAGE SHELVING			NONE	
CONFERENCE ROOM BOOK SHELVING	1 ALW	3,000	3,000	
FIRST FLOOR LABS, NMR, MACH. SHOP, GLASSWASH & SHIP/RECEIVE				
COPY CENTER AND PRINTER P-LAM COUNTERS	11 LF	100	1,100	
P-LAM SHELVING (MISC 2 ROWS ON STANDARDS)	11 LF	45	495	
CARPENTRY LABOR & INSTALLATIONS	35 MD	640	22,400	
CARPENTRY / MILLWORK MATERIALS	1 LS	5,000	5,000	
				$ 55,030

WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
THERMAL & MOISTURE PROTECTION				
FURNISH AND INSTALL PLATFORM CURBS FOR EXHAUST FANS	5 EA	750	3,750	
FLASH EXHAUST FAN DUCT PENETRATION	5 EA	500	2,500	
CUT IN NEW OPENING FOR AIR HANDLING UNIT INTAKE AIR	1 EA	1,500	1,500	
FLASHING FOR INTAKE AIR VENT	1 LS	850	850	
PITCH POCKETS FOR ELECTRICAL	10 EA	250	2,500	
FLASHING FOR PLUMBING VENTS THRU ROOF	6 EA	250	1,500	
CUT IN NEW OPENINGS FOR FANS	5 EA	750	3,750	
CUT IN NEW DOOR OPENING @ FIRST FLOOR MECH ROOM	1 LS	1,850	1,850	
WATERPROOF EJECTOR PIT	1 LS	1,200	1,200	
SEALANTS & CAULKING	1 LS	2,500	2,500	
				$21,900
DOORS, FRAMES & HARDWARE				
SECOND FLOOR LABS AND OFFICE				
SINGLE MAPLE DOORS W/ FRAME	29 EA	525	15,225	
PAIR MAPLE DOORS (3’-0”+1’-0” x 7’-0”) W/ FRAME	7 PR	925	6,475	
WOOD DOOR W/ FULL GL LITE & SIDELIGHT @ ENTR. W/ FRAME	1 EA	1,950	1,950	
PR 3’-0” x 7’-0” MAPLE DOORS W/ FRAMES	1 PR	975	975	
3’-0” x 7’-0” MAPLE DOOR W/ FULL GLASS LITE	1 EA	1,225	1,225	
DOOR BORROWED LITE FRAMING	20 EA	135	2,700	
DOUBLE DOOR HARDWARE	8 EA	525	4,200	
SINGLE DOOR HARDWARE	31 EA	385	11,935	
CLOSERS	14 EA	135	1,890	
INSTALL SGL DOOR, FRAME, & HARDWARE	31 EA	250	7,750	
INSTALL PRD DOOR, FRAME, & HARDWARE	8 PR	340	2,720	
REMOVE & RELOCATE EXISTING DOUBLE DOOR	1 EA	450	450	
DOOR BLOCKING	40 EA	75	3,000	
FIRST FLOOR LABS, NMR, MACH. SHOP, GLASSWASH & SHIP/RECEIVE				
PR SEAMLESS DOUBLE SWING METAL DOORS W/ FRAME	1 PR	1,150	1,150	
PAIR 3’-0” x 7’-0” EXTERIOR METAL DOORS W/ FRAME	1 PR	1,250	1,250	
PR 3’-0” & 1’-0” x 7’-0” RATED METAL DOORS W/ FRAME	3 PR	1,080	3,240	
PR 3’-0” x 7’-0” MAPLE DOORS W/ FRAME	3 PR	975	2,925	
3’-0” x 7’-0” MAPLE DOORS W/ FRAME	4 EA	525	2,100	
PR 3’-0” & 1’-0” x 7’-0” MAPLE DOORS W/ FRAME	6 PR	950	5,700	
DOUBLE DOOR HARDWARE	14 EA	525	7,350	
SINGLE DOOR HARDWARE	4 EA	385	1,540	
CLOSERS	12 EA	135	1,620	
INSTALL SGL DOOR, FRAME, & HARDWARE	4 EA	250	1,000	
INSTALL PRD DOOR, FRAME, & HARDWARE	14 PR	340	4,760	
ACCESS PANELS	2 EA	225	450	
MISC. DOOR HARDWARE, SS KICKS, ETC	1 LS	3,400	3,400	
DOOR BLOCKING	18 EA	75	1,350	
				$98,330

WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
GLASS AND GLAZING				
REMOVE AND REPL 2ND FLR WINDOW FOR MAT. ACCESS	1 EA	1,000	1,000	
GLAZING SIDELIGHT FRAMES	14 SF	23	322	
4’ x 4’ GLAZED LAB WINDOWS IN PRESSED METAL FRAMES	14 EA	700	9,800	
BUTT GLAZED WINDOWS TO 7’-0” HIGH	525 SF	35	18,375	
SAND BLASTED BUTT GLAZING GLASS	126 SF	44	5,544	
GLAZING BORROWED LITES	38 EA	125	4,750	
				$ 39,791
GYPSUM WALLBOARD				
SECOND FLOOR LABS AND OFFICE				
F / H WALLS, 3 5/8 STUD W/ 5/8 EA SIDE TO DECK	9,618 SF	8.25	79,349	
10’-0” HIGH WALLS W/ 3 5/8 STUD & 5/8” GYP BD EA SIDE - LABS	5,700 SF	7.75	44,175	
DRYWALL @ PERIMETER WALL	6,192 SF	2.25	13,932	
SOUND INSULATION	13,500 SF	0.55	7,425	
BOX OUT COLUMNS @ 1ST & 2ND FLOOR	36 EA	400	14,400	
SET DOOR FRAMES	39 EA	75	2,925	
FIRST FLOOR LABS, NMR, MACH. SHOP, GLASSWASH & SHIP/RECEIVE				
F / H WALLS, 3 5/8 STUD W/ 5/8 EA SIDE TO DECK	8,778 SF	8.25	72,419	
10’-0” HIGH WALLS W/ 3 5/8 STUD & 5/8” GYP BD EA SIDE	970 SF	7.75	7,518	
2” MET STUD & DRYWALL ONE SIDE @ INT. MASONRY WALL	400 SF	5.00	2,000	
DRYWALL @ PERIMETER WALL	400 SF	2.25	900	
PREMIUM FOR 2 HR RATING @ CHEM/SOLVENT STORAGE WALLS	1,160 SF	3.00	3,480	
DRYWALL CEILING W/ SUSPENSION GRID (2 HR RATING)	338 SF	9.75	3,296	
SOUND INSULATION	9,700 SF	0.55	5,335	
SET DOOR FRAMES	18 EA	75	1,350	
WOOD & METAL WALL BLOCKING	1 LS	4,800	4,800	
OPEN EXISTING VERTICAL SHAFTS AND REPATCH	1 LS	2,500	2,500	
ADD TWO CLOSETS AND COAT NICHES	1 LS	5,000	5,000	
				$270,802
SUSPENDED CEILINGS				
SECOND FLOOR LABS AND OFFICE				
2 x 4 SECOND LOOK TILE W/ STANDARD GRID @ OFFICE & SUPPORT	8,108 SF	2.90	23,513	
2 x 4 MYLAR HUMI GUARD PLUS W/ STANDARD GRID @ LABS	6,034 SF	3.85	23,231	
FIRST FLOOR LABS, NMR, MACH. SHOP, GLASSWASH & SHIP/RECEIVE				
2 x 4 MYLAR HUMI GUARD PLUS W/ ALUM GRID @ GLASSWASH	304 SF	7.00	2,128	
2 x 4 MYLAR HUMI GUARD PLUS W/ STANDARD GRID @ MICROSCOPY	432 SF	3.85	1,663	
2 x 4 SECOND LOOK TILE W/ STANDARD GRID	5,226 SF	2.90	15,155	
				$ 65,691

REV 7.23.07 REV 7/18/2007
REV 7/12/2007
REV 7/10/07
Estimate Date 7/6/2007
AREA = 27,311 RSF

WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
FLOOR COVERING & BASE				
SECOND FLOOR LABS AND OFFICE				
CARPET - ALW $30 / SY W/ INST)	790 SY	30.00	23,700	
VCT	7,154 SF	2.70	19,316	
RESILIENT WALL BASE	3,395 LF	2.20	7,469	
SHEET VINYL FLOORING W/ FLASHED BASE	640 SF	9.50	6,080	
FIRST FLOOR LABS, NMR, MACH. SHOP, GLASSWASH & SHIP/RECEIVE VCT	4,626 SF	2.70	12,490	
RESILIENT WALL BASE	1,621 LF	2.20	3,566	
CARPET - ALW $30 / SY W/ INST)	130 SY	30.00	3,900	
TROWELED EPOXY FLOOR W/ FLASHED BASE	642 SF	9.75	6,260	
FLOOR PREP SILPRO / MASCO	75 UNITS	89.00	6,675	
FLOOR PREP (ARDEX - FEATHER FINISH)	50 BAGS	78	3,900	
				$93,356
PAINTING				
EPOXY PAINT WALLS (PREMIUM)	7,300 SF	0.40	2,920	
EPOXY PAINT CEILINGS	842 SF	1.15	968	
PAINT DRYWALL PARTITIONS	39,900 SF	0.75	29,925	
PAINT COL ENCLOSURES	39 EA	100	3,900	
FINISH SGL DOORS & PAINT FRAME	74 EA	85	6,290	
ADDED PAINTING FOR 1ST FLOOR EXPANSION & ADDED LAB	1 LS	4,000	4,000	
MISC PAINTING, EXPOSED, PIPING, CONDUIT, OTHER SPACES, ETC.	1 LS	900	900	
				$48,903
SPECIALTIES				
WINDOW BLINDS @ 2ND FLOOR	1,442 SF	4.50	6,489	
WORKSTATIONS (CARRELS) & CUBICLES W/ COUNTERS & SHELVES			BY WMR	
CEILING MOUNTED PROJECTOR & PROJECTOR SUPPORT	1 ALW	—	07.10.07	
WHITEBOARDS			BY WMR	
8’-0” ELEC OPERATED PROJECTOR SCREEN - CEILING RECESSED	2 EA	1,500	3,000	
DOUBLE HEIGHT LOCKERS			NONE	
FRP PANEL AT GLASSWASH SINK	1 LS	400	400	
INSTALL SPECIALTIES AND ACCESSORIES	1 LS	1,000	1,000	
FIRE EXTINGUISHERS W/ CABINETS INSTALLED	13 EA	240	3,120	
				$14,009

REV 7.23.07

REV 7/18/2007
REV 7/12/2007
REV 7/10/07
Estimate Date 7/6/2007
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WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
EQUIPMENT				
5 HP DUPLEX AIR COMPRESSOR SKID	1 EA		W/ PLB'G	
5 HP DUPLEX PROCESS VACUUM SKID	1 EA		W/ PLB'G	
SINGLE SCULLERY SINKS	1 EA		W/ PLB'G	
PH - SINGLE STAGE NEUTRALIZATION SKID	1 EA		W/ PLB'G	
LAB WASTE PUMP TRANSFER STATION	1 EA		W/ PLB'G	
INCUBATORS & LAB REFRIGERATORS & FREEZERS			BY WMR	
BIOSAFETY CABINETS & WORK TABLES & DRUG SAFE			BY WMR	
MACHINE SHOP EQUIPMENT			BY WMR	
AUTOCLAVES AND STEAM GENERATOR			BY WMR	
GLASSWASHER (LANCER 1400)			BY WMR	
ICE MAKER (SCOTSMAN AFE-325)			BY WMR	
OWNERS LAB EQUIPMENT RIGGING	1 ALW	7,500	7,500	
REFRIGERATOR	1 EA	1,400	1,400	
COFFEE MAKER W/ HOT WATER DISPENSER	1 EA	200	200	
MICROWAVE	1 EA	550	550	
				$9,650
LAB CASEWORK AND CHEMICAL FUME HOODS				
SECOND FLOOR LABORATORIES				
4' (PCR) FUME HOOD - PREPIP'D & PREWIR'D			NONE	
6' CHEMICAL FUME HDS - PREPIP'D & PREWIR'D	18 EA	6,400	115,200	
8' CHEMICAL FUME HDS - PREPIP'D & PREWIR'D	8 EA	8,200	65,600	
8' WALKIN HOODS	2 EA	9,000	18,000	
INSTALL CHEMICAL FUME HOODS	28 EA	850	23,800	
72" EPOXY BENCHTOPS	86 LF	140	12,040	
60" EPOXY BENCHTOPS	51 LF	125	6,375	
30" EPOXY BENCHTOPS	198 LF	95	18,810	
METAL BASE CABINETS (50%)	256 LF	185	47,360	
KNEE SPACES (30%)	154 LF	45	6,930	
DRAWER UNITS (20%)	103 LF	230	23,690	
UPPER CABINETS	34 LF	185	6,290	
REAGENT SHELVES	82 LF	120	9,840	
WALL SHELVING (2 SHELVES HIGH)	50 LF	45	2,250	
UTILITY CHASES	6 EA	425	2,550	
EPOXY SINKS	15 EA	400	6,000	
DOWEL BOARDS, ETC	15 EA	400	6,000	
CASEWORK CONTINUED ON NEXT PAGE				

WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
CASEWORK CONTINUED				
FIRST FLOOR LABS				
6’ CHEMICAL FUME HOODS	3 EA	6,400	19,200	
INSTALL CHEMICAL FUME HOODS	3 EA	850	2,550	
60” EPOXY BENCHTOPS	12 LF	125	1,500	
30” EPOXY BENCHTOPS	30 LF	95	2,850	
REAGENT SHELVES	10 LF	120	1,200	
METAL BASE CABINETS (50%)	28 LF	185	5,180	
KNEE SPACES (30%)	16 LF	45	720	
DRAWER UNITS (20%)	11 LF	230	2,530	
UPPER CABINETS	7 LF	175	1,225	
INSTALL FIRST AND SECOND FLOOR CASEWORK	1 LS	52,500	52,500	
SNORKELS (3)	1 LS	5,040	5,040	
ACCESSORIES	1 LS	5,500	5,500	
				$470,730
PLUMBING				
LARGE EQUIPMENT COST				
DI SKID	1 EA	37,000	INCL	
VACUUM PUMP	1 EA	16,500	INCL	
AIR COMPRESSOR SKID “SIMPLEX 5HP”	1 EA	13,500	INCL	
PH SINGLE-STAGE SYSTEM	1 EA	22,000	INCL	
PUMP N TRANSFER STATION	1 EA	8,500	INCL	
NONPOTABLE HOT WATER HEATER	2 EA	6,983	INCL	
RECIRC PUMPS	2 EA	322	INCL	
AQUASTAT CONTROLLERS	2 EA	71	INCL	
EXPANSION TANK	1 EA	1,236	INCL	
TV-2 MIXING VALVE	1 EA	1,300	INCL	
TV-3 MIXING VALVE	1 EA	1,300	INCL	
TV-4 MIXING VALVE	1 EA	69	INCL	
N2, CO2 & ARGON MANIFOLDS	3 EA	3,200	INCL	
BFP: NPW, RODI, ETC	1 Is	1,400	INCL	
FIXTURES & CONNECTS				
KITCHEN SINK	1 EA		INCL	
DISPOSAL	1 EA		INCL	
DISHWASHER CONNECTION	1 EA		INCL	
COFFEE MACHINE CONNECTION	1 EA		INCL	
ICE MAKER & REFRIG CONNECT	1 EA		INCL	
ELEC POU HW HEATER	1 EA		INCL	
LAB SINKS TRIM ONLY	19 EA		INCL	
DI WATER FAUCETS	20 EA		INCL	
EYEWASH - DECK MOUNTED	18 EA		INCL	
EMERGENCY SHOWER	8 EA		INCL	
EMERG SHOWER / EYEWASH COMBO	1 EA		INCL	

PLUMBING CONTINUED ON NEXT PAGE

WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
PLUMBING CONTINUED				
CO2 INCUBATOR CONNECTS	5 EA		INCL	
GLASSWASH UNIT CONNECT	1 EA		INCL	
AUTOCLAVE UNIT CONNECT	1 EA		INCL	
ICE MACHINE CONNECT	1 EA		INCL	
MILLI-Q CONNECTIONS	3 EA		INCL	
FLOOR SINK - ACID	1 EA		INCL	
FLOOR DRAIN - ACID	2 EA		INCL	
FLOOR DRAIN - MECHANICAL	3 EA		INCL	
ELECTRIC 40 GAL ELD-40	1 EA		INCL	
SCULLERY SINKS-SGL	1 EA		INCL	
JANITOR'S SINK	1 EA		INCL	
HOOD CONNECTIONS ONLY			INCL	
8'-0" CHEMICAL FUME HOODS (2 EA N2, 2 EA VAC'S)	8 EA		INCL	
6'-0" CHEMICAL FUME HOODS (2 EA N2, 2 EA VAC'S)	9 EA		INCL	
8'-0" WALK-IN CHEMICAL FUME HOODS (2 EA N2, 2 EA VAC'S)	2 EA		INCL	
6'-0" CHEMICAL FUME HOODS (1 EA CA, 1 EA VAC'S)	10 EA		INCL	
6'-0" CHEMICAL FUME HOODS (1 EA CA, 1 EA VAC'S, 1 EA N2)	2 EA		INCL	
4'-0" BIOSAFETY CABINET (1 EA VAC, 1 EA N2, 1 EA CA, 1 EA ARGON)	4 EA		INCL	
TURRETS			INCL	
DOUBLE BENCH TURRETS - VAC	15 EA		INCL	
DOUBLE BENCH TURRETS - CA	10 EA		INCL	
DOUBLE BENCH TURRETS - N2	6 EA		INCL	
DOUBLE BENCH TURRETS - NG	3 EA		INCL	
DOUBLE BENCH TURRETS - ARGON	1 EA		INCL	
SINGLE BENCH TURRETS - VAC	13 EA		INCL	
SINGLE BENCH TURRETS - CA	9 EA		INCL	
SINGLE BENCH TURRETS - N2	8 EA		INCL	
SINGLE BENCH TURRETS - NG	4 EA		INCL	
SINGLE BENCH TURRETS - ARGON	3 EA		INCL	
DOUBLE WALL MOUNTED TURRETS - CO2	5 EA		INCL	
PLUMBING GENERAL			INCL	
LAB WASTE PIPING			INCL	
NP, TEMPERED & DOMESTIC WATER PIPING			INCL	
DI WATER PIPING			INCL	
SPECIALTY GAS PIPING			INCL	
NATURAL GAS THREADED AND WELDED PIPING			INCL	
N2 GENERATOR & ASSOCIATED EQUIPMENT			BY WMR	
TOTAL PLUMBING COST FOR EQUIPMENT & WORK ABOVE	1 LS	530,000	530,000	
COST ADJUSTMENTS FOR REVISIONS TO 7-6-07 UTILITY MATRIX	1 LS	30,000	30,000	
				$560,000
FIRE PROTECTION				
FIRST FLOOR				
ADD NEW OR RELOCATED SPRINKLER HEADS AND BRANCH LINES	65 EA		INCL	
SECOND FLOOR				
ADD NEW OR RELOCATED SPRINKLER HEADS AND BRANCH LINES	141 EA		INCL	
FIRE PROTECTION BUDGET	1 LS	41,000	41,000	
				$ 41,000

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
HVAC				
FIRST FLOOR LABS, GLASSWASH, SOLVENT STORAGE AND MACHINE SHOP			INCL	
10,000 CFM HOT WATER/CHILLED WATER AHU OFF HOUSE H & CHL'D WATER SYSTEM			INCL	
NEW UTILITY ROOF EXHAUST FAN			INCL	
EXTEND HOT AND CHILLED WATER RISERS FROM EXISTING MAINS			INCL	
CONSTANT VOLUME BOXES W/ HOT WATER REHEAT, & ROOF EXHAUST FOR 3 CONSTANT VOL CFH'S			INCL	
DEDICATED EXHAUST FOR SOLVENT STORAGE ROOM			INCL	
NMR HUMIDIFICATION			INCL	
2ND FLOOR LAB AND OFFICE AREAS			INCL	
NEW SUPPLY & EXHAUST DISTR. SYS W/ EXISTING HOUSE 24,000 CFM AHU & 2 H. DILUTION EXH FANS			INCL	
NEW CONSTANT VOLUME BOXES W/ HOT WATER REHEAT CONNECTED TO HOUSE H.W. MAIN @ LABS			INCL	
HOOD EXHAUST CONTROL SYSTEM TO MEET THE ENERGY CODE			INCL	
(2) CHILLED WATER FAN COIL UNITS TO SERVICE OPEN OFFICE AREA IN CONJUNCT. W/ PRECONDITIONED			INCL	
MAKE UP AIR DUCTED FROM THE LOWER LEVEL AIR HANDLER UP THROUGH EXIST'G MECHANICAL ROOM			INCL	
TO SERVE AS VENTILATION AIR IN OFFICE SPACE, & VAV BOXES W/ HOT WATER RE-HEAT COILS			INCL	
COMPONENTS			INCL	
TWO (2) CHILLED WATER FAN COILS (OFFICE AREA 1/2 HP)			INCL	
HOT WATER / CHILLED WATER 27,000 CFM AIR HANDLER TO BE USED FOR 1ST FLOOR SPACE. THIS AIR HANDLER			INCL	
SHALL DELIVER 10,000 CFM TO WMR IST FLR SPACE LEAVING 17,000 CFM FOR EXPANSION SPACE.			INCL	
STROBIC ROOF EXHAUST FANS	2 EA		INCL	
EXHAUST FANS UTILITY TYPE	2 EA		INCL	
TECH AIR HOOD EXHAUST CONTROLS AND VALVES			INCL	
HUMIDIFIER (NMR)			INCL	
CV BOXES			INCL	
DUCTWORK FABRICATION AND INSTALLATION			INCL	
HOT WATER / CHILLED WATER PIPING			INCL	
RGD'S			INCL	
PIPING			INCL	
INSULATION			INCL	
DDC CONTROLS			INCL	
START UP AND TEST			INCL	
RIGGING AND TRUCKING			INCL	
BALANCING			INCL	

HVAC CONTINUED ON NEXT PAGE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
HVAC CONTINUED				
HVAC SYSTEM COST BREAKDOWN				
CHILLED WATERFAN COIL UNITS	1 LS	7,100	7,100	
ROOF CURBS AND FLASHINGS	1 LS	4,700	4,700	
LABORATORY STROBIC FANS	1 LS	65,850	65,850	
EXHAUST BLOWERS INCL SOLVENT	1 LS	17,200	17,200	
HOOD EXHAUST MANAGEMENT SYSTEM	1 LS	200,000	200,000	
HUMIDIFIERS	1 LS	11,800	11,800	
CONSTANT VOLUME SUPPLY AIR VALVES	1 LS	22,000	22,000	
HOT WATER REHEAT COILS	1 LS	6,200	6,200	
REGISTERS, GRILLES AND DIFFUSERS	1 LS	15,300	15,300	
SHEET METAL MATERIALS	1 LS	58,200	58,200	
SHEET METAL FABRICATION	1 LS	40,400	40,400	
SHEET METAL INSTALLATION	1 LS	108,800	108,800	
PIPING AND ACCESSORIES	1 LS	114,500	114,500	
INSULATION	1 EA	38,000	38,000	
CHEMICAL TREATMENT	1 LS	6,300	6,300	
MOTOR STARTERS	1 LS	4,400	4,400	
RIGGING, TRUCKING & FREIGHT	1 LS	11,050	11,050	
CONTROLS AND CONTROL WIRING	1 LS	149,000	149,000	
ALLOWANCE FOR ALARM POINTS	1 LS	18,000	18,000	
STARTUP AND TEST	1 LS	32,000	32,000	
BALANCING	1 LS	14,200	14,200	
				$945,000
ELECTRICAL				
480 V. SERVICE FROM EXIST'G MAIN DISTR. PANEL THRU NEW PNLS & TRNSFRS			INCL	
MAKE SAFE CONNECTION FOR REMOVAL AND DISPOSAL BY DEMO CONTRACTOR			INCL	
NEW LIGHTING USING PARABOLIC IN OFFICES & CORRIDORS, LENSED FOR LABS			INCL	
TRIPLE GASKETED FIXTURES IN GLASS WASH AREA			INCL	
ELECTRICAL DESIGN AND ENGINEERING			INCL	
EXIT / EMERGENCY LIGHTING			INCL	
NEW ADDRESSABLE FIRE ALARM & DEVICES ADDED TO EXIST SYS			INCL	
NEW OUTLETS, DEDICATED OUTLETS, NORMAL WALL OUTLETS & FURNITURE NEEDS			INCL	
RING & STRING TO CEILING FOR TEL / DATA			INCL	
TEMPORARY SERVICES & ELECTRICAL PERMIT			INCL	
POWER WIRING FOR EQUIPMENT LIST AND HVAC			INCL	
DISTRIBUTION			INCL	
LIGHTING / SWITCHING			INCL	

REV 7.23.07

REV 7/18/2007
REV 7/12/2007
REV 7/10/07
Estimate Date 7/6/2007
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WMR BIOLOGICS
480 ARSENAL STREET
WATERTOWN, MASSACHUSETTS
BUDGET ESTIMATE

DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
ELECTRICAL COST BREAKDOWN				
SWITCHGEAR	1 LS	26,995	26,995	
DISTRIBUTION	1 LS	30,760	30,760	
HVAC POWER WIRING	1 LS	13,240	13,240	
FIRE ALARM	1 LS	11,880	11,880	
EXIT / EMERGENCY LIGHTING	1 LS	9,240	9,240	
LIGHTING / SWITCHING	1 LS	49,760	49,760	
POWER WIRING OUTLETS	1 LS	13,175	13,175	
EQUIPMENT WIRING	1 LS	42,640	42,640	
TEL/DATA PLASTER RING AND STRING	1 LS	850	850	
DIRECT JOB EXPENSES	1 LS	11,700	11,700	
COST ADJUSTMENTS FOR REVISIONS TO 7-6-07 UTILITY MATRIX	1 LS	19,500	19,500	
COST FOR ADDED SURGICAL LIGHTS	1 ALW	5,000	5,000	
COST FOR CARD ACCESS AT 4 ENTRY POINTS	4 EA	2,000	8,000	
				242,740
SUPERVISION				
PROJECT SUPERINTENDENT	19 WKS	3,400	64,600	
PROJECT MANAGER (1/2 TIME)	19 WKS	1,800	34,200	
PLANNER / ESTIMATOR	2 WKS	3,900	7,800	
ADMIN ASSISTANT	19 WKS	320	6,080	
ACCOUNTING	19 WKS	420	7,980	
PROJECT EXECUTIVE	1 WK	4,100	4,100	
				$124,760
GENERAL CONDITIONS				
JOBSITE TELEPHONE / FAX	4.50 MO	900	4,050	
COURIER / OVERNITE / POSTAGE	4.50 MO	800	3,600	
FIELD OFFICE FURNITURE	1 LS	1,000	1,000	
FIELD OFFICE SUPPLIES & COPIER RENTAL	4.50 MO	475	2,138	
MISC. TOOLS & SUPPLIES	4.50 MO	1,250	5,625	
JOBSITE CLEANUP	19 DYS	360	6,840	
JOBSITE DUMPSTER	19 LDS	675	12,825	
CLEAN TOILET ROOMS	1 LS	2,000	2,000	
REPRODUCTION OF CONTRACT DOCUMENTS	1 LS	8,500	8,500	
SAFETY & BARRICADES	19 WK	250	4,750	
FINAL CLEANUP	25,750 SF	0.45	11,588	
				$ 62,915

	REV 7.23.07	REV		7/18/2007
WMR BIOLOGICS		REV		7/12/2007
480 ARSENAL STREET		REV		7/10/07
WATERTOWN, MASSACHUSETTS		Estimate Date		7/6/2007
BUDGET ESTIMATE		AREA	=	27,311 RSF

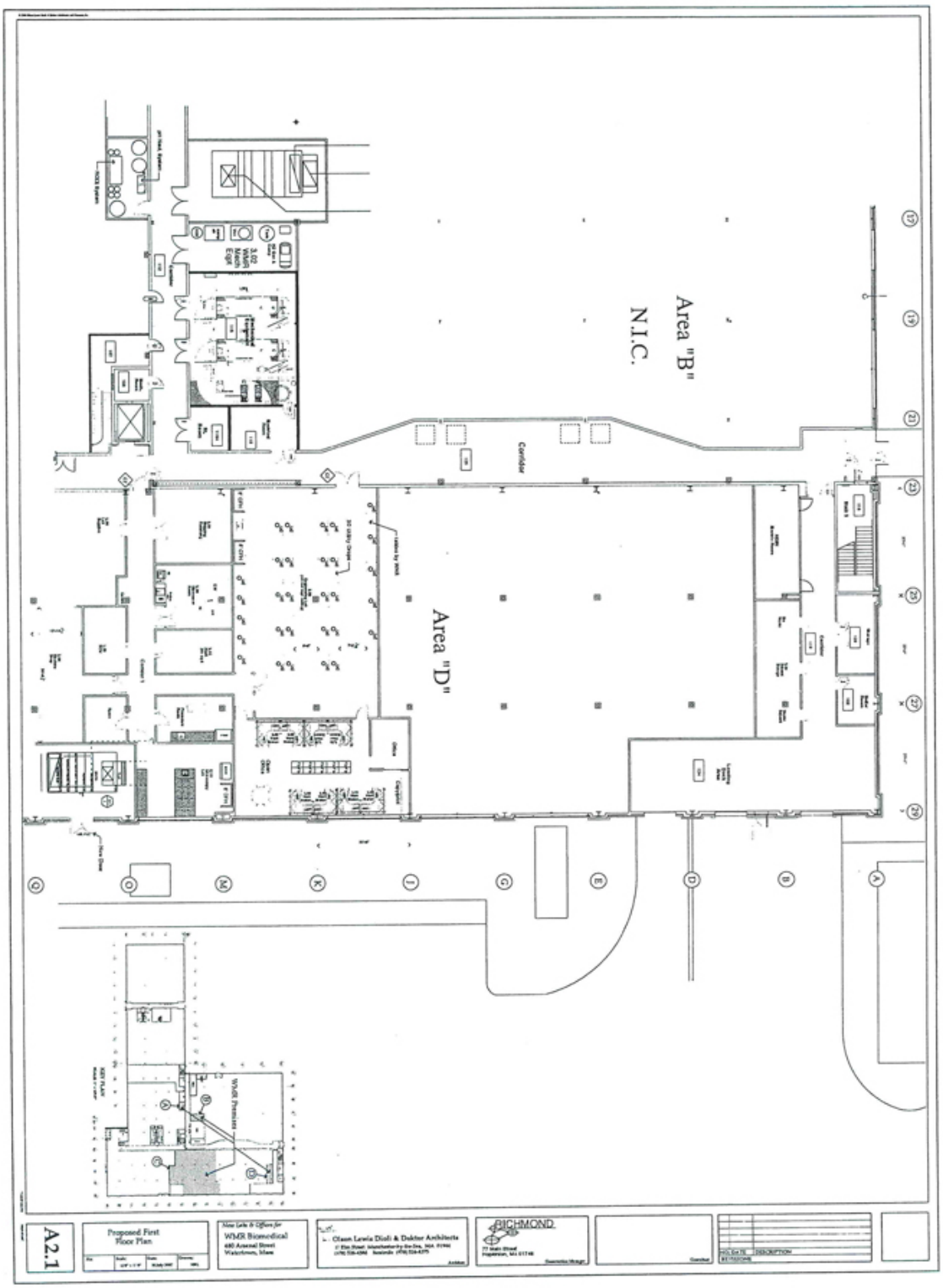
DIVISION / DESCRIPTION	QTY	UNIT $	LINE SUM	DIV. SUM
ENGINEERING				
PART 1 PLANNING & ESTIMATING	1 LS	12,000	12,000	
ARCHITECTURAL	1 LS	85,000	85,000	
STRUCTURAL	1 LS	5,000	5,000	
CODE CONSULTANT	1 LS	2,500	2,500	
FIRE PROTECTION DESIGN	1 LS	5,600	5,600	
MECHANICAL, ELECTRICAL & PLUMBING ENGINEERING	1 LS	12,000	12,000	
				$ 122,100
INSURANCE AND PERMITS				
GENERAL LIABILITY INSURANCE ($5/1000)	1 LS	18,500	18,500	
BUILDING PERMIT ($15/1000)	1 LS	55,500	55,500	
PERFORMANCE & PAYMENT BOND			NIC	
				$ 74,000
CONTINGENCY	1 LS	150,000	150,000	
ADJUSTMENT FOR SCOPE REFINEMENT	1 LS	(49,900)	(49,900)	
FINAL ADJUSTMENT 7.23.07	1 LS	28,136	28,136	
				$ 128,236
OVERHEAD & PROFIT	6.5%	228,892	228,892	**$ 228,892**
TOTAL PRELIMINARY BUDGET				**$3,750,304**

CLARIFICATIONS AND ITEMS FOR CONSIDERATION

2. An allowance of $18,000 is included for equipment alarm points. (18 are identified at this time)		
3. To provide a new air handler w/ associated piping & duct for base building system. (This cost includes Elec hookup, G.C. support & OH & Prof.)	ADD	$ 223,650
4. The standby power generator is at a maximum usage and additional loads beyond these installations can not be accomodated.		
5. A complete takeoff of flooring, casework and ceiling systems should be done at the completion of C.D's to insure a match with assumptions made in this estimate.		
6. Cost to add a floor slab and regrade the first floor WMR area and mechanical room (approximately 7,000 sf) is:	ADD	$ 34,000
7. Cost to provide a roll on epoxy floor at mechanical room.	ADD	$ 3,100
8. Cost to complete new mechanical room walls and paint.	ADD	$ 5,500

Schedule B-2

First Floor Plan (A2.1)


Area "B"
N.I.C.
Area "D"
Corridor
A2.1
Proposed First Floor Plan
WMR Biomedical
680 Arsenal Street
Watertown, Mass
RICHMOND

Schedule B-3

Second Floor Plan (A2.2)

A2.2

Proposed Second Floor Plan

New Lab & Offices for WMR Biomedical
680 Arsenal Street
Watertown, Mass

Olson Lewis Diuli & Dokter Architects

RICHMOND

NO. DATE DESCRIPTION

Schedule B-4

Basis of Design

Basis of Design

for

WMR Biomedical
480 Arsenal Street
Watertown, MA

June 26, 2007
Rev 1 – July 9, 2007

Prepared for

Alexandria Real Estate Equities

Table of Contents

General:

1. All plumbing systems will be designed in conformance with the Massachusetts Plumbing Code (CMR: 248) and related ANSI standards.
2. All utility generation and fuel gas distribution systems will conform to applicable NFPA guidelines and good engineering practice.
3. Cross-connection control will be installed in conformance with Massachusetts Department of Environmental Protection requirements (CMR: 310 Section 22.22), and the City of Cambridge Water Authority.
4. ANSI Standard Z 358.1 and OSHA recommendations will govern tepid water generation and distribution.
5. Domestic water, Natural Gas, Sanitary sewer, and Storm sewer will be coordinated with the site utilities strategy.
6. Plumbing fixture type and materials of construction will be consistent with the existing base building standards and scope of work.
7. Fixture counts and utility use points will be based on: (1) Equipment matrix revised 07/09/07 (2) Architectural layouts (3) Mass. Code (4) Current applicable OSHA and ANSI requirements.

Site Utilities:

1. Connecting to the existing water service(s) will provide domestic & protected water necessary for domestic and laboratory fixtures and equipment to be installed in conjunction with the WMR Biomedical Research Laboratory Renovation.
2. Natural Gas will be coordinated with the appropriate gas supplier(s). NSMC will verify gas loads and pressure requirements based on the final HVAC and Process Equipment selections for WMR Biomedical, if applicable.
3. Presently no HVAC Equipment has been sized or assumed as part of plumbing budgets / design. If applicable, NSMC will need to review loads and requirements prior to determining whether existing gas piping can support these potential loads.
4. The sanitary sewer currently serving the building shall be connected to and extended from, as applicable, to serve new installed, or relocated fixtures and equipment requiring sanitary waste and vent per the client’s equipment utility matrix. NSMC will coordinate with Construction Manager and client to make connections to the building sewer where appropriate.
5. Storm piping currently exists. No scope of work anticipated at this time.

Water systems:

1. All domestic water is currently protected thru containment back-flow preventors. NSMC shall connect to and extend from existing ‘house’ system to service fixtures and equipment which require domestic potable water based upon client equipment utility matrix.
2. Potable water will be distributed to all domestic plumbing fixtures and appliances, as required. Domestic hot water will be generated through a “new” electric 40 gallon hot water heater (120*f) and mixed through individual fixture mixing valves, if applicable, to deliver 110*f (43.33*C) degree water supply. Re-circulation will be provided as required by code.
    a. Note: remote single fixtures requiring domestic hot water service shall be supplied by local point-of-use electric hot water heater.
3. Non-potable water shall be “created” by installing secondary backflow protection down-stream of connection to “house” domestic service. Non-potable water will be distributed to all laboratory and manufacturing fixtures or equipment requiring make-up per the equipment matrix. Non-potable hot water (or Protected water) 140*f (60*C) degree water will be generated through dual (2) gas-fired hot water heaters. NSMC shall furnish and install central mixing valve to deliver 120*f (48.92*C) degree water supply to lab sinks. Re-circulation will be provided as required by code.
4. Tepid water shall service all emergency shower and eyewash equipment. The tepid water shall be distributed through a “loop” system. Loop to be connected to existing “house” distribution and extended as necessary to supply all the emergency equipment (showers and eyewash unit) locations. The “loop” size and temperature to conform to ANSI standard requirements.
5. Piping will be Type L copper with WROT copper fittings, 2 piece ball valves, and soft-soldered joints.
6. All emergency quantities and locations are NSMC suggested use points; however, Final determination or approval of quantities and locations shall rest with WMR Biomedical safety officer / designated competent person.

Sanitary waste and vent system:

1. Sanitary waste will be collected from all domestic fixtures and floor drains by gravity terminating into the building sewer piping.
2. Inverts will be coordinated with site conditions and other drainage systems.
3. Piping will be service weight cast iron pipe and fittings with gasket joint for underground use, and no-hub cast iron pipe and fittings with Mass code approved couplings. Fixture trap arms will be copper with drainage pattern fittings.

Process Waste and Vent system:

1. Coordinate chemical use and design requirements. NSMC shall provide a single (1) tank pH Adjustment Neutralization System. System components to include as applicable to make system whole: (1) 275 gallon, HDPE Neutralization Tank, Flange Mounted Lightning Mixer, GLI International pH Analyzers & Sensors, Badger Magnetic Flow Sensor and Analyzer, Partlow Seven (7) day Circular Chart Recorder, lsco Flow Cable (Required by MWRA for interface with their sampling equipment), LMI Chemical Metering Pumps, Chemical Feed Station, Interconnecting piping and effluent trap pending approval by local authorities.
2. No provisions for solvents, metals or kill waste are included in this scope.
3. System shall meet all requirements of CMR: 248 (Mass Code) and Local Municipality wastewater requirements. The Town of Watertown or MWRA discharge permit (if applicable) is the owner's responsibility. NSMC will assist the owner in providing information relevant to the owner's application.
4. All "new" waste collection piping will be schedule 40 polypropylene with drainage pattern fittings and fusion joints. Mechanical joints will be used at fixture connections.
5. NSMC has included a duplex pump and transfer station to accept all first floor lab (special) waste by gravity; and then, the waste shall be pump discharged to a gravity drainage waste "header'' in ceiling of first floor. 4" Waste header in ceiling, of first floor, shall travel by gravity to the single pH neutralization system on the first floor level for treatment prior to being introduced to sanitary waste system.
6. All pumped waste drainage piping to be schedule 40 'pressure rated' polypropylene, with socket heat fusion joints.
7. All process vent piping shall collect on second floor level and exit roof at various locations pending final construction coordination with other trades. All vent piping to match materials of lab waste.

Natural Gas:

1. Coordination with gas supplier for equipment loads, available pressure, and design pressure.
2. Distribution to all Water Heaters, HVAC & Process Equipment, as required per client's equipment utility matrix. At this time, NSMC has assumed a new natural gas service will be located on the exterior of the facility adjacent to existing gas meters. No laboratory natural gas distribution service has been anticipated for point of use turrets, and / or hood connections.
3. All piping will conform to CMR: 248, NFPA 54, and ANSI Z 223.1.

4. Distribution piping shall be: 2-1/2” £ larger: schedule 40 carbon steel pipe and fittings, with butt weld joints. 2” ³ smaller: schedule 40 carbon steel pipe with black malleable threaded fittings.

Compressed Air System:

1. Equipment Selection:
    a. Duplex 5HP Rotary Oil-less Scroll STD-0504
    b. 120 gallon receiver with Mass Code Legs
    c. 29.4 SCFM @ 100PSIG
    d. 460V 3PH 60Hz
    e. Air Dryer: model SD-15 115V
    f. One High Efficiency Filter: 35scfm 1micron in-line filter
2. Distribution to all utility use points per equipment matrix referenced.
3. Use point loading based upon XX SCFM/drop, XX% diversity.
4. Distribution piping to be Type “Cleaned” ACR tubing with “cleaned” WROT copper fittings, brazed joints, and 3pc. Apollo shut-off valves.

Process Vacuum System:

1. Equipment selection:
    a. Duplex 5HP rotary vane package (69 CFM)
    b. Air cooled with absolutely no water requirements
    c. 120 gallon ASME rated receiver tank
    d. NEMA 12 enclosure consisting of: (2) magnetic motor starters complete with UL approved motor branch circuit disconnect and thermal, magnetic, and short-circuit protection
2. Distribution to all utility use points per the matrix.
3. Use point load based on XX ACFM/drop, XX% diversity.
4. Equipment design/ selection based on 23”hgv (235 mbar) w/ 1013 being atmosphere.
5. Piping will be Type L copper with WROT copper fittings, 2 piece ball valves and soft soldered joints.

Pure Water (RODI) Watering:

1. RODI Pure water scope of work and point-of-use distribution is based upon equipment utility matrix.
2. System will be capable of generating XXXgpd of Type I Laboratory Quality Water. Storage will be 250 gallon storage tank.

3. Distribution loop will be 1” and capable of delivering 10gpm to the connected load.
4. RODI Distribution piping shall be schedule 40 polypropylene pipe and fittings with socket heat-fusion joints. True Union ball valves at service and use points.
5. No RODI Pure water reject system is included presently. Budgeting costs and distribution to be determined, if applicable.

Specialty Gas Systems (Carbon Dioxide, Nitrogen, & Argon):

1. Nitrogen, Argon and Carbon Dioxide automatic changeovers manifolds (3 ea.) are included. Micro-bulk or Dewer cylinders shall be provided and installed by others. NO LIQUID Nitrogen piping by NSMC.
2. NSMC has not carried any point-of-use regulators for any of the specialty gas system(s) distribution at this time.
3. Local cylinder closet, niche and/or mechanical room space available to mount auto-changeover manifolds for specialty gas service(s) and tank storage.
4. Distribution to all use points per the matrix.
5. Distribution piping shall be “clean’’ ACR copper tubing with “clean” WROT copper fittings. Ball valves will be 3 piece full port. Joints will be brazed under nitrogen purge.

The following design criteria will be utilized for the design of the HVAC systems.

A. Design Criteria

1. Outdoor Design Criteria

   a. Summer
   91 degrees Fahrenheit design dry bulb
   74 degrees Fahrenheit design wet bulb

   b. Winter
   0 degrees Fahrenheit design dry bulb)

2. Indoor Design Criteria

   a. Laboratory and Office Areas

      1. Summer
      72 degrees F design dry bulb (+/- 2 degrees)

      2. Winter
      72 degrees F design dry bulb (+/- 2 degrees)

3. Humidity

   a. Lab Areas

      1. Summer // Winter
      50% RH +/- 15% No Control

4. Ventilation Criteria

   a. Lab Areas

      - Laboratories a minimum of eight to ten outdoor air changes per hour

   b. Offices

      - 20 cfm per occupant

5. Space Pressurization Criteria

      - Laboratory areas will be maintained at a negative pressure relative to surrounding offices.
      - Office areas slightly positive to outdoors.

6. Space Filtration Criteria

- Primary air handling unit shall have 30% prefilters and 90% cartridge filters.

7. Internal Heat Loads

The HAVC system will be designed for the following internal loads.

a. Laboratory Areas

- Lighting 2 watts/ft^2
- Equipment 4 watts/ft^2

(Individual equipment rooms will be designed for additional heat loads as required.) Based on equipment matrix.

8. Hot Water Pumps

- Two (2) existing primary (operating/standby) hot water pumps.

9. Exhaust Fans

- Centrifugal fans at 2.5 to 7.0” S.P. (Backward inclined, spark resistant, herisite coated, and vibration isolators).
- Velocity cones to be sized at 3,000 FPM
- Strobic high dilution—Two (2) primary

10. Controls

a. DDC—Johnson

Johnson Network Automation Engine (NAE) extension of existing system.

11. Ductwork

a. All ductwork per the SMACNA guide.

b. Supply Duct sizing based on pressure drops of 0.10” per 100’ (.817 Pa per m).

c. Exhaust Duct sizing based on pressure drops of 0.15” per 100’ (1.23 Pa per m).

d. 5’ (1.5 m)—Maximum Flex Duct run

12. Insulation

    a. Insulation thickness per Massachusetts code.

    b. Interior concealed supply ductwork- 1½" (3.81 cm) foil faced fiberglass blanket.

    c. Interior piping

        1. Hot water piping-fiberglass with an all service jacket.
        Mains- 1½" (3.81 cm) thick and run outs not exceeding 12' in length - ½" (1.27 cm) thick.

13. Hot Water Pipe Distribution

    a. 2 ½" and larger Schedule 40 welded.

    b. 2" and smaller copper Type L.

    c. Pipe sizing maximum 10 Ft/Sec and 3.5' of head per 100'.

System Descriptions

1. Area #1—Solvent Storage, Glass Wash, Machine Shop, Base Bldg, Microscopy, & NMR Areas.

   System to utilize 10,000 CFM from the proposed air handler used in conjunction with the house hot water / chilled water system, and exhaust risers connection to one (1) new utility roof exhaust fan. Hot water piping system extended from existing mains. New constant volume boxes with hot water reheat, and roof exhaust for three (3) constant volume fume hoods. Dedicated exhaust for Solvent storage. *NMR humidification is an alternate.*

   Area #2—2nd Floor Lab Areas

   Supply and exhaust duct distribution systems used in conjunction with the existing base building 24,000 CFM chilled water/ hot water air handler, and two (2) new high dilution exhaust fans. Labs with hood exhaust and spot exhaust shall be controlled via tab quality supply and exhaust valves. Constant volume supply boxes shall service the remainder of the lab areas with hot water reheats connecting to the house main hot water system.

   The Lab areas exhaust loads (Approx 30,000 CFM) exceed the make up air capabilities of the base system (24,000 CFM) air handler, and will require hood exhaust control to meet the energy code. A hood exhaust management system for the Labs will eliminate the need for additional make up air systems, assuming 35% diversity in hood management.

Area #3—2nd Floor Office Areas

Office areas utilizing one (1) supplemental chilled water fan coil unit to service open office area used in conjunction with pre-conditioned make up air ducted from lower level air handler (near NESN) up through existing mechanical room to serve as cooling and ventilation air in the office spaces in conjunction with VAV boxes with hot water reheat coils.

2. Base Building

A new 27,000 CFM base building air handler to be utilized for the 1st floor unassigned space. The air handler shall deliver 10,000 CFM to new WMR tenant, leaving 17,000 CFM for unassigned future tenant's space. Hot water and chilled water piping connecting to existing system, intake duct work, insulation, and controls.

The following design criteria will be utilized for the design of the electrical systems.

A. Incoming Utility Service:

1. The existing service will be maintained
2. The distribution system shall be new within the tenant space for transformers and panels

B. Utilization Voltages:

1. 208/120V, 3 phase, 4 wire.
    a. Receptacle circuits
    b. Owner equipment (equipment list)
    c. Miscellaneous HVAC pumps and fans (Less than ½ horsepower)
    d. 120 volt lighting systems (as required)
    e. Miscellaneous facility loads
2. 480/277V, 3 phase, 4 wire.
    a. Owner equipment (equipment list).
    b. Miscellaneous HVAC, pumps and fans, ½ horse power and greater.
    c. 277 volt lighting systems as required.
    d. Miscellaneous facility loads
    e. Electric heat
    f. Mechanical equipment
3. Specialty voltages (NIC).

C. Distribution System Capacities and Circuit Arrangements (existing):

1. 13,800 volts provided by the utility company to pad mount transformers (existing)
2. 480/277 volts supplied from the pad mounts to the switchboard
3. 480 volts, 3-phase supplied from the switchboard to each area electric room

D. Power Equipment

1. 480 and 208 volt panels, transformers will be installed in the electric rooms
2. 120/208 volts supplied at remote electric rooms for branch loads
3. All new panelboards will be bolt on breakers and hinged covers
4. Starters, contactors and VFD's will be provided by the trade supplying the equipment for installation and wiring by the electrical contractor
5. Electronic check metering will be installed to monitor usage by the landlord

E. Lighting:

1. Site and common area lighting is existing.
2. All fixtures and ballasts will incorporate the latest state of the art equipment.
3. Lab areas will be a combination of 2x4 & 2x2 recessed lensed fixtures.
4. Office areas will be 2X4 & 2X2 recessed parabolic fixtures.
5. Night lighting will be provided.
6. Mechanical areas will be strip lighting with wire cages on exposed bulbs.
7. Foot-candle requirements will be as follows:

Labs:	65 to 80 foot-candle using lensed fixtures
Offices:	50 to 60 foot-candle using recessed parabolic fixtures
Mechanical Rooms:	20 to 30 foot-candle using strip fluorescents
Corr/Bath Rooms:	20 to 30 foot-candle using recessed parabolic fixtures

8. Plaster frame fixtures will be used where appropriate.
9. Local switching will be provided and a lighting control system will be utilized per the Mass. Energy Code.

Note: Open office areas are assumed to have 50% wall reflectivity and measurements will be made prior to installation of low partitions.

F. Emergency Lighting:

1. This will be provided via battery backup fixtures. The levels designed will be per Code for egress corridors only.

G. Standby Generator: (Existing)

1. Equipment as listed in matrix will be connected to the existing standby distribution system. Existing and newly added loads must be confirmed prior to final design and generator capabilities.

H. Outlets and Devices:

1. Housekeeping outlets will be provided as one per room minimum (except explosion proof rooms), and maximum of 50 LF apart in corridors.
2. Offices will have a minimum of three (3) duplex outlets (more for larger spaces).
3. Conference rooms will have one duplex per wall minimum. Large conference rooms to have one floor outlet (tel/data and power).
4. Wiremold [steel-painted] will be provided on benches along walls and with reagent racks in 10 LF nominal lengths as 2400 series, with one (1) single outlet each LF alternate circuits, two (2) circuits each. Outlets in areas around sinks will be avoided where possible, if not, GFl detectors will be used.
5. Equipment areas will have power wall outlets or wiremold per the matrix.
6. Quantity and locations of power will be provided based on the equipment matrix.
7. Three (3) circuit furniture feeds will be provided for low partitions (factory pre-wired) in open office areas. This will include a conduit access for tel/data systems (by others). This assumes the trunk is supplied with the furniture, and wiring within these low partitions is not included.

I. Grounding:

1. Existing service ground will be re-used.
2. Special grounding will be provided as required for tel/data systems, special owner electronics systems.

J. Uninterruptible Power Supply Systems: (NIC)

K. HVAC Power Wiring:

1. HVAC Power wiring based on the system design is included.

L. Low Voltage Systems:

1. Alarm and detection systems

   a. New addressable devices will be provided from the existing fire alarm system based on a Code required installation. Sprinkler devices are provided and installed by the sprinkler contractor, wired by electrical. Duct detectors are provided by electrical, installed by HVAC, wired to the RTU's and to the fire alarm system by the electrical contractor.

   b. Security, alarm monitoring (NIC)

   c. Card access system, 4each included

   d. O_2 detection sensors (NIC)

   e. Door interlock system (NIC)

   f. Water detection (NIC)

2. Communications

   a. A plaster ring with string to the ceiling space is included

   b. Alarm monitoring – An allowance of $18,000 is included.

   c. Conference room A/V system, TV, paging, intercom, sound (NIC)

M. Electric resistance Heating

1. Electric resistance heaters will be wired (only)

N. Testing (For New Equipment Only)

1. Electrical equipment standard testing

2. Electrical system start up/commissioning

O. Project Requirements

1. Design, engineering, stamped drawings by a Massachusetts registered professional engineer.

2. Drawings done in Autodesk AutoCAD format

3. Supervision and Coordination

4. Submittals for major equipment for job coordination

5. Construction control affidavits

6. As builts (paper and electronic), Operation and Maintenance manuals (paper only)

7. Training for the owner on major pieces of equipment

8. Job Insurance requirements

Schedule B-5

Finish Schedule

			Floor Finishes												Base				Wall Finishes						Ceiling Finishes								Clg Hgt
			Epoxy			SV			VCT			CPT			conc	CT	Epoxy		Vinyl		CT	Paint					Special	Acoustic Tile						GWB	EXP	
Room No.	Department and Room Description	Flr	EP-1	EP-2	EP-3	SV-1	SV-2	SV-3	VCT-1	VCT-2	VCT-3	CPT-1	CPT-2	CPT-3	N/A	CT-1	EB-1	EB-2	EB-3	VCB-1	VCB-2	VCB-3	CTB-1	PT-1	PT-2	PT-3	PT-4	PT-5	PT-6	FRP	ACT-1	ACT-2	ACT-3	ACT-4	ACT-5	ACT-8	GWB	n/a	
1.00 Chemistry																																						
1.01	Synthetic Chemistry Lab	2							#											#				#							#								9'-0"
1.02	Analytical Chemistry lab	2							#											#				#							#								9'-0"
1.03	SEM Room	1							#											#				#							#								9'-0"
2.0 Biomedical Engineering																																							
2.01	Bio-Engineering Lab	2							#											#				#							#								9'-0"
2.02 A	Biology Lab	2							#											#				#									#						9'-0"
2.02 B	Blood Lab	2							#											#				#									#						9'-0"
2.03 A	Cell Culture (Animal)	2				#														#				#									#						9'-0"
2.03 B	Cell Culture (Human)	2				#														#				#									#						9'-0"
2.04 A	Imaging Room	2							#											#				#							#								8'-0"
2.04 B	Imaging Room	2							#											#				#							#								8'-0"
2.05	NOT USED																																						
2.06	Machine Shop	1							#											#				#							#								9'-0"
2.07	Polymer Eng. & Mfg. Lab	2							#											#				#							#								9'-0"
2.08	Engineering Lab	1							#											#				#							#								*10'-0"
2.09	Procedure Room	1				#														#					#							#						9'-0"
2.10	Microscopy Lab	1							#											#					#							#						9'-0"
3.0 Laboratory Support																																							
3.01	Shipping and Receiving	1							#											#				#							#								9'-0"
3.02	New Mech Equip Room	1																		#				#														#	8'-0"
3.03	Waste Storage	1	#														#								#						#								8'-0"
3.04	Solvent Storage	1	#														#								#						#								8'-0"
3.04A	Bio-Waste Storage	1							#											#					#						#								8'-0"
3.05	NMR Room	1							#											#				#							#								9'-0"
3.06	Glasswash	1	#														#								#									#						9'-0"
3.08	Lab Supplies Storage	1							#											#				#							#								8'-0"
3.09	Spare / Expansion	1													#					#				#														#	n/a
4.0 NOT USED																																							
5.0 Administrative Areas																																							
5.01	Chemistry private offices	2										#								#				#							#								9'-6"
5.02	Work stations	2										#																			#								9'-6"
5.03	Bioengineering private offices	2										#								#				#							#								9'-6"
5.04	Open Office	1										#								#				#							#								8'-6"
5.05	Admin private offices	2										#								#				#							#								9'-6"
5.06	Private Office	1										#								#				#							#								8'-6"
5.07	Break / Lunch	2							#											#				#							#								9'-6"
5.08	Conference sm	2										#								#				#							#								9'-6"
5.09	Conference lg.	2										#								#				#							#								9'-6"
5.10	Storage Closet	2							#											#				#							#								8'-0"
5.11	NOT USED																																							
5.12	Entry / Reception	2										#								#				#							#								9'-6"
5.13	IT Closet	2							#											#				#							#								8'-0"
5.14	Copy / Print room	2										#								#				#							#								8'-0"
5.15-19	NOT USED																																							
5.20	Chair Storage	2							#											#				#							#								8'-0"
Common Spaces:																																							
8.03	Second Flr Lab Corridor	2							#											#				#							#								9'-6"
8.04	Second Flr Admin Corridor	2										#								#				#							#								9'-6"
8.09	Vestibule	2							#											#				#							#								9'-6"
8.11	First Flr Corridor	1							#											#				#							#								9'-6"
8.12	Entry Vestibule	1							#											#				#							#								8'-0"

* Note: w/lower soffits for ductwork / piping as needed.

Schedule B-6

Equipment Utility Matrix

Equipment Utility Matrix

	GENERAL DESCRIPTION	PHYSICAL					PLUMBING / PIPING																	HVAC REQUIREMENTS				ELECTRICAL REQUIREMENTS											COMMENTS
ROOM NO.	ROOM AND EQUIPMENT NAMES	QUANTITY	Width	Depth	Height	Weight	COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	OXYGEN (O2)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)	DOMESTIC COLD WATER	DOMESTIC HOT WATER	PROTECTED COLD WATER	PROTECTED HOT WATER	TEMPERED WATER	R.O. WATER	SANITARY WASTE	SPECIAL WASTE	TEMP. REQ'TS	HUMIDITY REQ'T	CLEAN RM REQ'TS	EXHAUST (CFM)	VOLTS	PHASE	AMPS	WATTS (kw)	STAND BY PWR.	UPS	120 V, 1 OR 2	CLEAN POWER	DATA	TELEPHONE	SECURITY ACCESS	
1.00 Chemistry																																						
1.01	Synthetic Chemistry Lab																																		X	X		
	Casework	Per Plan																																				
	Sink (Epoxy)	5	28	15	12										X	X		X		X																		
	Reagent Shelving	Per Plan																																				S2400 Plugmold at reagent shelving
	Eyewash	5															X																					
	Lab Gasses						X	X	X																														One turret of CA & N2 per bench, two turrets VAC per bench
	Spot Exhaust	10																						100														Nozzle above benches, 4" dia. at dig. whitest gate
	Emergency Shower	2															X																					
	Fume Hoods																																					
	8' Fume Hood (acid/flam and base/flam cabs below)	8	96	36	78			X	X															1400	120	1	20					X						For each bay, one 8' hood stores acid + flammables, other
	6' Fume Hood (flam cabs below)	8	72	36	78			X	X															1200	120	1	20					X						
	8' walk-in fume hood	2	72	36	78			X	X															1400	120	1	20					X						7-9-07 rev
	(Floor Mounted) Equipment Zone	Per Plan																																				Wiremold 3000 wall mtd at equipment zone
	Undercounter refrigerator	9	24	24	34																				120	1	2											
	-20F Freezer	2	36	30	72																				120	1	5		X		X							7-9-07 rev
	4F Refrigerator	1	32	30	66																				120	1	5		X		X							7-9-07 rev
	Lg Convection Oven (vented)	2	36	33	44																			50	240	1	18											Stacked units - small oven on top of large oven
	Sm Convection Oven (vented)	2	24	24	24																			50	120	1	8											Stacked units - small oven on top of large oven
	Benchtop Equipment																																					
	Rotovap (inside 8' CFH)	5	36	24	36																				120	1	5											
	CentriFlash (inside 8' CFH)	3	24	24	24																				240	1	2											
	Vacuum Oven	2	24	24	24			X																	120	1	9											
	Lyophilizer (SL)	2	24	24	24																				120	1	10											
	Analytical balances	2																																				
	Top loading balance	1																																				
	Centrifuge	1	15	23	13																				120	1												
																									120	1	10											
	Storage / Misc Items																																					
	Dry Chemical Storage	1	48	20	77																																	
	Lge Solvent Storage	2	48	20	72																			50														
	Sm Solvent Storage	2	48	20	48																			50														

Equipment Utility Matrix

ROOM NO.	ROOM AND EQUIPMENT NAMES	GENERAL DESCRIPTION: QUANTITY	PHYSICAL: Width	Depth	Height	Weight	PLUMBING / PIPING: COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	ARGON (Ar)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)	DOMESTIC COLD WATER	DOMESTIC HOT WATER	RECIRCULATED COLD WATER	RECIRCULATED HOT WATER	TEMPERED WATER	D.I. WATER	SANITARY WASTE	SPECIAL WASTE	HVAC REQUIREMENTS: TEMP REQ'MTS	HUMIDITY REQ'MT	CLEAN RM REQ'MTS	EXHAUST (CFM)	ELECTRICAL REQUIREMENTS: VOLTS	PHASE	AMPS	WATTS (Hz)	STAND BY PWR	UPS	CLASS 1, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
1.82	Anenalytical Chemistry lab																																			
	Casework	Per Plan																																		
	Sink (Epoxy)	1	28	15	12												X	X	X		X															
	Reagent Shelving	Per Plan																																		
	Eyewash	1																X							G3400 Plagmold at reagent shelving											
	Lab Gasses						X	X	X																											One turret of CA & N2 per bench; two turrets VAC per bench
	Spot Exhaust	2																						100												Vocate above benches, 4" dia. at clg. w/sled gate
	Emergency Shower	1																X																		
	Fume Hoods																																			
	6' Fume Hood, one Acid/Flam, one Base/Flam cabs	2	72	36	78		■	X	X															1000	120	1	20					X			7-9-07 rev
	[Floor Mounted] Equipment Zone	Per Plan																																		
	Undercounter refrigerator	2	24	24	34																				Wiremold XXX wall mtd at equipment zone											
																									120	1	2									
	Benchtop Equipment																																			
	Rheometer	1	74	32	65																															
	Analytical balances	2																							120	1						X				
	HPLC	1	17	24	17																				120	1										
	LCMS - Waters system	1	20	36	18																				120	1						X				
	UV	1	26	22	11																				120	1						X				
	DSC (+ cooler)	1	25	30	9																				120	1	4					X				
	IR	1	22	30	16																				120	1	7					X				
																									120	1	5					X				
	Storage / Misc Items																																			
	Millpore water	1																X							120	1	20									7-9-07 rev
1.83	SEM Room (First Floor)																																		X	Room needs: low vibration, low air velocity ducts
	Floor Mounted Equipment																																			
	SEM	1																																		
	Critical Point Dryer (+ vacuum pump)	1	18	14	8																				208	2	20		X			X	X			7-9-07 rev, 7-9-07 rev
	Sputter Coater (+ vacuum pump)	1	18	15	17																				110	1	20									Uses tank gasses; hot & cold water supply; good ventilation
																									110	1	20									Uses tank gasses
	Storage / Misc Items																																			

Equipment Utility Matrix

	GENERAL DESCRIPTION	PHYSICAL					PLUMBING / PIPING																HVAC REQUIREMENTS				ELECTRICAL REQUIREMENTS											
ROOM NO.	ROOM AND EQUIPMENT NAMES	QUANTITY	Width	Depth	Height	Weight	COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	ARGON (Ar)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)		DOMESTIC COLD WATER	DOMESTIC HOT WATER	PROTECTED COLD WATER	PROTECTED HOT WATER	TEMPERED WATER	D.I. WATER		SANITARY WASTE	SPECIAL WASTE	TEMP REQ'TS	HUMIDITY REQ'T	CLEAN RM REQ'TS	EXHAUST (CFM)	VOLTS	PHASE	AMPS	WATTS (hw)	STAND BY PWR	UPS	CLASS 1, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
2.0 Biomedical Engineering																																						
2.01	**Bio-Engineering Lab**																																		X	X		
	Casework	Per Plan																																				
	Sink (Epoxy)	2	28	15	12											X	X		X			X																
	Reagent Shelving	Per Plan																									G2400 Plugmold at reagent shelving											
	Eyewash	2																X																				
	Lab Gases						X	X	X																													One turret of CA & N2 per bench; two turrets VAC per benc
	Spot Exhaust	6																								100												locate above benches, 4" dia. at clg. w/blast gate
	Emergency Shower	1																X																				
	Fume Hoods																																					
	6' Fume Hood, Acid/Flam cabs below	2	72	36	78		[redacted]	X	X																	1000	120	1	20					X				7-9-07 rev
	6' Fume Hood, Base/Flam cabs below	2	72	36	78			X	X																	1000	120	1	20					X				7-9-07 rev
	(Floor Mounted) Equipment Zone	Per Plan																									Wiremold 3000 wall mtd at equipment zone											
	Instron Mechanical Tester	1	33	24	31																						120	1							X			
	-20F Freezer	1	36	30	72																						120	1	5		X			X				7-9-07 rev
	4F Refrigerator	1	32	30	66																						120	1	5		X			X				7-9-07 rev
	Gravity Convection Oven (vented)	1	24	24	37																					50	120	1	9	1000								7-9-07 rev (assume 1 of 6 spot exhaust TBD TWO)
	Convection Blower Oven (vented)	1	37	35	48																					50	240	1	18	3850								7-9-07 rev (assume 1 of 6 spot exhaust TBD TWO)
	Benchtop Equipment																																					
	Analytical Balances	2																																				
	Vacuum Oven	2-3	16	16	19			X																			120	1	8	950								
	Shaker Bath	2	14	25	10																						120	1	10	1050								
	Storage / Misc. Items																																					7-6-07 rev
	Ceiling mounted utility drops	6					X	X	X																		120	1	20									Quad's w/ drop chords, flush mtd quick connects
	Portable steam room	1																									120	1	20									overhead exhaust connection to control panel 7-6-07
	Millipore water	1																	X								120	1	20									7-6-07 rev

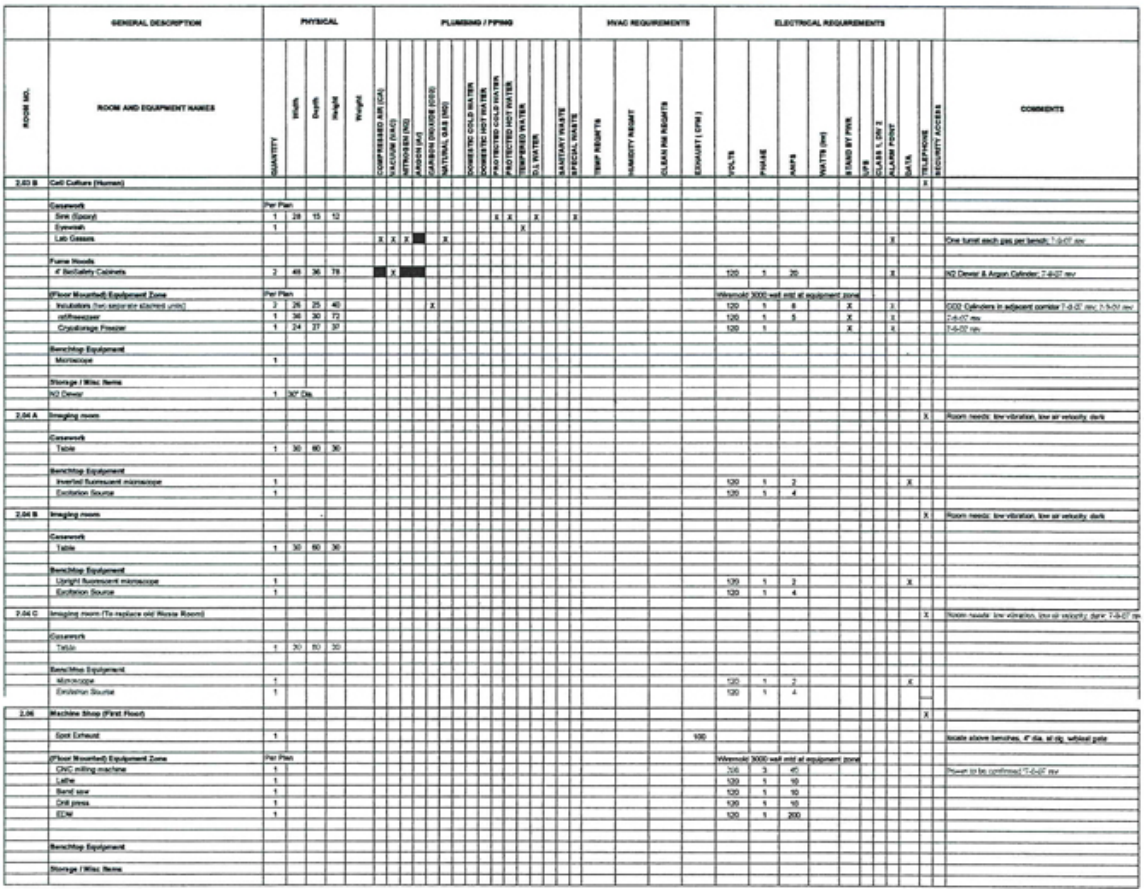
Equipment Utility Matrix

	GENERAL DESCRIPTION	PHYSICAL					FLUMBING / FP'ING															HVAC REQUIREMENTS				ELECTRICAL REQUIREMENTS											
ROOM NO.	ROOM AND EQUIPMENT NAMES	QUANTITY	Width	Depth	Height	Weight	COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	ARGON (AR)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)	DOMESTIC COLD WATER	DOMESTIC HOT WATER	PASTEURIZED COLD WATER	PASTEURIZED HOT WATER	TEMPERED WATER	DI WATER	SANITARY WASTE	SPECIAL WASTE	TEMP REQMTS	HUMIDITY REQMT	CLEAN RM REQMTS	EXHAUST (CFM)	VOLTS	PHASE	AMPS	WATTS (Int)	STAND BY PWR	UPS	CLASS 1, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
2.02 A	Biology Lab																																			
	Casework	Per Plan																																		
	Sink (Epoxy)	2	28	15	12										X	X		X		X																
	Reagent Shelving	Per Plan																							12/2400 Plug-mold w/ reagent shelving											
	Eyewash	1															X																			
	Lab Gasses						X	X	X			X																				X				One turret each gas per bench
	Spot Exhaust	2																						130											locate above benches, 4" dia. sl rtg. w/sled gate
	Emergency Shower	1															X																			
	Fume Hoods																																			
	4' Laminar Flow Hood (BSC)	1	48	36	78			X																600	120	1	20									T-8-07 rev.
	6' Fume Hood: Acid/Perc cabi below	1	72	36	78		■	X	X															1000	120	1	20					X	X			T-8-07 rev.
	(Floor Mounted) Equipment Zone	Per Plan																							Wiremold 3000 wall mtd at equipment zone											
	Undercounter refrigerator	4	24	24	34																				120	1	3		X		X				T-8-07 rev T-8-07 rev
	Refrigerator/Freezer	1	33	30	66																				120	1	5		X		X				T-8-07 rev
	-80 Freezer	1	39	36	80																				220	1			X		X				T-8-07 rev
	Benchtop Equipment																																			
	Lg Centrifuge	1	30	27	17																				240	1	12									
	Sm Centrifuge	1	15	23	13																				120	1	10									
	Microtiter Plate Reader	1	23	17	9																				120	1	4									
	PCR	1	14	18	30																				130	1	10	725	X							T-9-07 rev
	FACS		22	26	19																				130	1	5	930								
	Storage / Misc Items																																			
	Millipore water	1																X							120	1	25									T-5-07 rev
	Ir. Vitro Screening																																			Provide equipment info
	N2 Dewar																																			

Equipment Utility Matrix

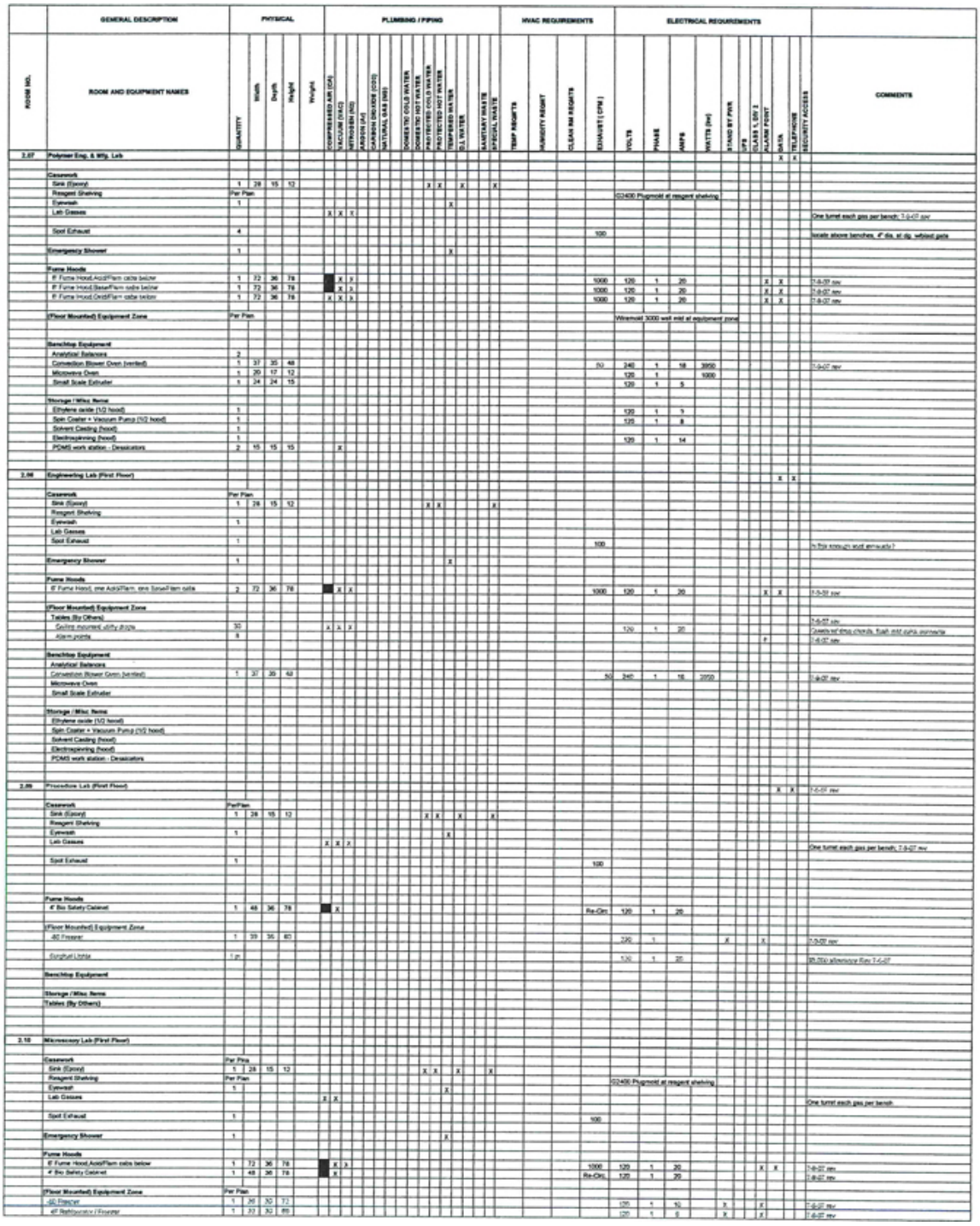
	GENERAL DESCRIPTION	PHYSICAL				PLUMBING / PIPING													HVAC REQUIREMENTS				ELECTRICAL REQUIREMENTS										
ROOM NO.	ROOM AND EQUIPMENT NAMES	QUANTITY	Width	Depth	Height	Weight	COMPRESSED AIR (GA)	VACUUM (VAC)	NITROGEN (N2)	ARGON (Ar)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)	DOMESTIC COLD WATER	DOMESTIC HOT WATER	CHILLED WATER	PROTECTED HOT WATER	TEMPERED WATER	D.I. WATER	SANITARY WASTE	SPECIAL WASTE	TEMP REQ'TS	HUMIDITY REQMT	CLEAN RM REQ'TS	EXHAUST (CFM)	VOLTS	PHASE	AMPS	WATTS (kw)	STAND BY PWR	UPS	CLASS 1, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
2.02 B	Blood Lab																																	
	Casework	Per Plan																																
	Sink (Epoxy)	2	26	15	12										X	X		X		X														
	Reagent Shelving	Per Plan																							G2400 Plug-mold at reagent shelving									
	Eyewash	1															X																	
	Lab Gasses						X	X	X			X																				X			One turret each gas per bench
	Spot Exhaust	1																						100										locate above benches, 4" dia. st dg. w/blast gate
	Emergency Shower	1															X																	
	Fume Hoods																																	
	6' Laminar Flow Hood (BSC)	1	72	36	78			X																600	120	1	20					X			7-9-07 rev
	Floor Mounted) Equipment Zone	Per Plan																							Wiremold 3000 wall mtd at equipment zone									
	Refrigerator/Freezer	1	32	30	66																				120	1	5		X			X			7-9-07 rev
	Incubators (stacked unit)	1	26	25	40						X														120	1	6		X			X			CO2 Cylinders Rev 7-9-07
	Benchtop Equipment																																	
	Blood Cell Counter	1	18	18																					120	1		<250							
	Shakers	2																							120	1									
	Syringe/Peristaltic Pump	1																							120	1									
	Storage / Misc Items																																	
	Millipore water	1																A							120	1	20								7-9-07 rev
2.03 A	Cell Culture (Animal)																																X	
	Casework	Per Plan																																
	Sink (Epoxy)	1	26	15	12										X	X		X		X														
	Eyewash	1															X																	
	Lab Gasses						X	X	X			X																				X			One turret each gas per bench; 7-9-07 rev
	Fume Hoods																																	
	4' BioSafety Cabinets	2	48	36	78			X																	120	1	20					X			N2 Dewar & Argon Cylinder in adjacent corridor; 7-9-07 rev
	Floor Mounted) Equipment Zone	Per Plan																							Wiremold 3000 wall mtd at equipment zone									
	Incubators (two separate stacked units)	2	26	25	40						X														120	1	6		X			X			CO2 Cylinders in adjacent corridor 7-9-07 rev; 7-9-07 rev
	-20 Freezer	1	36	30	72																				120	1	5		X			X			7-9-07 rev
	4F Refrigerator	1	32	30	66																				120	1	5		X			X			7-9-07 rev
	Benchtop Equipment																																	
	Microscope	1																																

Equipment Utility Matrix



ROOM NO.	ROOM AND EQUIPMENT NAMES	QUANTITY	Width	Depth	Height	Weight	COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	ARGON (AR)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)	DOMESTIC COLD WATER	DOMESTIC HOT WATER	PROTECTED COLD WATER	PROTECTED HOT WATER	TEMPERED WATER	DI WATER	SANITARY WASTE	SPECIAL WASTE	TEMP REMOTE	HUMIDITY RELIEF	CLEAN RM RELIEFS	EXHAUST (CFM)	VOLTS	PHASE	AMPS	WATTS (Im)	STAND BY PWR	UPS	CLASS 1, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
2.03 B	Cell Culture (Human)																																	X	
	Casework	Per Plan																																	
	Sink (Epoxy)	1	28	15	12										X	X		X		X															
	Eyewash	1															X																		
	Lab Gasses						X	X	X			X																				X			One turret each gas per bench; 7-9-07 rev
	Fume Hoods																																		
	4' BioSafety Cabinets	2	48	36	78			X																	120	1	20					X			N2 Dewar & Argon Cylinder 7-9-07 rev
	(Floor Mounted) Equipment Zone	Per Plan																							Wiremold 3000 wall mtd at equipment zone										
	Incubators (two separate stacked units)	2	26	25	40						X														120	1	8		X			X			CO2 Cylinders in adjacent corridor 7-9-07 rev; 7-9-07 rev
	refrfreezer	1	36	30	72																				120	1	5		X			X			7-9-07 rev
	Cryostorage Freezer	1	24	27	37																				120	1			X			X			7-9-07 rev
	Benchtop Equipment																																		
	Microscope	1																																	
	Storage / Misc Items																																		
	N2 Dewar	1	30" Dia.																																
2.04 A	Imaging room																																	X	Room needs: low vibration, low air velocity, dark
	Casework																																		
	Table	1	30	60	30																														
	Benchtop Equipment																																		
	Inverted fluorescent microscope	1																							120	1	2					X			
	Excitation Source	1																							120	1	4								
2.04 B	Imaging room																																	X	Room needs: low vibration, low air velocity, dark
	Casework																																		
	Table	1	30	60	30																														
	Benchtop Equipment																																		
	Upright fluorescent microscope	1																							120	1	2					X			
	Excitation Source	1																							120	1	4								
2.04 C	Imaging room (To replace old Waste Room)																																	X	Room needs: low vibration, low air velocity, dark 7-9-07 rev
	Casework																																		
	Table	1	30	60	30																														
	Benchtop Equipment																																		
	Microscope	1																							120	1	2					X			
	Excitation Source	1																							120	1	4								
2.06	Machine Shop (First Floor)																																	X	
	Spot Exhaust	1																						100											locate above benches, 4" dia. w/ dg. w/hood gate
	(Floor Mounted) Equipment Zone	Per Plan																							Wiremold 3000 wall mtd at equipment zone										
	CNC milling machine	1																							208	3	45								Power to be confirmed 7-9-07 rev
	Lathe	1																							120	1	10								
	Band saw	1																							120	1	10								
	Drill press	1																							120	1	10								
	EDM	1																							120	1	200								
	Benchtop Equipment																																		
	Storage / Misc Items																																		

Equipment Utility Matrix



ROOM NO.	ROOM AND EQUIPMENT NAMES	GENERAL DESCRIPTION	PHYSICAL: QUANTITY	PHYSICAL: Width	PHYSICAL: Depth	PHYSICAL: Height	PHYSICAL: Weight	PLUMBING / PIPING: COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	ARGON (AR)	HELIUM (HE)	NATURAL GAS (NG)	DOMESTIC COLD WATER	DOMESTIC HOT WATER	PRE-HEATED COLD WATER	PROTECTED HOT WATER	TEMPERED WATER	D.I. WATER	SANITARY WASTE	SPECIAL WASTE	HVAC REQUIREMENTS: TEMP. REQMTS	HUMIDITY REQMT	CLEAN RM REQMTS	EXHAUST (CFM)	ELECTRICAL REQUIREMENTS: VOLTS	PHASE	AMPS	WATTS (est)	STAND BY PWR	UPS	CLASS 1, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
2.07	Polymer Eng. & Mfg. Lab																																		X	X	
	Casework																																				
	Sink (Epoxy)		1	28	15	12										X	X		X		X															
	Reagent Shelving		Per Plan																																		
	Eyewash		1															X																			
	Lab Gasses							X	X	X																											One turret each gas per bench; 7-9-07 rev
	Spot Exhaust		4																							100											locate above benches, 4" dia. w/ dig. w/stool gate
	Emergency Shower		1															X																			
	Fume Hoods																																				
	8' Fume Hood,Acid/Flam cabs below		1	72	36	78			X	X																1000	120	1	20						X	X		7-9-07 rev
	8' Fume Hood,Base/Flam cabs below		1	72	36	78			X	X																1000	120	1	20						X	X		7-9-07 rev
	8' Fume Hood,Cmbl/Flam cabs below		1	72	36	78		X	X	X																1000	120	1	20						X	X		7-9-07 rev
	(Floor Mounted) Equipment Zone		Per Plan																								Wiremold 3000 wall mtd at equipment zone										
	Benchtop Equipment																																				
	Analytical Balances		2																																		
	Convection Blower Oven (ventless)		1	37	35	48																				(N)	240	1	18	3950								7-9-07 rev
	Microwave Oven		1	20	17	12																					120	1		1000								
	Small Scale Extruder		1	24	24	15																					120	1	5									
	Storage / Misc Items																																				
	Ethylene oxide (1/2 hood)		1																								120	1	1									
	Spin Coater + Vacuum Pump (1/2 hood)		1																								120	1	8									
	Solvent Casting (hood)		1																																		
	Electrospinning (hood)		1																								120	1	14									
	PDMS work station - Desiccators		2	15	15	15			X																												
2.08	Engineering Lab (First Floor)																																		X	X	
	Casework		Per Plan																																		
	Sink (Epoxy)		1	28	15	12										X	X				X															
	Reagent Shelving																																				
	Eyewash		1																																		
	Lab Gasses																																				
	Spot Exhaust		1																							100											Is this enough vent removals?
	Emergency Shower		1															X																			
	Fume Hoods																																				
	8' Fume Hood, one Acid/Flam, one Solvt/Flam cabs		2	72	36	78			X	X																1000	120	1	20						X	X		7-9-07 rev
	(Floor Mounted) Equipment Zone																																				
	Tables (By Others)																																				7-9-07 rev
	Ceiling mounted utility drops		30						X	X	X																120	1	20									Towers w/ drop chords, flush mnt data connects
	Alarm points		8																																		7-9-07 rev
	Benchtop Equipment																																				
	Analytical Balances																																				
	Convection Blower Oven (ventless)		1	37	35	48																				50	240	1	18	3950								7-9-07 rev
	Microwave Oven																																				
	Small Scale Extruder																																				
	Storage / Misc Items																																				
	Ethylene oxide (1/2 hood)																																				
	Spin Coater + Vacuum Pump (1/2 hood)																																				
	Solvent Casting (hood)																																				
	Electrospinning (hood)																																				
	PDMS work station - Desiccators																																				
2.09	Procedure Lab (First Floor)																																		X	X	7-9-07 rev
	Casework		Per Plan																																		
	Sink (Epoxy)		1	28	15	12										X	X		X		X															
	Reagent Shelving																																				
	Eyewash		1															X																			
	Lab Gasses							X	X	X																											One turret each gas per bench; 7-9-07 rev
	Spot Exhaust		1																							100											
	Fume Hoods																																				
	4' Bio Safety Cabinet		1	48	36	78			X																	Re-Circ	120	1	20								
	(Floor Mounted) Equipment Zone																																				
	-80 Freezer		1	39	35	80																					240	1			X		X					7-9-07 rev
	Surgical Lights		1 pr																								120	1	20									20.70% allowance Rev 7-6-07
	Benchtop Equipment																																				
	Storage / Misc Items																																				
	Tables (By Others)																																				
2.10	Microscopy Lab (First Floor)																																				
	Casework		Per Plns																																		
	Sink (Epoxy)		1	28	15	12										X	X		X		X															
	Reagent Shelving		Per Plan																																		
	Eyewash		1															X																			
	Lab Gasses							X	X																												One turret each gas per bench
	Spot Exhaust		1																							100											
	Emergency Shower		1															X																			
	Fume Hoods																																				
	8' Fume Hood,Acid/Flam cabs below		1	72	36	78			X	X																1000	120	1	20						X	X		7-9-07 rev
	4' Bio Safety Cabinet		1	48	36	78			X																	Re-Circ	120	1	20									7-9-07 rev
	(Floor Mounted) Equipment Zone		Per Plan																																		
	-80 Freezer		1	30	30	72																					120	1	10		X		X					7-9-07 rev
	-40 Refrigerator / Freezer		1	33	30	65																					120	1	8		X		X					7-9-07 rev

Equipment Utility Matrix

	GENERAL DESCRIPTION	PHYSICAL					PLUMBING / PIPING															HVAC REQUIREMENTS				ELECTRICAL REQUIREMENTS										
ROOM NO.	ROOM AND EQUIPMENT NAMES	QUANTITY	Width	Depth	Height	Weight	COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)	DOMESTIC COLD WATER	DOMESTIC HOT WATER	PROTECTED COLD WATER	PROTECTED HOT WATER	TEMPERED WATER	D.I. WATER	SANITARY WASTE	SPECIAL WASTE	TEMP. REQMTS	HUMIDITY REQMT	CLEAN AIR REQMTS	EXHAUSTS (CFM)	VOLTS	PHASE	AMPS	WATTS (kw)	STAND BY PWR	UPS	CLASS I, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
	Microenvironme	1																						120	1										7-9-07 rev
	Benchtop Equipment																																		
	Storage / Misc Items																																		
	Millenia water	1															X							120	1	20									7-9-07 rev
3.0 Laboratory Support																																			
3.01	**Shipping and Receiving**																																X		
3.02	**Mechanical Room**																																		
3.03	**Waste Storage**																																		Conc 1 div 2 grounding bar rev 6-7-07
3.04	**Solvent Storage**																																		Conc 1 div 2 grounding bar rev 6-7-07
3.05	**NMR Room**																											X				X	X		
	Bruker Avance 400	1	28" Dia.		111" H																			400	3	16		X		X					Shielded Type (By Others) 7-9-07
3.06	**Glasswash**																																		
	Glasswasher (G7187S Miele)	1	36	30	79									X	X		X		X					208	3	30									By Others
	Autoclave w/integral steam generator (Amsco Eagle 3075)	1	36	40	74									X					X					480	3	36									By Others
	Soultery Sink (Stainless Steel)	1												X	X				X																
	Ice Maker	1																	X					110	1	20									7-9-07 rev
	Dry Ice Chest	1																																	
3.07	**Not Used**																																		
3.08	**Lab Supplies Storage**																																		
3.09	**Expansion**																																		

Equipment Utility Matrix

	GENERAL DESCRIPTION		PHYSICAL				PLUMBING / PIPING																HVAC REQUIREMENTS				ELECTRICAL REQUIREMENTS											
ROOM NO.	ROOM AND EQUIPMENT NAMES	QUANTITY	Width	Depth	Height	Weight	COMPRESSED AIR (CA)	VACUUM (VAC)	NITROGEN (N2)	ARGON (Ar)	CARBON DIOXIDE (CO2)	NATURAL GAS (NG)		DOMESTIC COLD WATER	DOMESTIC HOT WATER	PROTECTED COLD WATER	PROTECTED HOT WATER	TEMPERED WATER	DI WATER		SANITARY WASTE	SPECIAL WASTE	TEMP REQ'TS	HUMIDITY REQ'MT	CLEAN RM REQ'TS	EXHAUST (CFM)	VOLTS	PHASE	AMPS	WATTS (kw)	STAND BY PWR	UPS	CLASS 1, DIV 2	ALARM POINT	DATA	TELEPHONE	SECURITY ACCESS	COMMENTS
5.0 Administrative Areas																																						
5.01	Private offices - Chem	5																																	X	X		
5.03	Private offices - Bio Eng.	5																																	X	2x		
5.05	Private offices - Admin.	5																																	X	2x		
5.06	Private Office (First Floor)	1																																	X	2x		
5.02	Work stations	40																																	X	X		
5.07	Break / Lunch																																			X		
	Refrigerator	1												X													120	1	5									
	Sink w/disposal (Stainless Steel)	1												X	X						X																	
	Dishwasher	1												X	X						X						120	1	10									
	Microwave Oven	1																									120	1		1000								
	Coffee Machine	1												X													120	1	3									
5.08	Conference sm.																																		X	X		
5.09	Conference lg.																																		X	X		
5.10	Storage																																					
5.12	Entry / Reception																																		X	X		
5.13	IT Closet																						X	X							X			X	X	X		Uninterruptible power required. 7-9-07 rev (TRG- IMC- HGF
	FM200																																					7-9-07 rev (FM200 is an ecs alarmer)
5.14	Copy / Print room																										120	1	20						X	X		7-9-07 rev
205	Janitor closet - Base Building																																					
	Mop Sink	1														X	X					X																
5.19	Printer Alcove	2																									120	1	20						X	X		7-9-07 rev
5.20	Chair Storage																																					

SCHEDULE C TO WORK LETTER

Outline Base Building Specifications

Site:

- Repaved and reconfigured driveways and parking lot per proposed site plan. Parking lot to accommodate about 388 spaces or 2.7 per thousand sf.
- New exterior landscaping in parking areas and around building per landscape plans.
- Existing domestic water and fire service upgraded as required.
- Sewer connection for domestic and industrial wastewater.
- New exterior pedestal signage per Alexandria spec and Town of Watertown requirements. Main building sign reading “Alexandria Technology Center” to be placed at south boundary of site facing the entry road. Building-mounted tenant identification sign to be provided for tenants leasing greater them 50,000 sf.
- New intermediate pressure natural gas service providing 36,000 cfh capacity.

Concrete/Masonry:

- New concrete footings beneath two-story sections.
- Place/finish concrete slab on grade at where required.
- New second floor slab with design live load of 120 Ibs/sf.

Steel/Metals:

- New framing and bracing to meet current seismic code and to provide 120 Ib/sf live load at second floor.
- New stairs to second floor as shown on shell building floor plan.
- Miscellaneous metal items (lintels, canopy framing, etc.) related to shell building construction.

Exterior:

- New Exterior wall/windows to include brick masonry with precast concrete accents, E.I.F.S parapet, 20[1] +/- ribbon window glazing units, and accent certain wall system at south wall of high-bay section, all as shown on shell building elevations.
- New roofing system on entire roof consisting of fully-adhered single-ply EPDM with rigid insulation.
- Acoustical roof screen for chillers at 2nd floor roof.

Interior:

- Finished first floor building lobby and corridor at main entrance including flooring, wood or tilewall accents, drywall and suspended ceilings and appropriate accent lighting.
- Finished shell building electrical room.
- Finished loading area with truck bay(s), dumpster pad.
- Doors and frames at comman areas: aluminum and glass at entries, hollow metal frames and hollow metal doors at service areas, solid core wood doors at other areas, and heavy-duty lever hardware.
- New common area restrooms with shower facilities, located off main corridor.

Elevators:

- New 5,000 pound capacity freight elevator near center corridor. New 2,500 pound passenger elevator at front lobby.

Plumbling/Fire Protection:

- New 4" water service & new double check valve assemblies and backflow prevention as needed.
- Combination sprinkler/standpipe system with fire department valves.

- Alarm check-valve and Siamese connection.
- Flow control valve assemblies and test drains.
- Sprinkler coverage to all core areas.
- Flow switches, tamper switches, pressure switches
- Fixtures and plumbing for new common area restrooms.

Mechanical:

- New high-efficiency gas-fired boilers and hot water pumps, sized to meet 1.5 cfm/sf ventilation requirement, to be located in tenant mechanical rooms.
- New air-cooled chillers and chilled water pumps, sized to meet 1.5 cfm/sf ventilation requirement, located on second floor roof.
- Rooftop HVAC units for lobby, common corridors, and restrooms.

Electrical:

- Existing House Main Switchboard, dual food, consisting of 4,000 amps at 480/277 volts and 2,000 amps at 480/277 volts.
- Exit/emergency life safety fighting consisting of battery packs in the lobbies, loading dock, and common mechanical spaces.
- New City-connected addressable fire alarm system including code-required devices at lobbies, loading dock, and common mechanical spaces.
- New site lighting per site plan.
- Conduit to stand-by generator pad location in parking lot.

SCHEDULE D TO WORK LETTER

Landlord's Work – Base Building Work

1. Design and construct new mechanical room in first floor Area D.
2. Provide new air handler with associated piping and duct to provide 1.5 cfm to Area D per Base Building Specification.
3. Regrade and place concrete slab in first floor Area D

EXHIBIT D TO LEASE

ACKNOWLEDGMENT OF COMMENCEMENT DATE

This **ACKNOWLEDGMENT OF COMMENCEMENT DATE** is made as of this ____ day of _____, 2007, between ARE-480 Arsenal Street, LLC, a Delaware limited liability company (**"Landlord"**), and WMR Biomedical, Inc., a Delaware corporation (**"Tenant"**), and is attached to and made a part of the Lease dated as of _____, 2007 (the **"Lease"),** by and between Landlord and Tenant. Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

Landlord and Tenant hereby acknowledge and agree, for all purposes of the Lease, that the Commencement Date of the Base Term of the Lease is _____, _____ and the termination date of the Base Term of the Lease shall be midnight on _____, _____. In case of a conflict between the terms of the Lease and the terms of this Acknowledgement of Commencement Date, this Acknowledgement of Commencement Date shall control for all purposes.

IN WITNESS WHEREOF, Landlord and Tenant have executed this ACKNOWLEDGMENT OF COMMENCEMENT DATE to be effective on the date first above written.

TENANT:

WMR BIOMEDICAL, INC., a Delaware corporation

By: _____
Its: _____

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: _____

EXHIBIT E TO LEASE

Rules and Regulations

1. The sidewalk, entries, and driveways of the Project shall not be obstructed by Tenant, or any Tenant Party, or used by them for any purpose other than ingress and egress to and from the Premises.

2. Tenant shall not place any objects, including antennas, outdoor furniture, etc., in the parking areas, landscaped areas or other areas outside of its Premises, or on the roof of the Project.

3. Except for animals assisting the disabled, no animals shall be allowed in the offices, halls, or corridors in the Project.

4. Tenant shall not disturb the occupants of the Project or adjoining buildings by the use of any radio or musical instrument or by the making of loud or improper noises.

5. If Tenant desires telegraphic, telephonic or other electric connections in the Premises, Landlord or its agent will direct the electrician as to where and how the wires may be introduced; and, without such direction, no boring or cutting of wires will be permitted. Any such installation or connection shall be made at Tenant's expense.

6. Tenant shall not install or operate any steam or gas engine or boiler, or other mechanical apparatus in the Premises, except as specifically approved in the Lease. The use of oil, gas or inflammable liquids for heating, lighting or any other purpose is expressly prohibited. Explosives or other articles deemed extra hazardous shall not be brought into the Project.

7. Parking any type of recreational vehicles is specifically prohibited on or about the Project. Except for the overnight parking of operative vehicles, no vehicle of any type shall be stored in the parking areas at any time. In the event that a vehicle is disabled, it shall be removed within 48 hours. There shall be no "For Sale" or other advertising signs on or about any parked vehicle. All vehicles shall be parked in the designated parking areas in conformity with all signs and other markings. All parking will be open parking, and no reserved parking, numbering or lettering of individual spaces will be permitted except as specified by Landlord.

8. Tenant shall maintain the Premises free from rodents, insects and other pests.

9. Landlord reserves the right to exclude or expel from the Project any person who, in the judgment of Landlord, is intoxicated or under the influence of liquor or drugs or who shall in any manner do any act in violation of the Rules and Regulations of the Project.

10. Tenant shall not cause any unnecessary labor by reason of Tenant's carelessness or indifference in the preservation of good order and cleanliness. Landlord shall not be responsible to Tenant for any loss of property on the Premises, however occurring, or for any damage done to the effects of Tenant by the janitors or any other employee or person.

11. Tenant shall give Landlord prompt notice of any defects in the water, lawn sprinkler, sewage, gas pipes, electrical lights and fixtures, heating apparatus, or any other service equipment affecting the Premises.

12. Tenant shall not permit storage outside the Premises, including without limitation, outside storage of trucks and other vehicles, or dumping of waste or refuse or permit any harmful materials to be placed in any drainage system or sanitary system in or about the Premises.

13. All moveable trash receptacles provided by the trash disposal firm for the Premises must be kept in the trash enclosure areas, if any, provided for that purpose.

14. No auction, public or private, will be permitted on the Premises or the Project.

15. No awnings shall be placed over the windows in the Premises except with the prior written consent of Landlord.

16. The Premises shall not be used for lodging, sleeping or cooking or for any immoral or illegal purposes or for any purpose other than that specified in the Lease. No gaming devices shall be operated in the Premises.

17. Tenant shall ascertain from Landlord the maximum amount of electrical current which can safely be used in the Premises, taking into account the capacity of the electrical wiring in the Project and the Premises and the needs of other tenants, and shall not use more than such safe capacity. Landlord's consent to the installation of electric equipment shall not relieve Tenant from the obligation not to use more electricity than such safe capacity.

18. Tenant assumes full responsibility for protecting the Premises from theft, robbery and pilferage.

19. Tenant shall not install or operate on the Premises any machinery or mechanical devices of a nature not directly related to Tenant's ordinary use of the Premises and shall keep all such machinery free of vibration, noise and air waves which may be transmitted beyond the Premises.

EXHIBIT F TO LEASE

TENANT'S PERSONAL PROPERTY

None

LEASE AGREEMENT

THIS LEASE AGREEMENT is made as of this 14 day of August, 2007, between ARE-480 ARSENAL STREET, LLC, a Delaware limited liability company ("Landlord"), and WMR BIOMEDICAL, INC., a Delaware corporation ("Tenant").

BASIC LEASE PROVISIONS

Address: 480 Arsenal Street, Watertown, Massachusetts

Premises: That portion of the Project comprised of all of Area 2C and a portion of Area 1D of the Building (as hereinafter defined), containing approximately 27,311 rentable square feet in the aggregate, as determined by Landlord, as more particularly shown on **Exhibit A**.

Project: The real property on which the building (the "**Building**") in which the Premises are located, together with all improvements thereon and appurtenances thereto as described on **Exhibit B**.

Base Rent*:

Months 1-12	$75,628.71, per month
Months 13-24	$80,180.54, per month
Months 25-36	$84,732.38, per month
Months 37-48	$89,284.21, per month
Months 49-60	$93,836.04, per month
Months 61-63	$96,111.96, per month

Rentable Area of Premises: 27,311 sq. ft.

Rentable Area of Project: 140,744 sq. ft. **Tenant's Share of Operating Expenses:** 19.40%

Security Deposit: $302,514.84 **Target Commencement Date:** February 1, 2008

Rent Commencement Date: Commencement Date

Base Term: Beginning on the Commencement Date and ending sixty-three (63) months from the first day of the first full month of the Term (as defined in Section 2) hereof

Permitted Use: Research and development laboratory, related office and other related uses consistent with the character of the Project and otherwise in compliance with the provisions of Section 6 hereof.

Address for Rent Payment:
385 E. Colorado Boulevard, Suite 299
Pasadena, CA 91101
Attention: Accounts Receivable

Landlord's Notice Address:
385 E. Colorado Boulevard, Suite 299
Pasadena, CA 91101
Attention: Corporate Secretary

(j) **Incorporation by Reference**. All exhibits and addenda attached hereto are hereby incorporated into this Lease and made a part hereof. If there is any conflict between such exhibits or addenda and the terms of this Lease, such exhibits or addenda shall control.

(k) **Hazardous Activities**. Notwithstanding any other provision of this Lease, Landlord, for itself and its employees, agents and contractors, reserves the right to refuse to perform any repairs or services in any portion of the Premises which, pursuant to Tenant's routine safety guidelines, practices or custom or prudent industry practices, require any form of protective clothing or equipment other than safety glasses. In any such case, Tenant shall contract with parties who are acceptable to Landlord, in Landlord's reasonable discretion, for all such repairs and services, and Landlord shall, to the extent required, equitably adjust Tenant's Share of Operating Expenses in respect of such repairs or services to reflect that Landlord is not providing such repairs or services to Tenant.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease as of the day and year first above written.

TENANT:

WMR BIOMEDICAL, INC.,
a Delaware corporation

By: /s/ Carmichael Roberts
Carmichael Roberts, Chief Executive Officer

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: /s/ GARY DEAN
GARY DEAN
VP - RE LEGAL AFFAIRS

FIRST AMENDMENT TO LEASE

THIS FIRST AMENDMENT TO LEASE (this "**First Amendment**") is made as of July 21, 2008, by and between **ARE-480 ARSENAL STREET, LLC**, a Delaware limited liability company ("**Landlord**"), and **ARSENAL MEDICAL, INC.,** a Delaware corporation ("**Tenant**"), formerly known as WMR Biomedical, Inc., a Delaware corporation.

RECITALS

A. Landlord and Tenant are parties to that certain Lease Agreement dated as of August 14, 2007 (the "**Lease**"). Tenant leases certain space containing approximately 27,311 rentable square feet in a building located at 480 Arsenal Street, Watertown, Massachusetts (the "**Premises**"). Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. Pursuant to Section 5(c) of the Work Letter, Landlord and Tenant agreed that for each $1.00 per rentable square foot of the Premises that the TI Budget was greater than the TI Costs, Landlord would reduce the amount of Base Rent due under the Lease by an amount equal to $0.10 per rentable square foot per year.

C. Landlord and Tenant acknowledge and agree that the TI Budget exceeded the TI Costs by $1.00 per rentable square foot of the Premises.

D. Landlord and Tenant desire, subject to the terms and conditions set forth herein, to amend the Lease to provide for a reduction of Base Rent retroactive to the Commencement Date equal to $0.10 per rentable square foot per year.

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **Base Rent**. The defined term "**Base Rent**" on page 1 of the Lease is hereby deleted in its entirety and replaced with the following:

"**Base Rent:** Months 1-12 $75,401.12
Months 13-24 $79,952.95
Months 25-36 $84,504,79
Months 37-48 $89,056.62
Months 49-60 $93,608.45
Months 61-63 $95,884.37"

2. **Base Rent Adjustment**. The provisions of Section 5(c) of the Work Letter regarding adjustments in Base Rent shall be of no further force or effect, and Tenant shall not be entitled to any additional reductions to Base Rent due under the Lease.

3. **Broker**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with the transaction reflected in this First Amendment and that no Broker brought about this transaction. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this First Amendment.

4. Miscellaneous.

(a) This First Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This First Amendment may be amended only by an agreement in writing, signed by the parties hereto.

(b) This First Amendment is binding upon and shall inure to the benefit of the parties hereto, their respective agents, employees, representatives, officers, directors, divisions, subsidiaries, affiliates, assigns, heirs, successors in interest and shareholders.

(c) This First Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which when taken together shall constitute one and the same instrument. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto except having additional signature pages executed by other parties to this First Amendment attached thereto.

(d) Except as amended and/or modified by this First Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this First Amendment. In the event of any conflict between the provisions of this First Amendment and the provisions of the Lease, the provisions of this First Amendment shall prevail. Whether or not specifically amended by this First Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this First Amendment.

[Signatures are on the next page]

IN WITNESS WHEREOF, the parties hereto have executed this First Amendment as of the day and year first above written.

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership, managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: 

Its: Vp

TENANT:

ARSENAL MEDICAL, INC.,
a Delaware corporation

By: _____

Its: PRESIDENT & CEO

SECOND AMENDMENT TO LEASE

THIS SECOND AMENDMENT TO LEASE (this "**Second Amendment**") is made as of September 4, 2012, by and between **ARE-480 ARSENAL STREET, LLC**, a Delaware limited liability company ("**Landlord**"), and **480 BIOMEDICAL, INC**., a Delaware corporation ("**Tenant**").

RECITALS

A. Landlord and Tenant are now parties to that certain Lease Agreement dated as of August 14, 2007, as amended by that certain First Amendment to Lease dated as of July 21, 2008 (as amended, the "**Lease**"). Pursuant to the Lease, Tenant leases certain premises consisting of approximately 27,311 rentable square feet ("**Premises**") in a building located at 480 Arsenal Street, Watertown, Massachusetts. The Premises are more particularly described in the Lease. Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. The Base Term of the Lease is scheduled to expire on April 30, 2013.

C. Landlord and Tenant desire, subject to the terms and conditions set forth below, to amend the Lease to, among other things, extend the Base Term.

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **Base Term**. The defined term "**Base Term**" on page 1 of the Lease is hereby deleted in its entirety and replaced with the following:

"**Base Term:** Beginning on the Commencement Date and ending on April 30, 2018."

2. **Base Rent**. Tenant shall continue to pay Base Rent as provided for in the Lease through April 30, 2013. Commencing on May 1, 2013, Tenant shall commence paying Base Rent for the Premises at the rate of $36.00 per rentable square foot of the Premises per year, which shall be paid in equal monthly installments. Base Rent shall be increased on May 1, 2014, and on each May 1st thereafter during the Base Term (each, an "**Adjustment Date**"), by multiplying the Base Rent payable immediately before such Adjustment Date by 3% ("**Rent Adjustment Percentage**") and adding the resulting amount to the Base Rent payable immediately before such Adjustment Date.

3. **Tl Allowance**. Landlord shall make available to Tenant a tenant improvement allowance of up to $136,555 for the design and construction of fixed and permanent improvements desired by and performed by Tenant in the Premises pursuant to the Work Letter attached to this Second Amendment as **Exhibit A**.

4. **Expansion Rights**.

a. **Right of Second Offer**. Subject to the superior rights of Selecta Pharmaceuticals ("**Selecta**"), commencing on January 1, 2013, and continuing through October 31, 2015 ("**Expansion Right Period**"), Tenant shall have the right, but not the obligation, to expand the Premises (the "**Second Priority Expansion Right**") to include any Available Space in the Building upon the terms and conditions in this Section. For purposes of this Section 4(a), "**Available Space**" shall mean that certain space located on the first floor of the Building which is known as Suite 110, consisting of approximately 15,899 rentable square feet, which is not occupied by a tenant or which is occupied by a then-existing tenant whose lease is expiring within

six (6) months or less and such tenant does not wish to renew (whether or not such tenant has a right to renew) its occupancy of such space. Upon Tenant's request, Landlord agrees to provide periodic updates from time to time to Tenant regarding the then-current expiration date of the then-existing tenant's lease for the Available Space, any extension or renewal options available to such then-existing tenant or extension or renewal elections made by such then-existing tenant with respect to the Available Space, and the status of Selecta's superior offer rights to lease such Available Space. If there is any Available Space in the Building at any time and from time to time during the Expansion Right Period, then prior to offering or marketing such Available Space to any third party (other than Selecta in accordance with the existing terms and provisions of Selecta's lease as of the date hereof), but otherwise at such time as Landlord shall elect so long as Tenant's rights hereunder are preserved, Landlord shall deliver to Tenant written notice (the "**SPER Expansion Notice**") of such Available Space, together with the fair market terms and conditions (including, without limitation, Landlord's determination of the ROSO Market Rate (defined below)) on which Landlord is prepared to lease the Available Space to Tenant. The "**ROSO Market Rate**" shall mean the then fair market rental rate for space of comparable size, age and quality in laboratory/office buildings in the Market Set (defined below) for a comparable term, and taking into account rental concessions, tenant improvement allowances, all Alterations and other improvements to the Available Space and all other relevant factors. The "**Market Set**" shall mean and include the following markets: Watertown, Waltham, Lexington and the Alewife section of Cambridge, Massachusetts. If the parties are unable to agree on the ROSO Market Rate within forty-five (45) days after Tenant's delivery to Landlord of an SPER Exercise Notice (defined below), the ROSO Market Rate shall be determined by arbitration pursuant to Section 40 of the Lease. Provided that Selecta does not exercise its expansion right with respect to the Available Space, Tenant shall be entitled to lease such Available Space as provided in this Section 4(a). Tenant shall have seven (7) business days following Tenant's receipt of the SPER Expansion Notice to deliver to Landlord written notification of Tenant's exercise of the Second Priority Expansion Right **(**"**SPER Exercise Notice**"). If Tenant has elected to exercise its Second Priority Expansion Right by delivery of an SPER Exercise Notice pursuant to this Section 4(a), Tenant shall have no right thereafter to rescind or elect not to expand the Premises to include the Available Space. Tenant's failure to deliver an SPER Exercise Notice to Landlord shall be deemed to be an election by Tenant not to exercise Tenant's Second Priority Expansion Right with respect to the Available Space, in which case Landlord shall have the right to lease the Available Space to any third party on any terms and conditions acceptable to Landlord; provided, however, that if Landlord intends to lease the Available Space to a third party for ninety-two and one-half percent (92.5%) or less of the net effective rent contained in the SPER Expansion Notice, then prior to leasing the Available Space to a third party, Landlord shall again give Tenant an SPER Expansion Notice and Tenant shall again have its Second Priority Expansion Right, subject to the terms and conditions of this Section 4(a).

b. **Right of First Offer.** Tenant shall have the right, but not the obligation, during the Expansion Right Period to expand the Premises (the "**Expansion Right**") to include any Expansion Space in the Building upon the terms and conditions in this Section 4(b). For purposes of this Section 4(b), "**Expansion Space**" shall mean any space on the first floor of the Building (other than the Available Space) which is not occupied by an existing tenant or which is occupied by a tenant whose lease is expiring within six (6) months, or less and such then tenant does not wish to renew (whether or not such tenant has a right to renew) its occupancy of such space. Upon Tenant's request, Landlord agrees to provide periodic updates from time to time to Tenant regarding the then-current expiration date of each then-existing tenants' leases for the Expansion Space, any extension or renewal options available to such then-existing tenants or extension or renewal elections made by such then-existing tenants with respect to the Expansion Space. If there is any Expansion Space available at any time and from time to time during the Expansion Right Period, then prior to offering or marketing such Expansion Space to any third party, but otherwise at such time as Landlord shall elect so long as Tenant's rights hereunder are preserved, Landlord shall deliver to Tenant written notice (the "**ROFO Expansion Notice**") of such Expansion Space **(**"**Identified Space**"), together with the fair market terms and conditions

(including, without limitation, Landlord's determination of the ROFO Market Rate (defined below)) on which Landlord is prepared to lease Tenant such Identified Space. The "**ROFO Market Rate**" shall mean the then fair market rental rate for space of comparable size, age and quality in laboratory/office buildings in the Market Set for a comparable term, and taking into account rental concessions, tenant improvement allowances, all Alterations and other improvements to the Identified Space and all other relevant factors. If the parties are unable to agree on the ROFO Market Rate within forty-five (45) days after Tenant's delivery to Landlord of an ROFO Exercise Notice (defined below), the ROFO Market Rate shall be determined by arbitration pursuant to Section 40 of the Lease. Tenant shall have seven (7) business days following Tenant's receipt of the ROFO Expansion Notice to deliver to Landlord written notification of Tenant's exercise of the Expansion Right **(**"**ROFO Exercise Notice**"). If Tenant has elected to exercise its Expansion Right by delivery of a ROFO Exercise Notice pursuant to this Section 4(b), Tenant shall have no right thereafter to rescind or elect not to expand the Premises to include the Identified Space. Tenant's failure to deliver a ROFO Exercise Notice to Landlord shall be deemed to be an election by Tenant not to exercise Tenant's Expansion Right with respect to the identified Space, in which case Landlord shall have the right to lease the Identified Space to any third party on any terms and conditions acceptable to Landlord; provided, however, that if Landlord intends to lease the Identified Space to a third party for ninety-two and one-half percent (92.5%) or less of the net effective rent contained in the ROFO Expansion Notice, then prior to leasing the Identified Space to a third party, Landlord shall again give Tenant an ROFO Expansion Notice and Tenant shall again have its Expansion Right, subject to the terms and conditions of this Section 4(b).

c. **Amended Lease.** If: (i) Tenant fails to timely deliver an SPER Exercise Notice or ROFO Exercise Notice, or (ii) after both parties having used diligent and good faith efforts to negotiate a lease amendment or lease agreement and after the expiration of a period of twenty (20) days after Landlord's delivery to Tenant of a lease amendment or lease agreement for Tenant's lease of the Available Space or Identified Space, as applicable, no lease amendment or lease agreement for the Available Space or Identified Space, as applicable, acceptable to both parties each in their sole and absolute discretion, has been executed, Tenant shall be deemed to have waived its right to lease such Available Space or Identified Space, as applicable.

d. **Exceptions.** Notwithstanding the above, the SPER Expansion Right and the Expansion Right shall, at Landlord's option, not be in effect and may not be exercised by Tenant:

(i) during any period of time that Tenant is in default under any provision of the Lease beyond any applicable notice and cure periods; or

(ii) if Tenant has been in Default under any provision of the Lease three (3) or more times, whether or not the Defaults are cured, during the twelve (12) month period prior to the date on which Tenant seeks to exercise the SPER Expansion Right or the Expansion Right.

e. **Termination.** The SPER Expansion Right and the Expansion Right shall, at Landlord's option, terminate and be of no further force or effect even after Tenant's due and timely exercise of the SPER Expansion Right or the Expansion Right, as applicable, if, after such exercise, but prior to the commencement date of the lease of such Available Space or Identified Space, as applicable, (i) Tenant fails to timely cure any default by Tenant under the Lease; or (ii) Tenant has Defaulted three (3) or more times during the period from the date of the exercise of the SPER Expansion Right or the Expansion Right, as applicable, to the date of the commencement of the lease of the Available Space or the Identified Space, whether or not such Defaults are cured.

f. **Subordinate.** Tenant's rights in connection with the Available Space pursuant to Section 4(a) are and shall be subject to and subordinate to any existing expansion rights granted in the Available Space to Selecta as of the date hereof, and to the rights of the then-existing tenant of the Available Space.

g. **Rights Personal**. The SPER Expansion Right and the Expansion Right are personal to Tenant and are not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned in connection with any Permitted Assignment of this Lease.

h. **No Extensions**. The period of time within which the SPER Expansion Right and the Expansion Right may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the SPER Expansion Right or the Expansion Right.

5. **Right to Extend**. Section 39 of the Lease is hereby deleted in its entirety and replaced with the following:

"39. **Right to Extend Term**. Tenant shall have the right to extend the Term of the Lease upon the following terms and conditions:

(a) **Extension Rights**. Tenant shall have one (1) right (an "**Extension Right**") to extend the term of this Lease for five (5) years (an "**Extension Term**") on the same terms and conditions as this Lease (other than with respect to Base Rent or any Work Letter) by giving Landlord written notice of its election to exercise the Extension Right at least nine (9) months prior to the expiration of the Base Term of the Lease.

Upon the commencement of the Extension Term, Base Rent shall be payable at 95% of the Extension Market Rate (as defined below). Base Rent shall thereafter be adjusted on each annual anniversary of the commencement of such Extension Term by a percentage as determined by Landlord and agreed to by Tenant at the time the Extension Market Rate is determined or pursuant to arbitration as provided hereafter if Landlord and Tenant are unable to agree on Base Rent escalations for the Extension Term. As used herein, "**Extension Market Rate**" shall mean the then market rental rate for space of comparable size, age and quality in laboratory/office buildings in the Market Set for a comparable term, taking into account rental concessions, tenant improvement allowances, all Alterations and other improvements to the Premises, and all other relevant factors.

If, on or before the date which is one hundred eighty (180) days prior to the expiration of the Base Term of this Lease, Landlord and Tenant have not agreed on the Extension Market Rate and the rent escalations during the Extension Term after negotiating in good faith, Tenant shall be deemed to have elected arbitration as described in Section 40. Tenant acknowledges and agrees that, if Tenant has elected to exercise the Extension Right by delivering notice to Landlord as required in this Section 39(a), Tenant shall have no right thereafter to rescind or elect not to extend the term of the Lease for the Extension Term.

(b) **Rights Personal**. The Extension Right is personal to Tenant and is not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned in connection with any Permitted Assignment of this Lease.

(c) **Exceptions**. Notwithstanding anything set forth above to the contrary, the Extension Right shall, at Landlord's option, not be in effect and Tenant may not exercise the Extension Right:

(i) during any period of time that Tenant is in default under any provision of this Lease beyond any applicable notice and cure periods; or

(ii) if Tenant has been in Default under any provision of this Lease three (3) or more times, whether or not the Defaults are cured, during the twelve (12) month period immediately prior to the date that Tenant intends to exercise the Extension Right, whether or not the Defaults are cured.

(d) **No Extensions**. The period of time within which the Extension Right may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Extension Right.

(e) **Termination**. The Extension Right shall, at Landlord's option, terminate and be of no further force or effect even after Tenant's due and timely exercise of the Extension Right, if, after such exercise, but prior to the commencement date of the Extension Term, (i) Tenant fails to timely cure any default by Tenant under this Lease; or (ii) Tenant has Defaulted three (3) or more times during the period from the date of the exercise of the Extension Right to the date of the commencement of the Extension Term, whether or not such Defaults are cured."

6. **Arbitration**. Section 40 of the Lease is hereby deleted in its entirety and replaced with the following:

"40. **Arbitration**.

(a) Within ten (10) days of Tenant's notice to Landlord of its election (or deemed election) to arbitrate the ROSO Market Rate, the ROFO Market Rate, the Extension Market Rate, and any escalations associated therewith, as applicable, each party shall deliver to the other a proposal containing the ROSO Market Rate, the ROFO Market Rate or the Extension Market Rate, as applicable, and escalations that the submitting party believes to be correct (each, an "**Extension Proposal**"). If either party fails to timely submit an Extension Proposal, the other party's submitted proposal shall determine the Base Rent and escalations for the Available Space, Identified Space, or the Extension Term, as applicable. If both parties submit Extension Proposals, then Landlord and Tenant shall meet within seven (7) days after delivery of the last Extension Proposal and make a good faith attempt to mutually appoint a single Arbitrator (as defined below) to determine the ROSO Market Rate, the ROFO Market Rate, the Extension Market Rate and escalations, as applicable. If Landlord and Tenant are unable to agree upon a single Arbitrator, then each shall, by written notice delivered to the other within ten (10) days after the meeting, select an Arbitrator. If either party fails to timely give notice of its selection for an Arbitrator, the other party's submitted proposal shall determine the Base Rent and escalations for the Available Space, Identified Space, or the Extension Term, as applicable. The two (2) Arbitrators so appointed shall, within five (5) business days after their appointment, appoint a third Arbitrator. If the two (2) Arbitrators so selected cannot agree on the selection of the third Arbitrator within the time above specified, then either party, on behalf of both parties, may request such appointment of such third Arbitrator by application to any state court of general jurisdiction in the jurisdiction in which the Premises are located, upon ten (10) days prior written notice to the other party of such intent.

(b) The decision of the Arbitrator(s) shall be made within thirty (30) days after the appointment of a single Arbitrator or the third Arbitrator, as applicable. The decision of the single Arbitrator shall be final and binding upon the parties. The average of the two closest Arbitrators in a three Arbitrator panel shall be final and binding upon the parties. Each party shall pay the fees and expenses of the Arbitrator appointed by or on behalf of such party and the fees and expenses of the third Arbitrator shall be borne equally by both parties. If the ROSO Market Rate or the ROFO Market Rate and escalations are not determined prior to the commencement date of the lease with respect to the Available Space or the Identified Space, as applicable, then Tenant shall pay Landlord Base Rent for the Available Space or Identified Space, as applicable, in an amount equal to the per square foot rate of Base Rent then payable with respect to the existing Premises until such determination is made. After the determination of the ROSO Market Rate, the ROFO Market Rate and escalations, as applicable, the parties shall make any necessary

adjustments to such payments made by Tenant with respect to the Available Space or Identified Space, as applicable. Landlord and Tenant shall then execute an amendment recognizing the ROSO Market Rate or ROFO Market Rate, as applicable, and escalations for the Available Space or Identified Space, as applicable. If the Extension Market Rate and escalations are not determined by the first day of the Extension Term, then Tenant shall pay Landlord Base Rent in an amount equal to the Base Rent in effect immediately prior to the Extension Term and increased by the Rent Adjustment Percentage until such determination is made. After the determination of the Extension Market Rate and escalations, the parties shall make any necessary adjustments to such payments made by Tenant. Landlord and Tenant shall then execute an amendment recognizing the Extension Market Rate and escalations for the Extension Term.

(c) An "**Arbitrator**" shall be any person appointed by or on behalf of either party or appointed pursuant to the provisions hereof and: (i) shall be (A) a member of the American Institute of Real Estate Appraisers with not less than ten (10) years of experience in the appraisal of improved office, laboratory and/or life sciences real estate in the greater Boston metropolitan area, or (B) a licensed commercial real estate broker with not less than fifteen (15) years experience (unless Landlord and Tenant otherwise mutually agree to appoint a licensed commercial real estate broker with less than fifteen (15) years experience) representing landlords and/or tenants in the leasing of office, laboratory and/or life sciences real estate in the greater Boston metropolitan area, (ii) devoting substantially all of their time to professional appraisal or brokerage work, as applicable, at the time of appointment and (iii) be in all respects impartial and disinterested.

7. **Business Relationship Parties**. Notwithstanding anything in Section 21 or any other provision of the Lease to contrary, Tenant may from time to time permit employees of Arsenal Medical, Inc. (each, a "**Business Relationship Party**") to occupy space within the Premises pursuant to an occupancy agreement between Tenant and Arsenal Medical, Inc., a copy of which Tenant shall deliver to Landlord concurrently with its delivery of an executed original of this Second Amendment, provided that (a) Tenant does not separately demise such space and the Business Relationship Parties utilize, in common with Tenant, certain shared central services, such as reception, photocopying and the like; and (b) the Business Relationship Parties occupy space in the Premises for the Permitted Uses and for no other purpose. If any Business Relationship Parties occupy any portion of the Premises as described herein, it is agreed that (i) the Business Relationship Parties must comply with all provisions of the Lease; (ii) all notices required of Landlord under the Lease shall be forwarded only to Tenant in accordance with the terms of this Lease and in no event shall Landlord be required to send any notices to any Business Relationship Parties; (iii) in no event shall any use or occupancy of any portion of the Premises by any Business Relationship Parties release or relieve Tenant from any of its obligations under this Lease; and (iv) in no event shall the occupancy of any portion of the Premises by Business Relationship Parties be deemed to create a landlord/tenant relationship between Landlord and such Business Relationship Parties, and, in all instances, Tenant shall be considered the sole tenant under this Lease notwithstanding the occupancy of any portion of the Premises by the Business Relationship Parties. Notwithstanding anything to the contrary contained herein, Tenant shall be fully responsible for the acts of the Business Relationship Parties entering the Premises pursuant to this paragraph and, as a condition to permitting them to enter, such Business Relationship Parties agree that Landlord shall have no liability to or in connection with such parties for any matters.

8. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with the transaction reflected in this Second Amendment and that no Broker brought about this transaction, other than Colliers International. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than the broker, if any named in this Second Amendment, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction. Landlord shall pay any commission due to Colliers International pursuant to a separate written agreement between Landlord and Colliers International.

9. Miscellaneous.

a. This Second Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This Second Amendment may be amended only by an agreement in writing, signed by the parties hereto.

b. This Second Amendment is binding upon and shall inure to the benefit of the parties hereto, their respective agents, employees, representatives, officers, directors, divisions, subsidiaries, affiliates, assigns, heirs, successors in interest and shareholders.

c. This Second Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which when taken together shall constitute one and the same instrument. The signature page of any counterpart may be detached therefrom without the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto except having additional signature pages executed by other parties to this Second Amendment attached thereto.

d. Except as amended and/or modified by this Second Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this Second Amendment. In the event of any conflict between the provisions of this Second Amendment and the provisions of the Lease, the provisions of this Second Amendment shall prevail. Whether or not specifically amended by this Second Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this Second Amendment.

[Signatures are on the next page.]

IN WITNESS WHEREOF, the parties hereto have executed this Second Amendment as of the day and year first above written.

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

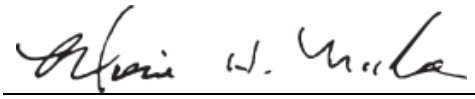
By: ALEXANDRIA REAL ESTATE EQUITIES, LP., a Delaware limited partnership, managing member

By: ARE-QRS CORP., a Maryland corporation, general partner

By: /s/ Eric S. Johnson
Its: Vice President
Real Estate Legal Affairs

TENANT:

480 BIOMEDICAL, INC.,
a Delaware corporation

By: 

Its: EVP, CBO

EXHIBIT A TO LEASE

WORK LETTER

THIS WORK LETTER (this "**Work Letter**") is incorporated into that certain Lease Agreement dated as of August 14, 2007, as amended by that certain First Amendment to Lease dated as of July 21, 2008, and as further amended by that certain Second Amendment to Lease dated as of September 4, 2012 ("**Second Amendment**") (as amended, the "**Lease**"), now by and between **ARE-480 ARSENAL STREET, LLC,** a Delaware limited liability company ("**Landlord**"), and **480 BIOMEDICAL, INC.,** a Delaware corporation ("**Tenant**"). Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

1. **General Requirements.**

(a) **Tenant's Authorized Representative**. Tenant designates Raymond Knox and Marion Imposimato (either such individual acting alone, "**Tenant's Representative**") as the only persons authorized to act for Tenant pursuant to this Work Letter. Landlord shall not be obligated to respond to or act upon any request, approval, inquiry or other communication ("**Communication**") from or on behalf of Tenant in connection with this Work Letter unless such Communication is in writing (which may include email) from Tenant's Representative. Tenant may change either Tenant's Representative at any time upon not less than five (5) business days advance written notice to Landlord.

(b) **Landlord's Authorized Representative**. Landlord designates Joe Maguire and Jo Ann Merlino-Rogers (either such individual acting alone, "**Landlord's Representative**") as the only persons authorized to act for Landlord pursuant to this Work Letter. Tenant shall not be obligated to respond to or act upon any request, approval, inquiry or other Communication from or on behalf of Landlord in connection with this Work Letter unless such Communication is in writing (which may include email) from Landlord's Representative. Landlord may change either Landlord's Representative at any time upon not less than five (5) business days advance written notice to Tenant.

(c) **Architects, Consultants and Contractors**. Landlord and Tenant hereby acknowledge and agree that the architect (the "**TI Architect**") for the Tenant Improvements (as defined in Section 2(a) below), the general contractor, project manager, any consultants and any subcontractors for the Tenant improvements shall be selected by Tenant, subject to Landlord's approval, which approval shall not be unreasonably withheld, conditioned or delayed. Landlord shall be named a third party beneficiary of any contract entered into by Tenant with the TI Architect, any consultant, any contractor or any subcontractor, and of any warranty made by any contractor or any subcontractor.

2. **Tenant Improvements.**

(a) **Tenant Improvements Defined**. As used herein, "**Tenant improvements**" shall mean all improvements to the Premises desired by Tenant of a fixed and permanent nature. Other than funding the TI Allowance (as defined below) as provided herein, Landlord shall not have any obligation whatsoever with respect to the Tenant Improvements.

(b) **Tenant's Space Plans**. Tenant shall deliver to Landlord schematic drawings and outline specifications (the "**TI Design Drawings**") detailing Tenant's requirements for the Tenant Improvements on or before December 31, 2012. Tenant shall have the right to deliver successive sets of TI Design Drawings to Landlord if Tenant elects to perform the Tenant Improvements in phases. If Tenant elects to perform the Tenant Improvements in phases, the time periods set forth in this Section 2 shall apply with respect to the particular set of TI Design Drawings applicable to each phase. Not more than seven (7) days thereafter, Landlord shall deliver to Tenant the written objections, questions or comments of Landlord and the TI Architect with regard to the TI Design Drawings. Tenant shall cause the TI Design Drawings to be revised to reasonably address such written comments and shall resubmit said drawings to Landlord for approval within fifteen (15) business days thereafter. Such process shall continue until Landlord has approved the TI Design Drawings.

(c) **Working Drawings**. Not later than thirty (30) business days following the approval of the TI Design Drawings by Landlord, Tenant shall cause the TI Architect to prepare and deliver to Landlord for review and comment construction plans, specifications and drawings for the Tenant Improvements ("**TI Construction Drawings**"), which TI Construction Drawings shall be prepared substantially in accordance with the TI Design Drawings. Tenant shall be solely responsible for ensuring that the TI Construction Drawings reflect Tenant's requirements for the Tenant Improvements. Landlord shall deliver its written comments on the TI Construction Drawings to Tenant not later than ten (10) business days after Landlord's receipt of the same; provided, however, that Landlord may not disapprove any matter that is consistent with the TI Design Drawings. Tenant and the TI Architect shall consider all such comments in good faith and shall, within ten (10) business days after receipt, notify Landlord how Tenant proposes to respond to such comments. Any disputes in connection with such comments shall be resolved in accordance with Section 2(d) hereof. Provided that the design reflected in the TI Construction Drawings is consistent with the TI Design Drawings, Landlord shall approve the TI Construction Drawings submitted by Tenant. Once approved by Landlord, subject to the provisions of Section 4 below, Tenant shall not materially modify the TI Construction Drawings except as may be reasonably required in connection with the issuance of the TI Permit (as defined in Section 3(a) below).

(d) **Approval and Completion**. If any dispute regarding the design of the Tenant Improvements is not settled within ten (10) business days after notice of such dispute is delivered by one party to the other, Tenant may make the final decision regarding the design of the Tenant Improvements, provided (i) Tenant acts reasonably and such final decision is either consistent with or a compromise between Landlord's and Tenant's positions with respect to such dispute, (ii) that all costs and expenses resulting from any such decision by Tenant shall be payable out of the TI Fund (as defined in Section 5(d) below), and (iii) Tenant's decision will not affect the base Building, structural components of the Building or any Building Systems (in which case Landlord shall make the final decision). Any changes to the TI Construction Drawings following Landlord's and Tenant's approval of same requested by Tenant shall be processed as provided in Section 4 hereof.

3. **Performance of the Tenant Improvements**.

(a) **Commencement and Permitting of the Tenant Improvements**. Tenant shall commence construction of each phase of the Tenant Improvements upon obtaining and delivering to Landlord a building permit for such phase (the "**TI Permit**") authorizing the construction of the Tenant Improvements consistent with the TI Construction Drawings approved by Landlord. The cost of obtaining the TI Permit shall be payable from the TI Fund. Landlord shall reasonably assist and cooperate with Tenant in obtaining the TI Permit and all licenses and permits related to the TI Permit, if any, required for the construction and completion of the Tenant Improvements. Prior to the commencement of construction of the Tenant Improvements, Tenant shall deliver to Landlord a copy of any contract with Tenant's contractors (including the TI Architect), and certificates of insurance from any contractor performing any part of the Tenant Improvement evidencing industry standard commercial general liability, automotive liability, "builder's risk", and workers' compensation insurance. Tenant shall cause the general contractor to provide a certificate of insurance naming Landlord, Alexandria Real Estate Equities, Inc., and Landlord's lender (if any) as additional insureds for the general contractor's liability coverages required above.

(b) **Selection of Materials, Etc**. Where more than one type of material or structure is indicated on the TI Construction Drawings approved by Tenant and Landlord, the option will be within Tenant's reasonable discretion if the matter concerns the Tenant Improvements, and within Landlord's sole and absolute subjective discretion if the matter concerns the structural components of the Building or any Building System.

(c) **Tenant Liability**. Tenant shall be responsible for correcting any deficiencies or defects in the Tenant Improvements.

(d) **Substantial Completion**. Tenant shall substantially complete or cause to be substantially completed the Tenant Improvements in a good and workmanlike manner, in accordance with the TI Permit subject, in each case, to Minor Variations and normal "punch list" items of a non-material nature which do not interfere with the use of the Premises ("**Substantial Completion**" or "**Substantially Complete**"). Upon Substantial Completion of the Tenant Improvements, Tenant shall require the TI Architect and the general contractor to execute and deliver, for the benefit of Tenant and Landlord, a Certificate of Substantial Completion in the form of the American Institute of Architects ("**AIA**") document G704. For purposes of this Work Letter, "**Minor Variations**" shall mean any modifications reasonably required: (i) to comply with all applicable Legal Requirements and/or to obtain or to comply with any required permit (including the TI Permit); (ii) to comport with good design, engineering, and construction practices which are not material; or (iii) to make reasonable adjustments for field deviations or conditions encountered during the construction of the Tenant Improvements.

4. **Changes**. Any changes requested by Tenant to the Tenant Improvements after the delivery and approval by Landlord of the TI Design Drawings, shall be requested and instituted in accordance with the provisions of this Section 4 and shall be subject to the written approval of Landlord, which approval shall not be unreasonably withheld, conditioned or delayed.

(a) **Tenant's Right to Request Changes**. If Tenant shall request changes ("**Changes**"), Tenant shall request such Changes by notifying Landlord in writing in substantially the same form as the AIA standard change order form (a "**Change Request**"), which Change Request shall detail the nature and extent of any such Change. Such Change Request must be signed by Tenant's Representative. Landlord shall review and approve or disapprove such Change Request within ten (10) business days thereafter, provided that Landlord's approval shall not be unreasonably withheld, conditioned or delayed.

(b) **Implementation of Changes**. If Landlord approves such Change and Tenant deposits with Landlord any Excess TI Costs (as defined in Section 5(d) below) required in connection with such Change, Tenant may cause the approved Change to be instituted. If any TI Permit modification or change is required as a result of such Change, Tenant shall promptly provide Landlord with a copy of such TI Permit modification or change.

5. **Costs**.

(a) **Budget For Tenant Improvements**. Before the commencement of construction of the Tenant Improvements, Tenant shall obtain a detailed breakdown, by trade, of the costs incurred or that will be incurred, in connection with the design and construction of The Tenant Improvements (the "**Budget**"), and deliver a copy of the Budget to Landlord for Landlord's approval, which shall not be unreasonably withheld, conditioned, or delayed. The parties agree that Tenant may prepare a separate Budget for each particular phase of the Tenant Improvements. The Budget shall be based upon the TI Construction Drawings approved by Landlord. If the Budget is greater than the TI Allowance, Tenant shall deposit with Landlord the difference, in cash, prior to the commencement of construction of the Tenant Improvements, for disbursement by Landlord as described in Section 5(d).

(b) **TI Allowance**. Landlord shall provide to Tenant a tenant improvement allowance ("**TI Allowance**") of $5.00 per rentable square foot of the Premises, or $136,555 in the aggregate. The TI Allowance shall be disbursed in accordance with this Work Letter.

Tenant shall have no right to the use or benefit (including any reduction to Base Rent) of any portion of the TI Allowance not required for the construction of (i) the Tenant Improvements described in the TI Construction Drawings approved pursuant to Section 2(d), (ii) any Changes pursuant to Section 4, or (iii) the construction of Alterations in the Premises (which, for the avoidance of doubt, shall include any Available Space or Identified Space leased by Tenant) pursuant to Section 11 of the Lease. Tenant shall have no right to any portion of the TI Allowance that is not disbursed before the expiration of the Expansion Right Period.

(c) **Costs Includable in TI Fund**. The TI Fund shall be used solely for the following purposes (collectively, "**TI Costs**"): payment of design, permits (including, without limitation, the TI Permit) and construction costs in connection with the construction of the Tenant Improvements, including, without limitation, Tenant's voice or data cabling, the cost of electrical power and other utilities used in connection with the construction of the Tenant improvements, project management of all aspects of the design and construction of the Tenant Improvements, the cost of preparing the TI Design Drawings and the TI Construction Drawings, all costs set forth in the Budget, and the cost of Changes. Notwithstanding anything to the contrary contained herein, but subject to the preceding sentence, the TI Fund shall not be used to purchase any furniture, personal property or other non-Building system materials or equipment, including, but not limited to, non-ducted biological safety cabinets and other scientific equipment not incorporated into the Tenant Improvements. Notwithstanding anything to the contrary contained in the Lease, including, without limitation, Section 11, Landlord shall not charge, and Tenant shall have no liability or responsibility to pay to Landlord, any administrative rent, construction management fee, construction oversight fee, or any similar costs or fees, except that Landlord shall be entitled to reimbursement for any third-party out-of-pocket costs or expenses incurred by Landlord in connection with its assistance and cooperation with Tenant in obtaining the TI Permit and other licenses and permits related to the TI Permit.

(d) **Excess TI Costs**. Landlord shall have no obligation to bear any portion of the cost of any of the Tenant Improvements except to the extent of the TI Allowance. If at any time and from time-to-time, the remaining TI Costs under the Budget exceed the remaining unexpended TI Allowance, Tenant shall deposit with Landlord, as a condition precedent to Landlord's obligation to fund the TI Allowance, 100% of the then current TI Cost in excess of the remaining TI Allowance ("**Excess TI Costs**"). If Tenant fails to deposit, or is late in depositing any Excess TI Costs with Landlord, Landlord shall have all of the rights and remedies set forth in the Lease for nonpayment of Rent (including, but not limited to, the right to interest at the Default Rate and the right to assess a late charge). For purposes of any litigation instituted with regard to such amounts, those amounts will be deemed Rent under the Lease. The TI Allowance and Excess TI Costs is herein referred to as the "**TI Fund**." Funds deposited by Tenant shall be the first thereafter disbursed to pay TI Costs. Notwithstanding anything to the contrary set forth in this Section 5(d), Tenant shall be fully and solely liable for TI Costs and the cost of Minor Variations in excess of the TI Allowance. If upon Substantial Completion of all phases of the Tenant Improvements and the payment of all sums due in connection therewith there remains any undisbursed portion of the TI Fund, Tenant shall be entitled to such undisbursed TI Fund solely to the extent of any Excess TI Costs deposit Tenant has actually made with Landlord.

(e) **Payment for TI Costs**. During the course of design and construction of the Tenant Improvements, Landlord shall pay TI Costs once a month against a draw request in Landlord's standard form, containing evidence that such TI Costs are due and such certifications, lien waivers (including a conditional lien release for each progress payment and unconditional lien releases for the prior month's progress payments), inspection reports and other matters as Landlord customarily obtains, to the extent of Landlord's approval thereof for payment, no later than thirty (30) days following receipt of such draw request. Upon completion of the Tenant Improvements (and prior to any final disbursement of the TI Fund), Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and first tier subcontractors who did the work and final, unconditional lien waivers from all such contractors and first tier subcontractors; (ii) as-built plans (one copy in print format and two copies in electronic CAD format) for such Tenant Improvements; (iii) a certification of substantial completion in Form AIA G704, (iv) if required by the Town of Watertown as a result of the Tenant Improvements, a certificate of occupancy or temporary a certificate of occupancy for the Premises; and (v) if applicable, copies of all operation and maintenance manuals and warranties affecting the Premises.

6. **Miscellaneous**.

(a) **Consents**. Whenever consent or approval of either party is required under this Work Letter, that party shall not unreasonably withhold, condition or delay such consent or approval, except as may be expressly set forth herein to the contrary.

(b) **Modification**. No modification, waiver or amendment of this Work Letter or of any of its conditions or provisions shall be binding upon Landlord or Tenant unless in writing signed by Landlord and Tenant.**Default.** Notwithstanding anything set forth herein or in the Lease to the contrary, Landlord shall not have any obligation to perform any work hereunder or to fund any portion of the TI Fund during any period Tenant is in default under the Lease beyond any applicable notice and cure periods.

THIRD AMENDMENT TO LEASE

THIS THIRD AMENDMENT TO LEASE (this "**Third Amendment**") is made as of September 6, 2013, by and between **ARE-480 ARSENAL STREET, LLC**, a Delaware limited liability company ("**Landlord**"), and **480 BIOMEDICAL, INC.**, a Delaware corporation ("**Tenant**").

RECITALS

A. Landlord and Tenant are now parties to that certain Lease Agreement dated as of August 14, 2007, as amended by that certain First Amendment to Lease dated as of July 21, 2008, and as further amended by that certain Second Amendment to Lease dated September 4, 2012 (as amended, the "**Lease**"). Pursuant to the Lease, Tenant leases certain premises consisting of approximately 27,311 rentable square feet ("**Original Premises**") in a building located at 480 Arsenal Street, Watertown, Massachusetts. The Original Premises are more particularly described in the Lease. Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. Landlord and Tenant desire, subject to the terms and conditions set forth below, to amend the Lease to, among other things, expand the size of the Original Premises by adding approximately 7,828 rentable square feet on the first floor of the Building.

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **Expansion Premises**. In addition to the Original Premises, commencing on the Expansion Premises Commencement Date (as defined below), Landlord leases to Tenant, and Tenant leases from Landlord, that certain portion of the first floor of the Building containing approximately 7,828 rentable square feet, as shown on **Exhibit A** attached to this Third Amendment ("**Expansion Premises**"). Prior to the Expansion Premises Commencement Date, the Expansion Premises was occupied by Dicerna Pharmaceuticals, Inc., a Delaware corporation ("**Dicerna**") pursuant to a lease between Landlord and Dicerna dated as of March 14, 2008, as amended.

2. **Delivery**. Landlord shall use reasonable efforts to make the Expansion Premises available to Tenant for Tenant's Work (as defined in the Expansion Premises Work Letter) under the Expansion Premises Work Letter attached to this Third Amendment as **Exhibit B** ("**Delivery**" or "**Deliver**") on or before December 1, 2013 ("**Target Expansion Premises Commencement Date**"). If Landlord fails to timely Deliver the Expansion Premises, Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, and this Third Amendment shall not be void or voidable except as provided herein. If Landlord does not Deliver the Expansion Premises on or before June 1, 2014, for any reason other than Force Majeure delays and delays caused by Tenant, this Third Amendment may be terminated by Tenant by written notice to Landlord, and if so terminated by Tenant, neither Landlord nor Tenant shall have any further rights, duties or obligations under the Lease with respect to the Expansion Premises, except with respect to provisions which expressly survive termination of the Lease. If Tenant does not elect to terminate this Third Amendment on or before June 5, 2014, such right to void this Third Amendment shall be waived and this Third Amendment shall remain in full force and effect.

The "**Expansion Premises Commencement Date**" shall be the date Landlord Delivers the Expansion Premises to Tenant demised, as reflected on **Exhibit A** attached to this Third Amendment, from the adjacent space occupied by Dicerna ("**Dicerna Premises**") and all Common Areas in the Building provided, however, that in no event shall the Expansion Premises Commencement Date occur prior to December 1, 2013. The "**Expansion Premises Rent Commencement Date**" shall be the date that is 61 days after the Expansion Premises Commencement Date; provided, however, that if Tenant (or any sublessee of Tenant under

Section 21 of the Lease) conducts business in any portion of the Expansion Premises prior to the date that is 61 days after the Expansion Premises Commencement Date, then Tenant shall commence paying Base Rent with respect to the portion of the Expansion Premises in which business is being conducted only commencing on the date that Tenant (or any sublessee of Tenant under Section 21 of the Lease) commences conducting such business in the Expansion Premises. Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Expansion Premises Commencement Date when such is established in substantially the same form as the "Acknowledgement of Commencement Date" attached to the Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's rights hereunder.

Except as set forth in the Expansion Premises Work Letter attached to this Third Amendment or except as otherwise set forth in the Lease: (i) Tenant shall accept the Expansion Premises in their condition as of the Expansion Premises Commencement Date; (ii) Landlord shall have no obligation for any defects in the Expansion Premises; and (iii) Tenant's taking possession of the Expansion Premises shall be conclusive evidence that Tenant accepts the Expansion Premises and that the Expansion Premises were in good condition at the time possession was taken. The foregoing shall in no way modify or limit Landlord's repair and maintenance obligations contained in Section 12 of the Lease.

Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Expansion Premises, and/or the suitability of the Expansion Premises for the conduct of Tenant's business, and Tenant waives any implied warranty that the Expansion Premises are suitable for Tenant's Permitted Use.

3. **Definition of Premises.** Commencing on the Expansion Premises Commencement Date, the defined term "**Premises**" on Page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Premises:** That portion of the Project comprised of (i) all of Area 2C and a portion of Area 1D of the Building (as hereinafter defined), containing approximately 27,311 rentable square feet in the aggregate ("**Original Premises**"), and (ii) a portion of the first floor of the Building commonly known as Suite 125 containing approximately 7,828 rentable square feet ("**Expansion Premises**"), all as determined by Landlord, as shown on **Exhibit A**."

As of the Expansion Premises Commencement Date, **Exhibit A** to the Lease shall be amended to include **Exhibit A** attached to this Third Amendment.

4. **Definition of Base Term.** Commencing on the Expansion Premises Commencement Date, the defined term "**Base Term**" on Page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Base Term:** Beginning (i) with respect to the Original Premises on the Commencement Date, and (ii) with respect to the Expansion Premises on the Expansion Premises Commencement Date, and ending with respect to the entire Premises on April 30, 2018."

5. **Base Rent.** Tenant shall continue to pay Base Rent for the Original Premises as provided for in the Lease through April 30, 2018. Commencing on the Expansion Premises Rent Commencement Date Tenant shall commence paying Base Rent for the Expansion Premises in the amount of $38.50 per rentable square foot of the Expansion Premises per year, which shall be paid in equal monthly installments. Base Rent for the Expansion Premises shall be increased on the first anniversary of the Expansion Premises Rent Commencement Date, and on each anniversary of the Expansion Premises Rent Commencement Date thereafter during the Base Term (each, an "**Expansion Premises Adjustment Date**"), by multiplying the Base Rent payable

for the Expansion Premises immediately before such Expansion Premises Adjustment Date by the Rent Adjustment Percentage and adding the resulting amount to the Base Rent payable for the Expansion Premises immediately before such Expansion Premises Adjustment Date. Payments of Base Rent for the Expansion Premises for any fractional calendar month shall be prorated.

6. **Rentable Area of the Premises**. Commencing on the Expansion Premises Commencement Date, the defined term "**Rentable Area of the Premises**" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Rentable Area of the Premises:** 35,139 sq. ft."

7. **Tenant's Share of Operating Expenses**. Commencing on the Expansion Premises Commencement Date, the defined term "**Tenant's Share of Operating Expenses**" on page 1 of the Lease are deleted in their entirety and replaced with the following:

"**Tenant's Share of Operating Expenses:** 24.97%"

Notwithstanding the foregoing, Tenant shall commence paying Operating Expenses with respect to the Expansion Premises on the Expansion Premises Rent Commencement Date (such that Tenant's Share of Operating Expenses payable for the period commencing on the Expansion Premises Commencement Date through the day immediately preceding the Expansion Premises Rent Commencement Date shall be equal to 19.40%), except for any Utilities which Tenant is required under Section 10 of the Lease to pay as part of Operating Expenses, which Tenant shall commence paying on the Expansion Premises Commencement Date; provided, however, that if Tenant (or any sublessee of Tenant under Section 21 of the Lease) conducts business in any portion of the Expansion Premises prior to the Expansion Premises Rent Commencement Date, then Tenant shall commence paying Operating Expenses with respect to the portion of the Expansion Premises in which business is being conducted only commencing on the date that Tenant (or any sublessee of Tenant under Section 21 of the Lease) commences conducting such business in the Expansion Premises.

8. **Utilities**. Notwithstanding anything to the contrary contained in this Third Amendment, Tenant shall commence paying for all Utilities in connection with the Expansion Premises on the Expansion Premises Commencement Date. The Expansion Premises shall, as of the Expansion Premises Commencement Date, be separately sub-metered for electricity and Tenant shall be required to pay Landlord the actual amount charged for electricity provided to the Premises by the electrical provider, as measured by the submeter, without any mark-up by Landlord. Tenant acknowledges and agrees that (i) the air compressor serving the Expansion Premises is (and shall continue during the Term to be) connected to the sub-meter for the Expansion Premises and the electricity used in connection therewith shall be payable in full by Tenant although the air compressor serves both the Expansion Premises and the Dicerna Premises, and (ii) the vacuum pump and the ejector pump serving the Expansion Premises are (and shall continue during the Term to be) connected to the sub-meter for the Dicerna Premises and the electricity used in connection with the vacuum pump and the ejector pump with respect to the Expansion Premises shall be payable in full by Dicerna (or, if applicable, any future tenant of the Dicerna Premises) although the vacuum pump and the ejector pump serve both the Expansion Premises and the Dicerna Premises. Tenant agrees that the allocation of the electricity costs relating to the air compressor, the vacuum pump and the ejector pump pursuant to the immediately preceding sentence is equitable. For the avoidance of doubt, the analytical labs located within the Dicerna Premises shall, as part of the work performed by Landlord to demise the Expansion Premises from the Dicerna Premises, be re-wired so that, as of the Expansion Premises Commencement Date, the analytical labs will be connected to the submeter serving the Dicerna Premises.

9. **Brokers.** Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with the transaction reflected in this Third Amendment and that no Broker brought about this transaction, other than Colliers International, Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than the brokers, if any named in this Third Amendment, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction. Landlord shall be responsible for all commissions due to Colliers International arising out of the execution of this Third Amendment in accordance with the terms of a separate written agreement between Colliers International and Landlord.

10. **Miscellaneous**.

a. This Third Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This Third Amendment may be amended only by an agreement in writing, signed by the parties hereto.

b. This Third Amendment is binding upon and shall inure to the benefit of the parties hereto, and their respective successors and assigns.

c. This Third Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which when taken together shall constitute one and the same instrument. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto except having additional signature pages executed by other parties to this Third Amendment attached thereto.

d. Except as amended and/or modified by this Third Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this Third Amendment. In the event of any conflict between the provisions of this Third Amendment and the provisions of the Lease, the provisions of this Third Amendment shall prevail. Whether or not specifically amended by this Third Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this Third Amendment.

[Signatures are on the next page]

IN WITNESS WHEREOF, the parties hereto have executed this Third Amendment as of the day and year first above written.

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership, managing member

By: ARE-QRS CORP.,
a Maryland Corporation,
general partner

By: /s/ Eric S. Johnson
Its: Vice President
Real Estate Legal Affairs

TENANT:

480 BIOMEDICAL, INC.,
a Delaware corporation

By: /s/ Blaine H. McKee
Name: Blaine H. McKee
Title: Executive VP & Chief Business Officer

EXHIBIT A

EXPANSION PREMISES

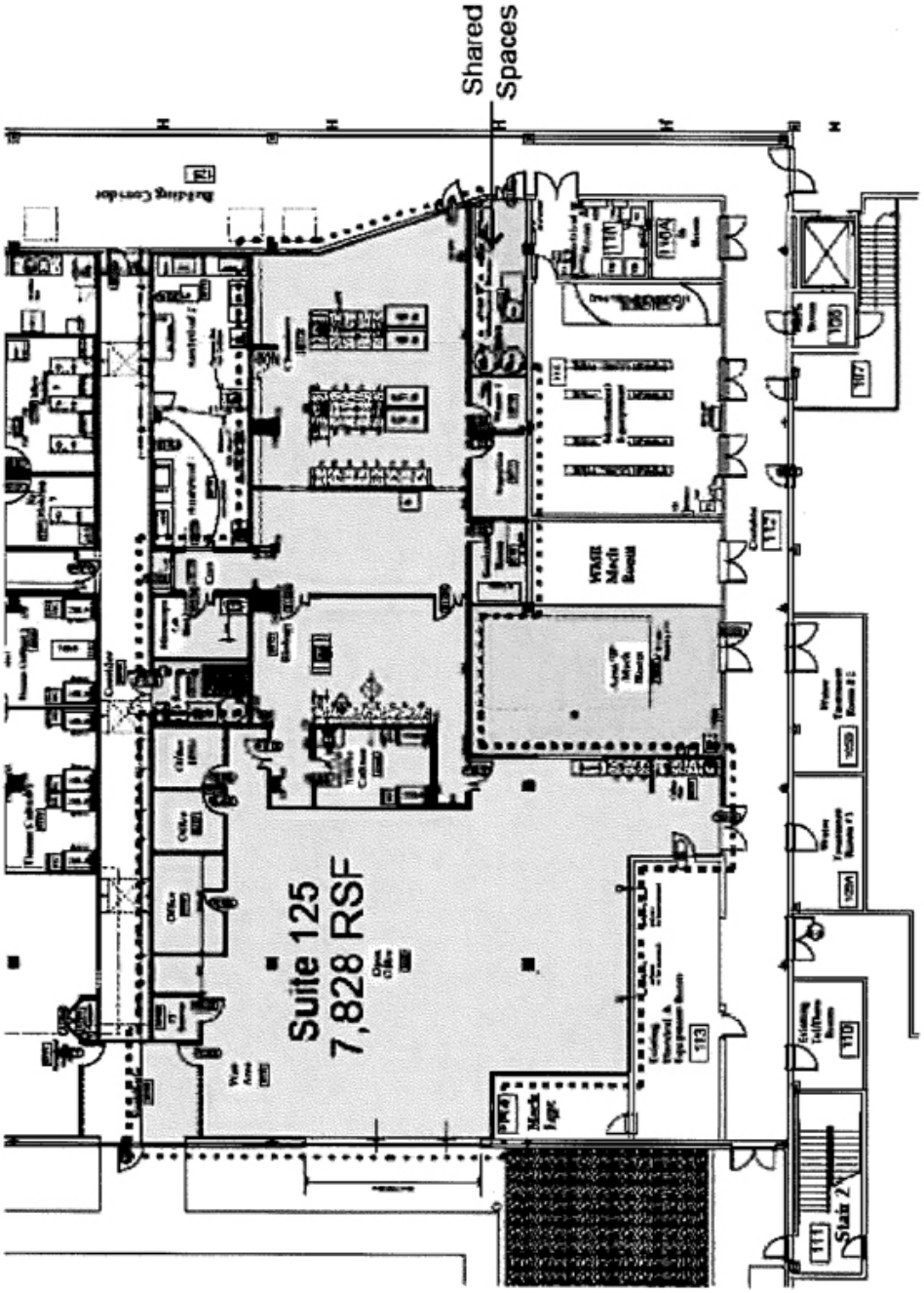


EXHIBIT B

EXPANSION PREMISES WORK LETTER

THIS EXPANSION PREMISES WORK LETTER (this "**Expansion Premises Work Letter**") is incorporated into that certain Lease Agreement dated as of August 14, 2007, as amended by that certain First Amendment to Lease dated as of July 21, 2008, as further amended by that certain Second Amendment to Lease dated as of September 4, 2012, and as further amended by that certain Third Amendment to Lease dated as of 916, 2013 (as amended, the "**Lease**"), by and between **ARE-480 ARSENAL STREET, LLC,** a Delaware limited liability company ("**Landlord**"), and **480 BIOMEDICAL, INC.,** a Delaware corporation ("**Tenant**"). Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

1. **General Requirements.**

(a) **Tenant's Authorized Representative**. Tenant designates Raymond Knox and Marion Imposimato (either such individual acting alone, "**Tenant's Representative**") as the only persons authorized to act for Tenant pursuant to this Expansion Premises Work Letter. Landlord shall not be obligated to respond to or act upon any request, approval, inquiry or other communication ("**Communication**") from or on behalf of Tenant in connection with this Expansion Premises Work Letter unless such Communication is in writing (which may include email) from Tenant's Representative. Tenant may change either Tenant's Representative at any time upon not less than five (5) business days advance written notice to Landlord.

(b) **Landlord's Authorized Representative**. Landlord designates Joe Maguire and Jo Ann Merlino-Rogers (either such individual acting alone, "**Landlord's Representative**") as the only persons authorized to act for Landlord pursuant to this Expansion Premises Work Letter. Tenant shall not be obligated to respond to or act upon any request, approval, inquiry or other Communication from or on behalf of Landlord in connection with this Expansion Premises Work Letter unless such Communication is in writing (which may include email) from Landlord's Representative. Landlord may change either Landlord's Representative at any time upon not less than five (5) business days advance written notice to Tenant.

(c) **Architects, Consultants and Contractors**. Landlord and Tenant hereby acknowledge and agree that the architect (the "**Tl Architect**") for the Tenant Improvements (as defined in Section 2(a) below), the general contractor, project manager, any consultants and any subcontractors for the Tenant Improvements shall be selected by Tenant, subject to Landlord's approval, which approval shall not be unreasonably withheld, conditioned or delayed. Landlord shall be named a third party beneficiary of any contract entered into by Tenant with the Tl Architect, any consultant, any contractor or any subcontractor, and of any warranty made by any contractor or any subcontractor.

2. **Tenant Improvements**.

(a) **Tenant Improvements Defined**. As used herein, "**Tenant Improvements**" shall mean all improvements to the Premises (including the Expansion Premises) desired by Tenant of a fixed and permanent nature, which shall include, without limitation, the installation in locations within the Premises reasonably acceptable to Landlord and Tenant of (i) four (4) 6' fume hoods at 900 cfm, (ii) six (6) spot exhaust at 100 cfm, and (iii) one (1) spot exhaust at 200 cfm. Other than funding the Tl Allowance (as defined below) as provided herein, Landlord shall not have any obligation whatsoever with respect to the Tenant Improvements.

(b) **Tenant's Space Plans**. Tenant shall deliver to Landlord schematic drawings and outline specifications (the "**TI Design Drawings**") detailing Tenant's requirements for the Tenant Improvements. Tenant shall have the right to deliver successive sets of TI Design Drawings to Landlord if Tenant elects to perform the Tenant Improvements in phases. If Tenant elects to perform the Tenant Improvements in phases, the time periods set forth in this Section 2 shall apply with respect to the particular set of TI Design Drawings applicable to each phase. Not more than seven (7) days thereafter, Landlord shall deliver to Tenant the written objections, questions or comments of Landlord and the TI Architect with regard to the TI Design Drawings. Tenant shall cause the TI Design Drawings to be revised to reasonably address such written comments and shall resubmit said drawings to Landlord for approval within fifteen (15) business days thereafter. Such process shall continue until Landlord has approved the TI Design Drawings.

(c) **Working Drawings**. Not later than thirty (30) business days following the approval of the TI Design Drawings by Landlord, Tenant shall cause the TI Architect to prepare and deliver to Landlord for review and comment construction plans, specifications and drawings for the Tenant Improvements ("**TI Construction Drawings**"), which TI Construction Drawings shall be prepared substantially in accordance with the TI Design Drawings. Tenant shall be solely responsible for ensuring that the TI Construction Drawings reflect Tenant's requirements for the Tenant Improvements. Landlord shall deliver its written comments on the TI Construction Drawings to Tenant not later than ten (10) business days after Landlord's receipt of the same; provided, however, that Landlord may not disapprove any matter that is consistent with the TI Design Drawings. Tenant and the TI Architect shall consider all such comments in good faith and shall, within ten (10) business days after receipt, notify Landlord how Tenant proposes to respond to such comments. Any disputes in connection with such comments shall be resolved in accordance with Section 2(d) hereof. Provided that the design reflected in the TI Construction Drawings is consistent with the TI Design Drawings, Landlord shall approve the TI Construction Drawings submitted by Tenant. Once approved by Landlord, subject to the provisions of Section 4 below, Tenant shall not materially modify the TI Construction Drawings except as may be reasonably required in connection with the issuance of the TI Permit (as defined in Section 3(a) below).

(d) **Approval and Completion**. If any dispute regarding the design of the Tenant Improvements is not settled within ten (10) business days after notice of such dispute is delivered by one party to the other, Tenant may make the final decision regarding the design of the Tenant Improvements, provided (i) Tenant acts reasonably and such final decision is either consistent with or a compromise between Landlord's and Tenant's positions with respect to such dispute, (ii) that all costs and expenses resulting from any such decision by Tenant shall be payable out of the TI Fund (as defined in Section 5(d) below), and (iii) Tenant's decision will not affect the base Building, structural components of the Building or any Building Systems (in which case Landlord shall make the final decision). Any changes to the TI Construction Drawings following Landlord's and Tenant's approval of same requested by Tenant shall be processed as provided in Section 4 hereof.

3. **Performance of the Tenant Improvements**.

(a) **Commencement and Permitting of the Tenant Improvements**. Tenant shall commence construction of each phase of the Tenant Improvements upon obtaining and delivering to Landlord a building permit for such phase (the "**TI Permit**") authorizing the construction of the Tenant Improvements consistent with the TI Construction Drawings approved by Landlord. The cost of obtaining the TI Permit shall be payable from the TI Fund. Landlord shall reasonably assist and cooperate with Tenant in obtaining the TI Permit and all licenses and permits related to the TI Permit, if any, required for the construction and completion of the Tenant Improvements. Prior to the commencement of construction of the Tenant Improvements, Tenant shall deliver to Landlord a copy of any contract with Tenant's contractors (including the TI Architect), and certificates of insurance from any contractor performing any part of the Tenant Improvement evidencing industry standard commercial general liability, automotive liability, "builder's risk", and workers' compensation insurance. Tenant shall cause the general contractor to provide a certificate of insurance naming Landlord, Alexandria Real Estate Equities, Inc., and Landlord's lender (if any) as additional insureds for the general contractor's liability coverages required above.

(b) **Selection of Materials, Etc**. Where more than one type of material or structure is indicated on the TI Construction Drawings approved by Tenant and Landlord, the option will be within Tenant's reasonable discretion if the matter concerns the Tenant Improvements, and within Landlord's sole and absolute subjective discretion if the matter concerns the structural components of the Building or any Building System.

(c) **Tenant Liability**. Tenant shall be responsible for correcting any deficiencies or defects in the Tenant Improvements.

(d) **Substantial Completion**. Tenant shall substantially complete or cause to be substantially completed the Tenant Improvements in a good and workmanlike manner, in accordance with the TI Permit subject, in each case, to Minor Variations and normal "punch list" items of a non-material nature which do not interfere with the use of the Expansion Premises ("**Substantial Completion**" or "**Substantially Complete**"). Upon Substantial Completion of the Tenant Improvements, Tenant shall require the TI Architect and the general contractor to execute and deliver, for the benefit of Tenant and Landlord, a Certificate of Substantial Completion in the form of the American Institute of Architects ("**AIA**") document G704. For purposes of this Expansion Premises Work Letter, "**Minor Variations**" shall mean any modifications reasonably required: (i) to comply with all applicable Legal Requirements and/or to obtain or to comply with any required permit (including the TI Permit); (ii) to comport with good design, engineering, and construction practices which are not material; or (iii) to make reasonable adjustments for field deviations or conditions encountered during the construction of the Tenant Improvements.

4. **Changes**. Any changes requested by Tenant to the Tenant Improvements after the delivery and approval by Landlord of the TI Design Drawings, shall be requested and instituted in accordance with the provisions of this Section 4 and shall be subject to the written approval of Landlord,which approval shall not be unreasonably withheld, conditioned or delayed.

(a) **Tenant's Right to Request Changes**. If Tenant shall request changes ("**Changes**"), Tenant shall request such Changes by notifying Landlord in writing in substantially the same form as the AIA standard change order form (a "**Change Request**"), which Change Request shall detail the nature and extent of any such Change. Such Change Request must be signed by Tenant's Representative. Landlord shall review and approve or disapprove such Change Request within ten (10) business days thereafter, provided that Landlord's approval shall not be unreasonably withheld, conditioned or delayed.

(b) **Implementation of Changes**. If Landlord approves such Change and Tenant deposits with Landlord any Excess TI Costs (as defined in Section 5(d) below) required in connection with such Change, Tenant may cause the approved Change to be instituted. If any TI Permit modification or change is required as a result of such Change, Tenant shall promptly provide Landlord with a copy of such TI Permit modification or change.

5. **Costs**.

(a) **Budget For Tenant Improvements**. Before the commencement of construction of the Tenant Improvements, Tenant shall obtain a detailed breakdown, by trade, of the costs incurred or that will be incurred, in connection with the design and construction of The Tenant Improvements (the "**Budget**"), and deliver a copy of the Budget to Landlord for Landlord's approval, which shall not be unreasonably withheld, conditioned, or delayed. The parties agree that Tenant may prepare a separate Budget for each particular phase of the Tenant Improvements. The Budget shall be based upon the TI Construction Drawings approved by Landlord. If the Budget is greater than the TI Allowance, Tenant shall deposit with Landlord the difference, in cash, prior to the commencement of construction of the Tenant Improvements, for disbursement by Landlord as described in Section 5(d).

(b) **TI Allowance**. Landlord shall provide to Tenant a tenant improvement allowance ("**TI Allowance**") of $15.00 per rentable square foot of the Expansion Premises, or $117,420 in the aggregate. The TI Allowance shall be disbursed in accordance with this Expansion Premises Work Letter.

Tenant shall have no right to the use or benefit (including any reduction to Base Rent) of any portion of the TI Allowance not required for the construction of (i) the Tenant Improvements described in the TI Construction Drawings approved pursuant to Section 2(d), (ii) any Changes pursuant to Section 4. or (iii) the construction of Alterations in the Premises (including the Expansion Premises) pursuant to Section 11 of the Lease. Tenant shall have no right to any portion of the TI Allowance that is not disbursed before November 30, 2014.

(c) **Costs includable in TI Fund**. The TI Fund shall be used solely for the following purposes (collectively, "**TI Costs**"): payment of design, permits (including, without limitation, the TI Permit) and construction costs in connection with the construction of the Tenant Improvements, including, without limitation, Tenant's voice or data cabling, the cost of electrical power and other utilities used in connection with the construction of the Tenant Improvements, project management of all aspects of the design and construction of the Tenant Improvements, the cost of preparing the TI Design Drawings and the TI Construction Drawings, all costs set forth in the Budget, and the cost of Changes. Notwithstanding anything to the contrary contained herein, but subject to the preceding sentence, the TI Fund shall not be used to purchase any furniture, personal property or other non-Building system materials or equipment, including, but not limited to, non-ducted biological safety cabinets and other scientific equipment not incorporated into the Tenant Improvements. Notwithstanding anything to the contrary contained in the Lease, including, without limitation, Section 11, Landlord shall not charge, and Tenant shall have no liability or responsibility to pay to Landlord, any administrative rent, construction management fee, construction oversight fee, or any similar costs or fees, except that Landlord shall be entitled to reimbursement for any third-party out-of-pocket costs or expenses incurred by Landlord in connection with its assistance and cooperation with Tenant in obtaining the TI Permit and other licenses and permits related to the TI Permit.

(d) **Excess TI Costs**. Landlord shall have no obligation to bear any portion of the cost of any of the Tenant Improvements except to the extent of the TI Allowance. If at any time and from time-to-time, the remaining TI Costs under the Budget exceed the remaining unexpended TI Allowance, Tenant shall deposit with Landlord, as a condition precedent to Landlord's obligation to fund the TI Allowance, 100% of the then current TI Cost in excess of the remaining TI Allowance ("**Excess TI Costs**"). If Tenant fails to deposit, or is late in depositing any Excess TI Costs with Landlord, Landlord shall have all of the rights and remedies set forth in the Lease for nonpayment of Rent (including, but not limited to, the right to interest at the Default Rate and the right to assess a late charge). For purposes of any litigation instituted with regard to such amounts, those amounts will be deemed Rent under the Lease. The TI Allowance and Excess TI Costs is herein referred to as the "**TI Fund.**" Funds deposited by Tenant shall be the first thereafter disbursed to pay TI Costs. Notwithstanding anything to the contrary set forth in this Section 5(d), Tenant shall be fully and solely liable for TI Costs and the cost of Minor Variations in excess of the TI Allowance. If upon Substantial Completion of all phases of the Tenant Improvements and the payment of all sums due in connection therewith there remains any undisbursed portion of the TI Fund, Tenant shall be entitled to such undisbursed TI Fund solely to the extent of any Excess TI Costs deposit Tenant has actually made with Landlord.

(e) **Payment for TI Costs**. During the course of design and construction of the Tenant Improvements, Landlord shall pay TI Costs once a month against a draw request in Landlord's standard form, containing evidence that such TI Costs are due and such certifications, lien waivers (including a conditional lien release for each progress payment and unconditional lien releases for the prior month's progress payments), inspection reports and other matters as Landlord customarily obtains, to the extent of Landlord's approval thereof for payment, no later than thirty (30) days following receipt of such draw request. Upon completion of the Tenant improvements (and prior to any final disbursement of the TI Fund), Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and first tier subcontractors who did the work and final, unconditional lien waivers from all such contractors and first tier subcontractors; (ii) as-built plans (one copy in print format and two copies in

electronic CAD format) for such Tenant Improvements; (iii) a certification of substantial completion in Form AIA G704, (iv) if required by the Town of Watertown as a result of the Tenant Improvements, a certificate of occupancy or temporary a certificate of occupancy for the Expansion Premises; and (v) if applicable, copies of all operation and maintenance manuals and warranties affecting the Expansion Premises.

6. **Miscellaneous**.

(a) **Consents**. Whenever consent or approval of either party is required under this Expansion Premises Work Letter, that party shall not unreasonably withhold, condition or delay such consent or approval, except as may be expressly set forth herein to the contrary.

(b) **Modification**. No modification, waiver or amendment of this Expansion Premises Work Letter or of any of its conditions or provisions shall be binding upon Landlord or Tenant unless in writing signed by Landlord and Tenant **Default**. Notwithstanding anything set forth herein or in the Lease to the contrary, Landlord shall not have any obligation to perform any work hereunder or to fund any portion of the TI Fund during any period Tenant is in default under the Lease beyond any applicable notice and cure periods.

FOURTH AMENDMENT TO LEASE

THIS FOURTH AMENDMENT TO LEASE (this "**Fourth Amendment**") is made as of July 28, 2015, by and between **ARE-480 ARSENAL STREET, LLC**, a Delaware limited liability company ("**Landlord**"), and **480 BIOMEDICAL, INC.**, a Delaware corporation ("**Tenant**").

RECITALS

A. Landlord and Tenant are now parties to that certain Lease Agreement dated as of August 14, 2007, as amended by that certain First Amendment to Lease dated as of July 21, 2008, as further amended by that certain Second Amendment to Lease dated September 4, 2012 ("**Second Amendment**"), as further amended by that certain letter agreement dated as of September 4, 2012, and as further amended by that certain Third Amendment to Lease dated as of September 6, 2013 (as amended, the "**Lease**"). Pursuant to the Lease, Tenant leases certain premises consisting of approximately 35,139 rentable square feet ("**Existing Premises**") in a building located at 480 Arsenal Street, Watertown, Massachusetts. The Existing Premises are more particularly described in the Lease. Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. Landlord and Tenant desire, subject to the terms and conditions set forth below, to amend the Lease to, among other things, reflect the surrender of (i) a portion of the Premises consisting of Suite 125 containing approximately 7,828 rentable square feet, as shown on **Exhibit A-1** attached to this Fourth Amendment (the "**Initial Surrender Premises**") as of July 31, 2015 (the "**Initial Surrender Date**"), and (ii) a portion of the Premises consisting of approximately 4,968 rentable square feet, as shown on **Exhibit A-2** attached to this Fourth Amendment (the "**Subsequent Surrender Premises**") as of August 31, 2015 (the "**Subsequent Surrender Date**").

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **a.** **Surrender of the Initial Surrender Premises**. The Lease with respect to the Initial Surrender Premises shall terminate as provided for in the Lease on the Initial Surrender Date. Tenant shall voluntarily surrender the Initial Surrender Premises on such date in the condition which Tenant is required to surrender the Premises as of the expiration of the Lease. Tenant agrees to reasonably cooperate with Landlord in all matters, as applicable, relating to surrendering the Initial Surrender Premises in accordance with the surrender requirements and in the condition required pursuant to the Lease. Notwithstanding anything to the contrary contained in the Lease or in this Fourth Amendment. Tenant shall not be required to remove or restore any improvements existing in the Initial Surrender Premises as of the date of this Fourth Amendment. From and after the Initial Surrender Date, Tenant shall have no further rights or obligations of any kind with respect to the Initial Surrender Premises. Notwithstanding the foregoing, those provisions of the Lease which, by their terms, survive the termination of the Lease shall survive the surrender of the Initial Surrender Premises and termination of the Lease with respect to the Initial Surrender Premises as provided for herein. Nothing herein shall excuse Tenant from its obligations under the Lease with respect to the Initial Surrender Premises prior to the Initial Surrender Date.

b. **Surrender of the Subsequent Surrender Premises**. The Lease with respect to the Subsequent Surrender Premises shall terminate as provided for in the Lease on the Subsequent Surrender Date. Tenant shall voluntarily surrender the Subsequent Surrender Premises on such date in the condition which Tenant is required to surrender the Premises as of the expiration of the Lease. Tenant agrees to reasonably cooperate with Landlord in all matters, as applicable, relating to (i) surrendering the Subsequent Surrender Premises in accordance with the surrender

requirements and in the condition required pursuant to the Lease, and (ii) all other matters related to restoring the Subsequent Surrender Premises to the condition required under the Lease. From and after the Subsequent Surrender Date, Tenant shall have no further rights or obligations of any kind with respect to the Subsequent Surrender Premises. Notwithstanding the foregoing, those provisions of the Lease which, by their terms, survive the termination of the Lease shall survive the surrender of the Subsequent Surrender Premises and termination of the Lease with respect to the Subsequent Surrender Premises as provided for herein. Nothing herein shall excuse Tenant from its obligations under the Lease with respect to the Subsequent Surrender Premises prior to the Subsequent Surrender Date.

2. **Definition of Premises**.

a. Commencing on August 1, 2015, the defined term "**Premises**" on Page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Premises:** That portion of the Project comprised of (i) a portion of Area 2C and a portion of Area 1D of the Building (as hereinafter defined), containing approximately 27,311 rentable square feet in the aggregate, all as determined by Landlord, as shown on **Exhibit A**."

As of August 1, 2015, **Exhibit A** to the Lease shall be amended to exclude the Initial Surrender Premises.

b. Commencing on September 1, 2015, the defined term "**Premises**" on Page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Premises:** That portion of the Project comprised of (i) a portion of Area 2C and a portion of Area 1D of the Building (as hereinafter defined), containing approximately 22,343 rentable square feet in the aggregate, all as determined by Landlord, as shown on **Exhibit A**."

As of September 1, 2015, **Exhibit A** to the Lease shall be amended to exclude the Subsequent Surrender Premises.

3. **Base Rent.** Tenant shall continue to pay Base Rent for the entire Premises (including the Initial Surrender Premises and the Subsequent Surrender Premises) as provided for in the Lease through the Initial Surrender Date. Commencing on August 1, 2015, Tenant shall (i) no longer be required to pay Base Rent with respect to the Initial Surrender Premises, and (ii) continue paying Base Rent per rentable square foot of the Premises as required under the Lease with respect to the remaining Premises (not including the Initial Surrender Premises). Commencing on September 1, 2015, Tenant shall (i) no longer be required to pay Base Rent with respect to the Subsequent Surrender Premises, and (ii) continue paying Base Rent per rentable square foot of the Premises as required under the Lease with respect to the remaining Premises (not including the Subsequent Surrender Premises).

4. **Rentable Area of the Premises**.

a. Commencing on August 1, 2015, the defined term "**Rentable Area of the Premises**" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Rentable Area of the Premises:** 27,311 sq. ft."

b. Commencing on September 1, 2015, the defined term "**Rentable Area of the Premises**" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Rentable Area of the Premises:** 22,343 sq. ft."

5. **Tenant's Share of Operating Expenses**.

a. Commencing on August 1, 2015, the defined term "**Tenant's Share of Operating Expenses**" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Tenant's Share of Operating Expenses:** 19.4%"

a. Commencing on September 1, 2015, the defined term "**Tenant's Share of Operating Expenses**" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Tenant's Share of Operating Expenses:** 15.87%"

6. **Expansion Rights**. As of the date of this Fourth Amendment, Section 4 of the Second Amendment is hereby deleted in its entirety and replaced with the following:

"**4**. **Expansion Right**.

a. Right of First Offer. Tenant shall have the one-time right, but not the obligation, to expand the Premises (the "**Expansion Right**") to include any Expansion Space in the Building upon the terms and conditions in this Section 4(a). For purposes of this Section 4(a), "**Expansion Space**" shall mean that certain space consisting of Suite 130 containing approximately 12,659 rentable square feet as more particularly described on **Exhibit B** attached to the Fourth Amendment, which is not occupied by an existing tenant or which is occupied by a tenant whose lease is expiring within nine (9) months or less and such then tenant does not wish to renew (whether or not such tenant has a right to renew) its occupancy of such space. Upon Tenant's request, Landlord agrees to provide periodic updates from time to time to Tenant regarding the then-current expiration date of the then-existing tenant's lease for the Expansion Space, any extension or renewal options available to such then-existing tenant, or extension or renewal elections made by such then-existing tenant with respect to the Expansion Space. If all or a portion of the Expansion Space becomes available, then prior to offering or marketing such Expansion Space to any third party, but otherwise at such time as Landlord shall elect so long as Tenant's rights hereunder are preserved, Landlord shall deliver to Tenant written notice (the "**ROFO Expansion Notice**") of such available Expansion Space ("**Identified Space**"), together with the fair market terms and conditions (including, without limitation, Landlord's determination of the ROFO Market Rate (defined below)) on which Landlord is prepared to lease to Tenant such Identified Space. Tenant shall be entitled to exercise its right under this Section 4(a) only with respect to the entire Identified Space described in the ROFO Expansion Notice. The "**ROFO Market Rate**" shall mean the then fair market rental rate for space of comparable size, age and quality in laboratory/office buildings in the Market Set for a comparable term, and taking into account rental concessions, tenant improvement allowances, all Alterations and other improvements to the Identified Space and all other relevant factors. If the parties are unable to agree on the ROFO Market Rate within forty-five (45) days after Tenant's delivery to Landlord of an ROFO Exercise Notice (defined below), the ROFO Market Rate shall be determined by arbitration pursuant to Section 40 of the Lease. Tenant shall have seven (7) business days following Tenant's receipt of the ROFO Expansion Notice to deliver to Landlord written notification of Tenant's exercise of the Expansion Right ("**ROFO Exercise Notice**"). If Tenant has elected to exercise its Expansion Right by delivery of a ROFO Exercise Notice pursuant to this Section 4(a), Tenant shall have no right thereafter to rescind or elect not to expand the Premises to include the Identified Space. Tenant's failure to deliver a ROFO Exercise Notice to Landlord shall be deemed to be an election by Tenant not to exercise Tenant's Expansion Right with respect to the Identified Space, in which case Landlord shall have the right to lease the Identified Space to any third party on any terms and conditions acceptable to Landlord; provided, however, that if Landlord intends to lease the Identified Space to a third party for ninety-two and one-half percent (92.5%) or less of the net effective rent contained in the ROFO Expansion Notice, then prior to leasing the Identified Space to a third party, Landlord shall again give Tenant an ROFO Expansion Notice and Tenant shall again have its Expansion Right, subject to the terms and conditions of this Section 4(a).

b. Amended Lease. If: (i) Tenant fails to timely deliver a ROFO Exercise Notice, or (ii) after both parties having used diligent and good faith efforts to negotiate a lease amendment or lease agreement and after the expiration of a period of twenty (20) days after Landlord's delivery to Tenant of a lease amendment or lease agreement for Tenant's lease of the Identified Space, no lease amendment or lease agreement for the Identified Space acceptable to both parties each in their sole and absolute discretion, has been executed, Tenant shall be deemed to have forever waived its right to lease the Expansion Space.

c. Exceptions. Notwithstanding the above, the Expansion Right shall, at Landlord's option, not be in effect and may not be exercised by Tenant:

(i) during any period of time that Tenant is in default under any provision of the Lease beyond any applicable notice and cure periods; or

(ii) if Tenant has been in Default under any provision of the Lease three (3) or more times, whether or not the Defaults are cured, during the twelve (12) month period prior to the date on which Tenant seeks to exercise the Expansion Right.

d. Termination. The Expansion Right shall, at Landlord's option, terminate and be of no further force or effect even after Tenant's due and timely exercise of the Expansion Right if, after such exercise, but prior to the commencement date of the lease of such Identified Space, (i) Tenant fails to timely cure any default by Tenant under the Lease; or (ii) Tenant has Defaulted three (3) or more times during the period from the date of the exercise of the Expansion Right to the date of the commencement of the lease of the Identified Space, whether or not such Defaults are cured.

e. Rights Personal. The Expansion Right is personal to Tenant and is not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned in connection with any Permitted Assignment of this Lease.

f. No Extensions. The period of time within which the Expansion Right may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Expansion Right."

7. **Condition Precedent**. Notwithstanding anything to the contrary contained in this Fourth Amendment, Tenant and Landlord acknowledge and agree that the effectiveness of this Fourth Amendment shall be subject to the following condition precedent ("**Condition Precedent**") having been satisfied: Landlord shall have entered into lease agreements with one or more third parties on or before July 31, 2015, pursuant to which such third parties agree to lease all of the Initial Surrender Premises and Subsequent Surrender Premises, which lease agreements shall be on terms and conditions acceptable to Landlord, in Landlord's sole and absolute discretion. In the event that the Condition Precedent is not satisfied, Landlord shall have the right to terminate this Fourth Amendment upon delivery of written notice to Tenant. Landlord shall have no liability whatsoever to Tenant relating to or arising from Landlord's inability or failure to cause the Condition Precedent to be satisfied.

8. **Miscellaneous.**

a. This Fourth Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This Fourth Amendment may be amended only by an agreement in writing, signed by the parties hereto.

b. This Fourth Amendment is binding upon and shall inure to the benefit of the parties hereto, and their respective successors and assigns.

c. This Fourth Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which when taken together shall constitute one and the same instrument. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto except having additional signature pages executed by other parties to this Fourth Amendment attached thereto.

d. Except as amended and/or modified by this Fourth Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this Fourth Amendment. In the event of any conflict between the provisions of this Fourth Amendment and the provisions of the Lease, the provisions of this Fourth Amendment shall prevail. Whether or not specifically amended by this Fourth Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this Fourth Amendment.

[Signatures are on the next page]

IN WITNESS WHEREOF, the parties hereto have executed this Fourth Amendment as of the day and year first above written.

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership, managing member

By: ARE-QRS CORP.,
a Maryland Corporation,
general partner

By: /s/ Eric S. Johnson
Its: Senior Vice President
RE Legal Affairs

TENANT:

480 BIOMEDICAL, INC.,
a Delaware corporation

By: /s/ Scott Pitt
Name: Scott Pitt
Title: CFO

EXHIBIT A-1

INITIAL SURRENDER PREMISES

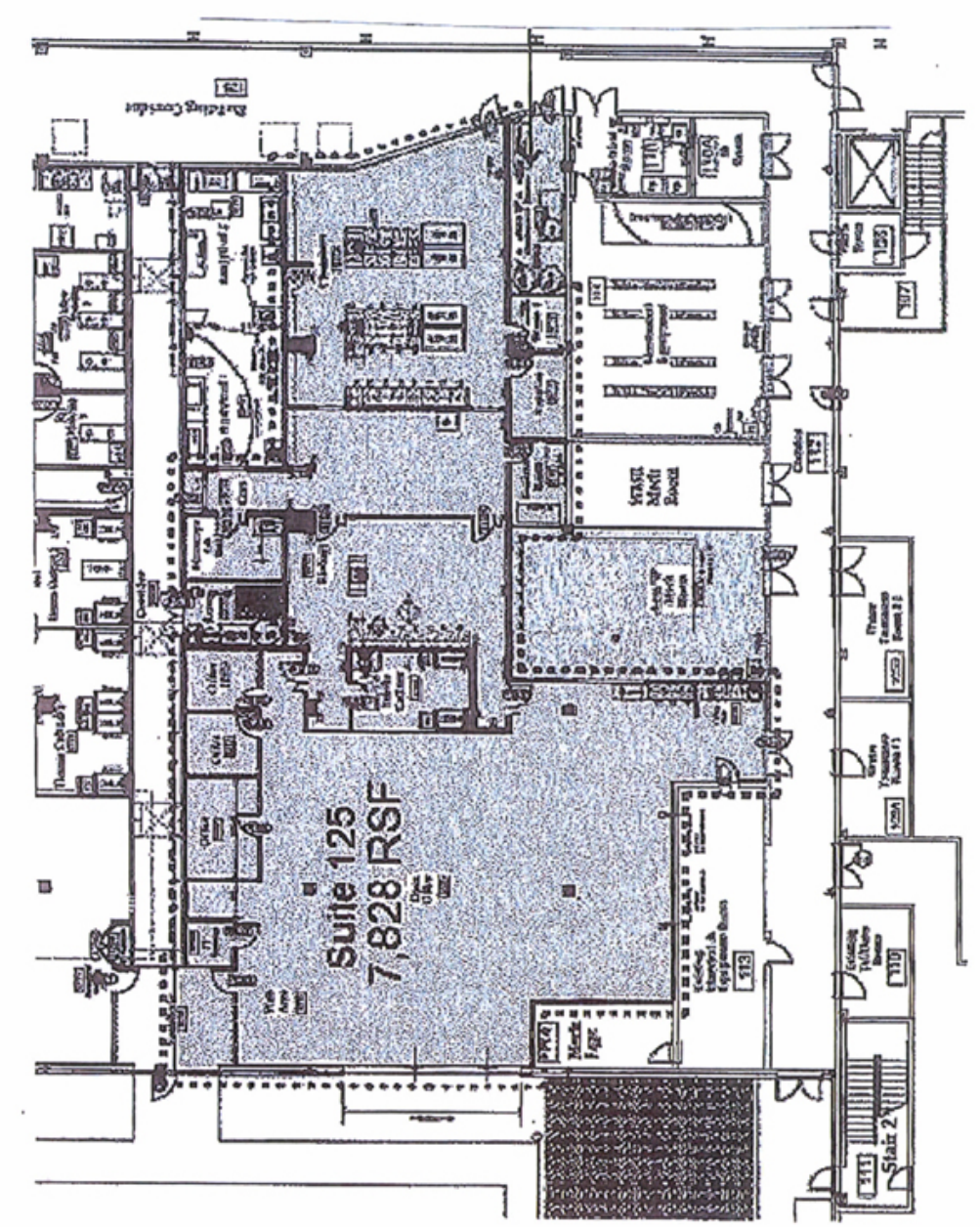


EXHIBIT A-2

SUBSEQUENT SURRENDER PREMISES

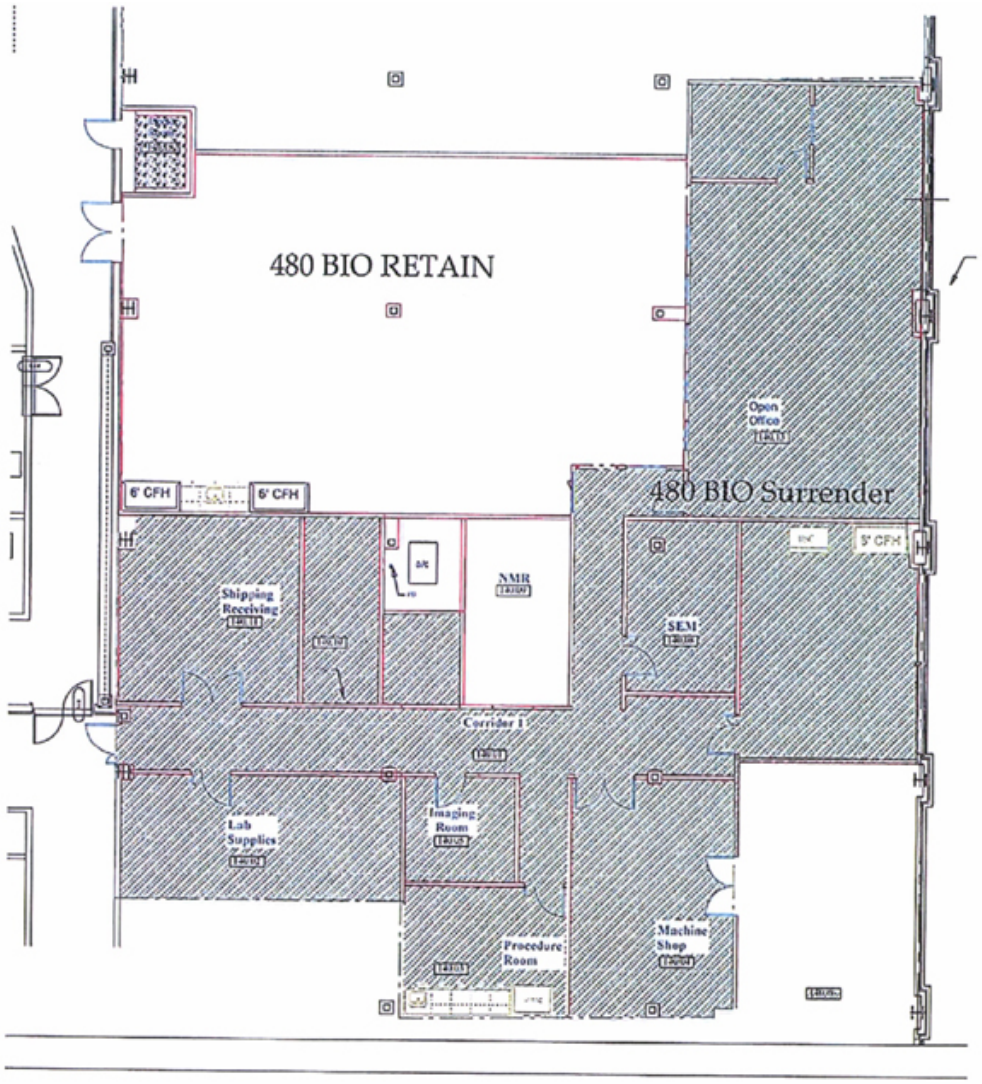
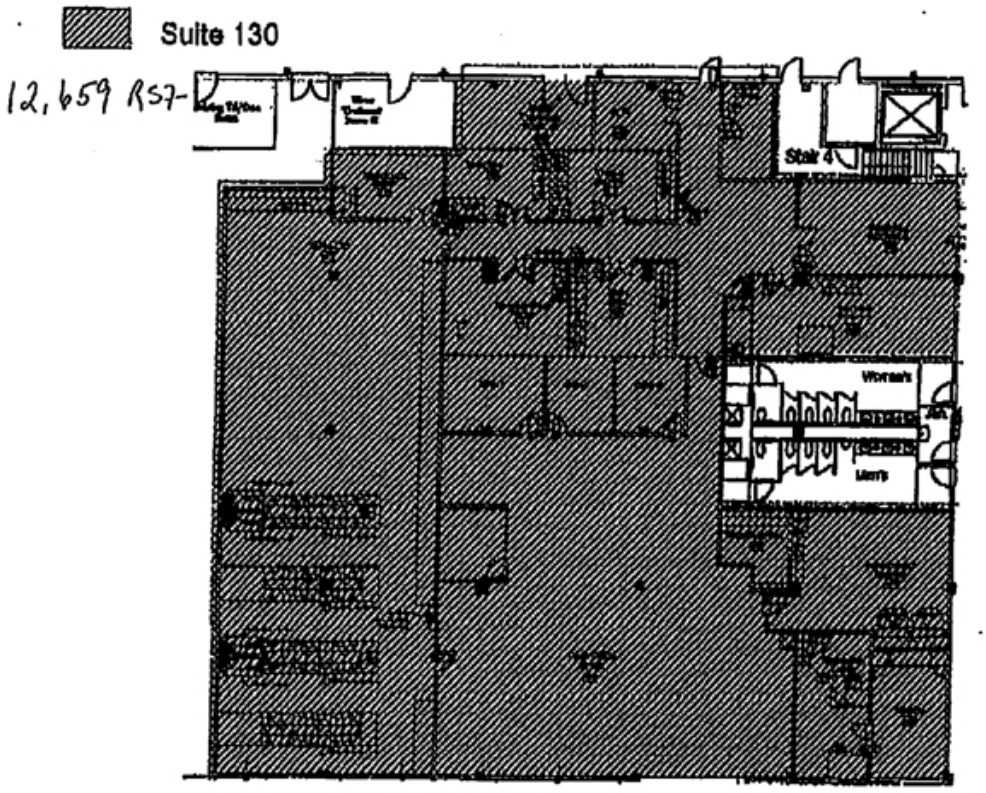


EXHIBIT B

EXPANSION SPACE



FIFTH AMENDMENT TO LEASE

This Fifth Amendment to Lease (the "**Fifth Amendment**") is made as of November 2nd, 2017, by and between **ARE-480 ARSENAL STREET, LLC**, a Delaware limited liability company ("**Landlord**"), and **480 BIOMEDICAL, INC**., a Delaware corporation ("**Tenant**").

RECITALS

A. Landlord and Tenant are parties to that certain Lease Agreement dated as of August 14, 2007, as amended by that certain First Amendment to Lease dated as of July 21, 2008, as further amended by that certain Second Amendment to Lease dated September 4, 2012, as further amended by that certain letter agreement dated as of September 4, 2012, as further amended by that certain Third Amendment to Lease dated as of September 6, 2013, as further amended by that certain letter agreement dated January 5, 2014, as further amended by that certain Fourth Amendment to Lease dated as of July 28, 2015, as further amended by that certain letter agreement dated August 14, 2015 and as further amended by that certain letter agreement dated as of July 19, 2017 (as amended, the "**Lease**"), wherein Landlord leases to Tenant certain premises containing approximately 22,343 rentable square feet (the "**Premises**") in a building located at 480 Arsenal Street, Watertown, Massachusetts, as more particularly described in the Lease. Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. The Term of the Lease is scheduled to expire on April 30, 2018.

C. Landlord and Tenant desire to amend the Lease to, among other things, extend the term of the Lease through April 30, 2023 (the "**Fifth Amendment Expiration Date**").

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **Term**. The expiration date of the Term of the Lease is hereby extended through the Fifth Amendment Expiration Date. Tenant's occupancy of the Premises through the Fifth Amendment Expiration Date shall be on an "as-is" basis and Landlord shall have no obligation to provide any tenant improvement allowance or to make any alterations to the Premises.

2. **Base Rent**. Tenant shall continue to pay Base Rent as provided in the Lease through April 30, 2018. Commencing on May 1, 2018, Tenant shall pay Base Rent for the Premises equal to $45.13 per rentable square foot of the Premises per year, which shall be paid in equal monthly installments. On May 1, 2019, and each subsequent May 1st during the Term through the Fifth Amendment Expiration Date (each, a "**Fifth Amendment Adjustment Date**"), Base Rent shall be increased by multiplying the Base Rent payable immediately before such Fifth Amendment Adjustment Date by 3% and adding the resulting amount to the Base Rent payable immediately before such Fifth Amendment Adjustment Date.

3. **Extension Right**. As of the date of this Fifth Amendment, Section 39 of the Lease is hereby deleted in its entirety and is null and void and of no further force or effect.

4. **OFAC**. Tenant and all beneficial owners of Tenant are currently (a) in compliance with and shall at all times during the Term of this Lease remain in compliance with the regulations of the Office of Foreign Assets Control ("**OFAC**") of the U.S. Department of Treasury and any statute, executive order, or regulation relating thereto (collectively, the "**OFAC Rules**"), (b) not listed on, and shall not

during the term of the Lease be listed on, the Specially Designated Nationals and Blocked Persons List, Foreign Sanctions Evaders List or the Sectoral Sanctions Identifications List, which are all maintained by OFAC and/or on any other similar list maintained by OFAC or other governmental authority pursuant to any authorizing statute, executive order, or regulation, and (c) not a person or entity with whom a U.S. person is prohibited from conducting business under the OFAC Rules.

5. **Miscellaneous**.

a. This Fifth Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This Fifth Amendment may be amended only by an agreement in writing, signed by the parties hereto.

b. This Fifth Amendment is binding upon and shall inure to the benefit of the parties hereto and their respective agents and assigns.

c. This Fifth Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which when taken together shall constitute one and the same instrument. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto except having additional signature pages executed by other parties to this Fifth Amendment attached thereto.

d. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with the transaction reflected in this Fifth Amendment and that no Broker brought about this transaction, other than Colliers International. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than Colliers International, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this Fifth Amendment.

e. Except as amended and/or modified by this Fifth Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this Fifth Amendment. In the event of any conflict between the provisions of this Fifth Amendment and the provisions of the Lease, the provisions of this Fifth Amendment shall prevail. Whether or not specifically amended by this Fifth Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this Fifth Amendment.

[Signatures are on the next page]

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amendment as of the day and year first above written.

LANDLORD:

ARE-480 ARSENAL STREET, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, LP.,
a Delaware limited partnership, managing member

By: ARE-QRS CORP.,
a Maryland Corporation,
general partner

By: /s/ Jackie Clem
Its: Senior Vice President
RE Legal Affairs

TENANT:

480 BIOMEDICAL, INC.,
a Delaware corporation

By: /s/ Robert Palladino
Name: Robert Palladino
Title: CFO