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As filed with the Securities and Exchange Commission on October 9, 2020

Registration No. 333-

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

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

ATEA PHARMACEUTICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**2834**	**46-0574869**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

125 Summer Street
Boston, MA 02110
(857) 284-8891
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Jean-Pierre Sommadossi, Ph.D.
President and Chief Executive Officer
Atea Pharmaceuticals, Inc.
125 Summer Street
Boston, MA 02110
(857) 284-8891
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

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Yasin Keshvargar
Davis Polk & Wardwell LLP
450 Lexington Avenue
New York, NY 10017
(212) 450-4000

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, 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	$ 100,000,000	$ 10,910

(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 to cover over-allotments, if any.

(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.

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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, dated October 9, 2020.

PRELIMINARY PROSPECTUS

Shares

Common Stock

This is Atea Pharmaceuticals, Inc.'s initial public offering. We are offering shares of our common stock. Prior to this offering, there has been no public market for our common stock.

We estimate that the initial public offering price of our common stock will be between $ and $ per share. After pricing of the offering, we expect that the shares will trade on The Nasdaq Global Market under the symbol "AVIR."

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

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

	Per Share	Total
Initial public offering price	$	$
Underwriting discounts and commissions paid by us(1)	$	$
Proceeds, before expenses, to us	$	$

(1) We have agreed to reimburse the underwriters for certain FINRA-related expenses. We refer you to "Underwriting" beginning on page 182 for additional information regarding underwriting compensation.

We have granted the underwriters an option for a period of 30 days to purchase up to additional common shares at the public offering price less underwriting discounts and commissions. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be $, and the total proceeds to us, before expenses, will be $.

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 underwriters expect to deliver the shares to purchasers on or about , 2020 through the book-entry facilities of the Depository Trust Company.

J.P. Morgan **Morgan Stanley** **Evercore ISI** **William Blair**

The date of this prospectus is , 2020.

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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 prospectuses 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 related thereto 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 TM 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. We do not intend our use or display of other parties' trademarks, trade names or service marks to imply, and such use or display should not be construed to imply, a relationship with, or endorsement or sponsorship of us by, these other parties.

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.

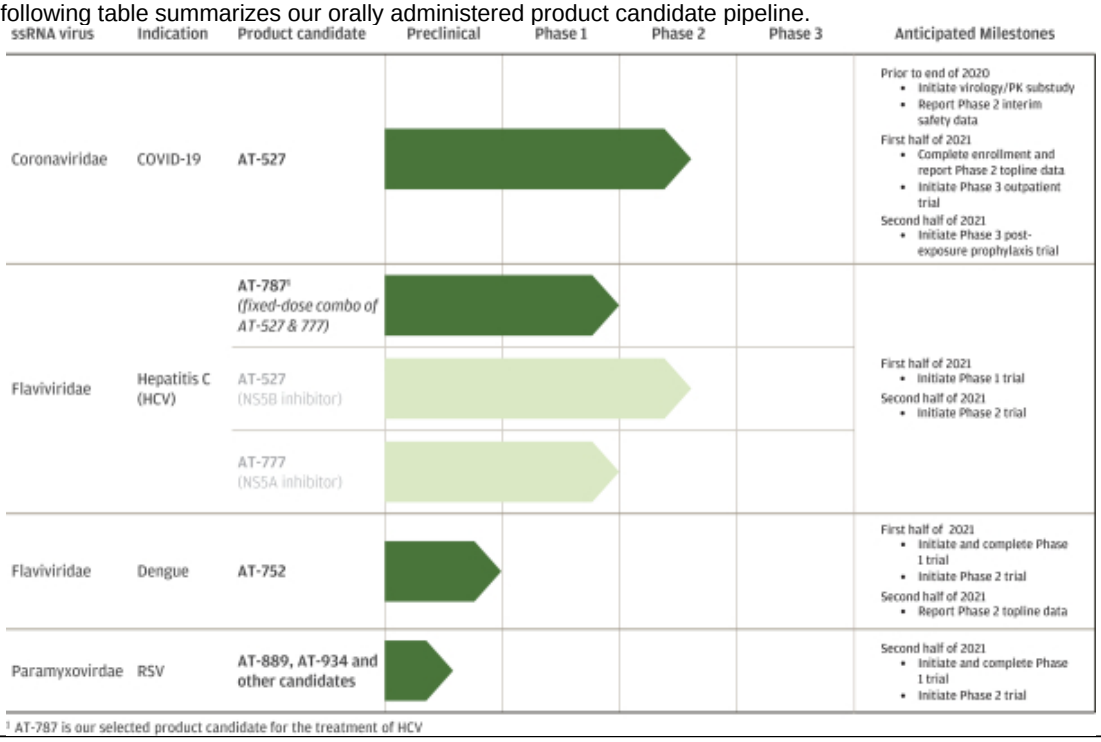
PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and is qualified in its entirety by the more detailed information and consolidated financial statements included elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our common stock. You should carefully read this entire prospectus, including the information under the sections titled "Risk Factors," "Special Note Regarding Forward-Looking Statements" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this prospectus, before making an investment decision. Unless the context requires otherwise, references in this prospectus to "Atea Pharmaceuticals," "Atea," the "Company," "we," "us" and "our" refer to Atea Pharmaceuticals, Inc. and its consolidated subsidiary.

Overview

We are a clinical-stage biopharmaceutical company focused on discovering, developing and commercializing antiviral therapeutics to improve the lives of patients suffering from life-threatening viral infections. Leveraging our deep understanding of antiviral drug development, nucleoside biology, and medicinal chemistry, we have built a proprietary purine nucleotide prodrug platform to develop novel product candidates to treat single stranded ribonucleic acid, or ssRNA, viruses, which are a prevalent cause of severe viral diseases. Currently, we are focused on the development of orally available, potent, and selective nucleotide prodrugs for difficult-to-treat, life-threatening viral infections, including severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2, the virus that causes COVID-19, hepatitis C virus, or HCV, dengue virus, and respiratory syncytial virus, or RSV. We believe our team's expertise from decades of developing innovative antiviral treatments uniquely positions us to advance medicines that have the potential to cure some of the world's most severe viral diseases by inhibiting the enzymes central to viral replication.

All of our product candidates have been discovered and developed internally and we retain full global rights to commercialize our product candidates. The following table summarizes our orally administered product candidate pipeline.

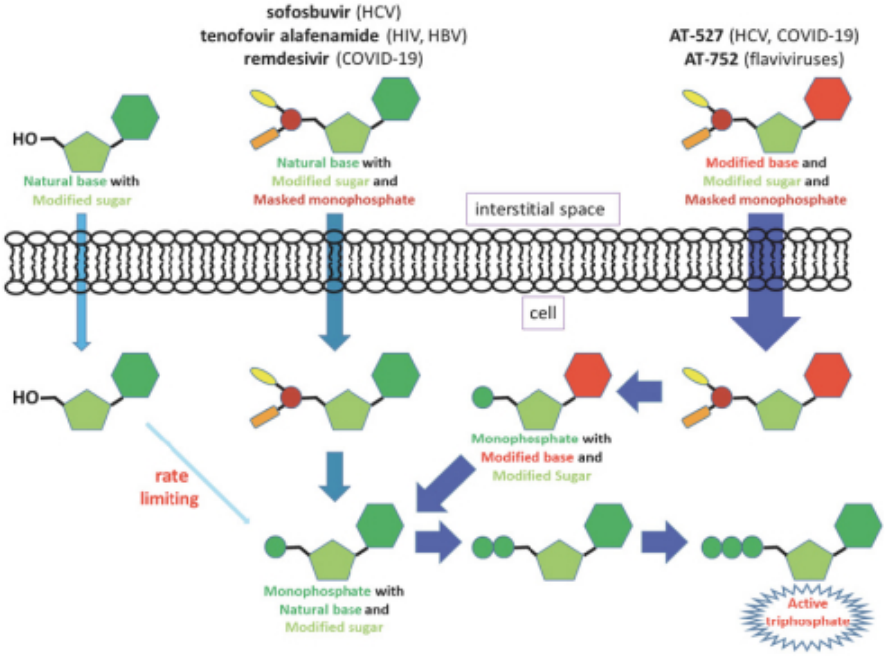


Our platform

Over the last 40 years, nucleoside and nucleotide, or together, nucleos(t)ide, analogs have been developed to mimic naturally occurring nucleic acids and block viral replication by inhibiting enzymes involved in RNA and DNA viral growth cycles. Nucleos(t)ide analogs have become the backbone of therapies that treat life-threatening viral infections, including human immunodeficiency virus, or HIV, hepatitis B, or HBV, and HCV. Our expertise has allowed us to develop a proprietary platform, which facilitates the development of product candidates that combine unique purine nucleotide scaffolds with a novel double prodrug strategy. We believe that utilizing this double prodrug moiety approach allows us to maximize formation of the active metabolite, potentially resulting in highly potent and selective oral antiviral product candidates.

Our proprietary nucleotide prodrug platform, as illustrated below, is comprised of the following critical components:

- Specific modifications of the purine base, acting as a prodrug, enhance cell membrane permeability, resulting in an intermediate metabolite that maximizes formation of the triphosphate active metabolite in cells;
- Stereospecific phosphoramidate, acting as a prodrug, designed to bypass the first rate-limiting phosphorylation enzyme in the intracellular activation pathway;
- Specific modifications in the sugar moiety of the purine nucleotide scaffold, producing potent antiviral activity with a high degree of selectivity; and
- Highly specific salt form to enhance solubility and drug bioavailability.



We have produced a large library of nucleotide and nucleoside prodrugs specifically designed to target viral RNA dependent RNA polymerase, or RdRp, a key enzyme that is encoded in the viral genome. All ssRNA viruses,

including SARS-CoV-2 and HCV, depend on RdRp for replication and transcription and, since viral RdRp is not present in the host cell, RdRp is an ideal target to inhibit virus replication.

Our product candidates

AT-527 for the treatment of COVID-19

Our lead product candidate, AT-527, is an orally administered, novel antiviral agent for the treatment of patients infected with SARS-CoV-2, which causes COVID-19. AT-527 was specifically designed as a purine nucleotide prodrug to inhibit RdRp. The RdRps in SARS-CoV-2 support the transcription and replication of the approximately 30,000-nucleotide RNA viral genome. The RdRps in SARS-CoV-2 and severe acute respiratory syndrome coronavirus 1, or SARS-CoV, the virus that causes severe acute respiratory syndrome, are the largest and most complex RdRps among RNA viruses. *In vitro* preclinical studies measuring the antiviral activity of AT-527 in several assays against human coronavirus, including SARS-CoV and SARS-CoV-2, suggest that AT-527 is potent and highly selective against these viruses. We are currently evaluating AT-527 in a randomized, double blind, placebo-controlled Phase 2 trial in approximately 190 adult patients with moderate COVID-19 and one or more risk factors for poor outcomes. AT-527 was well tolerated and exhibited highly potent antiviral activity in two clinical trials with HCV infected subjects. We have utilized the pharmacokinetics, safety and tolerability data we obtained from our clinical trials of AT-527 for the treatment of HCV to advance the clinical development of AT-527 for the treatment of COVID-19. HCV was the initial therapeutic indication for which we evaluated AT-527. We dosed our first patient in September 2020 and expect to report topline data from this COVID-19 trial in the first half of 2021. We anticipate initiating a Phase 3 clinical trial to study AT-527 in adult patients with mild to moderate COVID-19 requiring outpatient management in the first half of 2021.

AT-787 for the treatment of hepatitis C

HCV is a blood-borne, positive sense, ssRNA virus, primarily infecting cells of the liver. HCV is a leading cause of chronic liver disease and liver transplants and spreads via blood transfusion, hemodialysis and needle sticks. We have created a novel combination of AT-527 with AT-777, a nonstructural protein 5A, or NS5A, inhibitor into a single, oral, pan-genotypic fixed dose combination product candidate, AT-787, for the treatment of chronic HCV infection. Despite significant recent advances in treatment, HCV remains a global health burden due to the limitations of currently available treatment options. We believe that AT-787 has the potential to offer a short duration protease-sparing regimen for HCV-infected patients with or without cirrhosis. For patients with decompensated cirrhosis, a life-threatening stage of liver disease, AT-787 has the potential to treat these patients without the co-administration of ribavirin. Upon the resolution of industry wide clinical trial challenges associated with the COVID-19 pandemic, we expect to initiate our Phase 1/2A clinical trial, which is designed to evaluate the safety and pharmacokinetics, or PK, of different dosages of AT-777 in healthy adults and to evaluate the combination of AT-527 and AT-777 in HCV infected subjects.

AT-752 for the treatment of dengue

AT-752 is an oral, purine nucleotide prodrug for the treatment of dengue virus – a mosquito-borne viral infection that infects up to 400 million people a year for which there are currently no therapies approved by either the U.S. Federal Food and Drug Administration, or the FDA, or European Medicines Agency, or EMA. AT-752 targets the inhibition of the dengue viral polymerase and, in preclinical studies, AT-752 showed potent *in vitro* activity against all serotypes tested as well as potent *in vivo* antiviral activity in a small animal model. We plan to submit an investigational new drug application, or IND, to the FDA or Clinical Trial Application to the

to one or more competent authorities outside the United States in the first half of 2021. Contingent upon receipt of FDA or EMA authorization, we expect to initiate a randomized, double-blind, placebo-controlled Phase 1 trial to analyze the safety and PK of several different dosages of AT-752 in healthy adult subjects in the first half of 2021. Following the completion of the Phase 1 trial, we expect to initiate a Phase 2 trial to evaluate the antiviral activity, safety and PK of AT-752 in adult patients with dengue in the first half of 2021.

AT-889, AT-934 and other product candidates for the treatment of respiratory syncytial virus

We are evaluating two lead compounds, AT-889 and AT-934, second generation nucleoside pyrimidine prodrugs and other compounds for the treatment of RSV. RSV is a seasonal respiratory virus that can be serious for infants, older adults, and the immuno-compromised population. AT-889 and AT-934 inhibit RNA polymerase through both initiation of viral replication and viral transcription and showed potent *in vitro* activity in several cell based assays against RSV. We expect to nominate a product candidate and to initiate clinical development of the selected product candidate in the second half of 2021. We believe that the product candidate we develop, if approved, could be the first therapy in over 30 years to be approved specifically for the treatment of RSV.

Our team

Our management team has significant experience discovering, developing and commercializing antiviral therapies for life threatening viral infections. Our Founder, Chairman, and Chief Executive Officer, Jean-Pierre Sommadossi, Ph.D., has over 30 years of scientific, operational, strategic, and management experience in the biopharmaceutical industry and holds more than 60 U.S. patents related to the treatment of infectious disease and cancer. Dr. Sommadossi was the principal founder of Idenix Pharmaceuticals, Inc., or Idenix, which was acquired by Merck & Co., Inc. in 2014, and a co-founder of Pharmasset, Inc., or Pharmasset, which was acquired by Gilead Sciences, Inc. in 2012.

We have assembled an experienced management and scientific team with a track record of success in the field of antiviral drug development, many of whom have worked together previously. Our team has significant expertise in nucleos(t)ide chemistry and biology and has applied that expertise towards the discovery and development of innovative antiviral treatments, including Epivir, Sovaldi, Tyzeka, Valtrex, Wellferon, Videx, Reyataz, Sustiva, Mavyret, Xofluza, Relenza and Zerit. Members of our team have held senior positions at AstraZeneca plc, GlaxoSmithKline plc, Chiron, Novartis International AG, Biogen, F. Hoffmann La Roche, Abbvie, Bristol Myers Squibb, Shire, Biohaven Pharma, Pharmasset, Idenix, Valeant Pharmaceuticals International and Alnylam Pharmaceuticals.

We have been supported by a leading syndicate of investors, which include Adage, Aju IB Investment, Ally Bridge Group, Bain Capital Life Sciences, Cormorant Asset Management, Morningside Ventures, Omega Funds, Perceptive Advisors, PICTET, RA Capital, Redmile Group, RMI Partners, Rock Springs Capital, Sectoral Asset Management, T. Rowe Price and Valence Life Sciences.

Our strategy

Our goal is to become a global leader in the discovery, development, and commercialization of novel antiviral therapies for severe or life threatening viral infections. We intend to achieve this goal by pursuing the following strategies:

- rapidly complete development and obtain approval for our lead product candidate, AT-527, an oral drug for the treatment of COVID-19;
- deploy our medicinal chemistry expertise and proprietary purine nucleotide platform against severe ssRNA viruses with high unmet need;

- focus on excellent clinical and regulatory execution;
- maximize the value of our product candidates; and
- maintain our entrepreneurial outlook, scientifically rigorous approach, and culture of tireless commitment to patients.

Risk Factors

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks are discussed more fully in the “Risk Factors” section of this prospectus immediately following this prospectus summary. These risks include the following:

- there is significant uncertainty around our development of AT-527 as a potential treatment for COVID-19;
- COVID-19 may materially and adversely affect our business, financial results and clinical trials;
- we have a limited operating history and no history of successfully developing or commercializing any approved antiviral products, which may make it difficult to evaluate the success of our business to date and to assess the prospects for our future viability;
- we have incurred significant losses since inception and expect to incur significant additional losses for the foreseeable future. We have no products that have generated any commercial revenue and we may never achieve or maintain profitability;
- even if we consummate this offering, we will require substantial additional financing, which may not be available on acceptable terms, or at all. A failure to obtain this necessary capital when needed could force us to delay, limit, reduce or terminate our product development or commercialization efforts;
- our business is highly dependent on the success of our most advanced product candidates, particularly AT-527, each of which will require significant additional clinical testing before we can seek regulatory approval and potentially launch commercial sales. If these product candidates do not receive regulatory approval or are not successfully commercialized, or are significantly delayed in doing so, our business will be harmed;
- developments by competitors may render our products or technologies obsolete or non-competitive or may reduce the size of our markets;
- we will need to expand our organization, and we may experience difficulties in managing this growth, which could disrupt our operations;
- an active trading market for our common stock may not develop; and
- 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.

Implications of Being an Emerging Growth Company

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. As such, we may take advantage of certain exemptions from various reporting

requirements that are otherwise applicable to public companies. These exemptions 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 submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency," and "say-on-golden parachutes;" and
- not being required to disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation.

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.

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), 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, (c) have filed at least one annual report pursuant to the Exchange Act, and (d) are not eligible to use the requirements for "smaller reporting companies" (as defined in Rule 12b-2 of the Exchange Act) under the revenue test for smaller reporting companies. 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 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.

Corporate Information

We were incorporated under the laws of the state of Delaware in July 2012. Our principal executive offices are located at 125 Summer Street, Boston, Massachusetts 02110 and our telephone number is (857) 284-8891. Our website address is *www.ateapharma.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 initial 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), 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, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We anticipate that we will use the net proceeds from this offering, together with our existing cash and cash equivalents, to advance the clinical development of AT-527 for the treatment of moderate COVID-19, AT-787 for the treatment of chronic HCV, AT-752 for the treatment of dengue and our RSV program, and for working capital and general corporate purposes. See “Use of Proceeds” 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	“AVIR”

The number of shares of our common stock to be outstanding after this offering is based on 10,309,847 shares of our common stock outstanding as of September 30, 2020, which includes 200,000 shares of unvested restricted stock subject to repurchase, and excludes:

- 4,186,747 shares of our common stock issuable upon the exercise of stock options outstanding under our 2013 Stock Incentive Plan, or our Prior Plan, as of June 30, 2020, at a weighted-average exercise price of $1.51 per share;
- 2,815,000 shares of our common stock issuable upon the exercise of stock options outstanding under our Prior Plan, granted between July 1 through September 30, 2020, at a weighted-average exercise price of $6.84 per share;
- additional 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

- additional shares of our common stock that will become available for future issuance under our 2020 Employee Stock Purchase Plan, or out 2020 ESPP, 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 ESPP.

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

- a -for- reverse stock split of our common stock, which was effective on , 2020;
- the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of shares of our common stock, which will occur in connection with the closing of this offering;
- 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.

Summary Consolidated Financial Data

The following tables summarize our consolidated financial data as of the dates indicated and for the periods then ended. We have derived the consolidated statements of operations and comprehensive loss data for the years ended December 31, 2019 and 2018 (except for the pro forma net loss per share and the pro forma share information) from our audited consolidated financial statements and related notes included elsewhere in this prospectus. The summary consolidated statements of operations data presented below for the six months ended June 30, 2020 and 2019 and the summary consolidated balance sheet data as of June 30, 2020 have been derived from our unaudited consolidated financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited consolidated financial information in those statements. In the opinion of management, the unaudited data reflect all adjustments, consisting only of normal recurring adjustments necessary for a fair statement of the financial information in those statements. Our historical results are not necessarily indicative of the results that may be expected in the future, and our results for any interim period are not necessarily indicative of results that may be expected for any full year. You should read the following summary financial data together with our financial statements and the related notes appearing elsewhere in this prospectus and the information in the sections titled “Selected Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

	Six Months Ended June 30,		Years Ended December 31,	
	2020	2019	2019	2018
	(in thousands, except share and per share data) (unaudited)			
Statement of Operations and Comprehensive Loss Data				
Operating expenses:				
Research and development	$ 10,576	$ 4,270	$ 10,170	$ 6,675
General and administrative	3,472	1,820	4,438	2,802
Total operating expenses	14,048	6,090	14,608	9,477
Loss from operations	(14,048)	(6,090)	(14,608)	(9,477)
Interest income and other, net	67	343	574	413
Net loss and comprehensive loss	$ (13,981)	$ (5,747)	$ (14,034)	$ (9,064)
Net loss per share attributable to common stockholders - basic and diluted(1)	$ 1.39	$ (0.57)	$ (1.39)	$ (0.90)
Weighted-average common shares outstanding - basic and diluted(1)	10,093,689	10,091,100	10,091,100	10,039,392
Pro forma net loss per share attributable to common stockholders - basic and diluted (unaudited)(2)	$ (0.30)		$ (0.32)	
Pro forma weighted-average common shares outstanding - basic and diluted (unaudited)(2)	47,292,517		43,736,547	

(1) For details on the calculation of our basic and diluted net loss per share attributable to common stockholders see Notes 10 and 11 to our unaudited and audited consolidated financial statements, respectively, included elsewhere in this prospectus.

(2) For details on the calculation of our pro forma basic and diluted net loss per share attributable to common stockholders see Notes 10 and 11 to our unaudited and audited consolidated financial statements, respectively, included elsewhere in this prospectus.

(in thousands)	As of June 30, 2020		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)(4)
		(unaudited)	
Balance Sheet Data			
Cash and cash equivalents	$115,792		
Working capital(3)	111,392		
Total assets	119,745		
Convertible preferred stock	175,745		
Total stockholders' (deficit) equity	(63,127)		

(1) The pro forma balance sheet data gives effect to the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of shares of common stock, which will occur in connection with the closing of this offering and the filing of our restated certificate of incorporation.

(2) Reflects the pro forma adjustments described in footnote (1) above 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 estimated underwriting discounts and commissions and estimated offering expenses payable by us. This pro forma as adjusted information is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing.

(3) We define working capital as current assets less current liabilities.

(4) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets and total stockholders' (deficit) 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 the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase or decrease of 1.0 million shares in the number of shares offered by us would increase or decrease each of cash and cash equivalents, working capital, total assets and total stockholders' (deficit) equity by approximately $ million, assuming no change in the assumed initial public offering price and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other final terms of this offering.

RISK FACTORS

You should carefully consider the risks and uncertainties described below, as well as the other information in this prospectus, including our financial statements and the related notes and "Management's Discussion and Analysis of Results of Operations and Financial Condition," 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 COVID-19

There is significant uncertainty around our development of AT-527 as a potential treatment for COVID-19.

Our development of AT-527 for the treatment of COVID-19 is in its early stages, and we may not be successful in our development of AT-527 as a potential treatment for COVID-19. We are conducting a Phase 2 clinical trial of AT-527 in hospitalized patients with moderate COVID-19 and at least one risk factor for complications related to COVID-19. We have committed and plan to continue to commit significant financial and personnel resources to the development of AT-527 as a potential treatment for COVID-19. For example, we have allocated certain resources that could be used to develop AT-787 for the treatment of chronic hepatitis C, or HCV, to prioritize development of AT-527 for the treatment of COVID-19. If we are unable to successfully develop AT-527 for the treatment of COVID-19, we will have taken resources away from other development programs and will not be able to recuperate the resources dedicated to developing AT-527 as a potential treatment for COVID-19, which could have a material adverse impact on our business. In addition, we anticipate announcing topline data from our Phase 2 trial after the expected closing of this offering. Our Phase 2 trial is subject to the risks related to clinical development discussed in this "Risk Factors" section. If the topline data are not supportive of further development of AT-527 as a treatment for COVID-19 or the market has a negative reaction to the topline data, the demand for our common stock could decrease significantly, and the price of our common stock could decline substantially, which could result in significant losses for our stockholders.

Further, while there is currently an urgent need for a treatment for COVID-19, the longevity and extent of the COVID-19 pandemic is uncertain. If the pandemic were to dissipate, whether due to a significant decrease in new infections, due to the availability of vaccines, or otherwise, the need for a treatment could decrease significantly. If the need for a treatment decreases before or soon after commercialization of AT-527, if approved, or another treatment for COVID-19 is developed before AT-527, our business could be adversely impacted.

We may expend resources in anticipation of clinical trials and potential commercialization of AT-527, which we may not be able to recover if AT-527 is not approved for the treatment of COVID-19 or we are not successful at commercializing AT-527.

We believe that there is an urgent unmet need for effective COVID-19 treatments. Accordingly, if the data from our ongoing and planned clinical trials of AT-527 in COVID-19 patients are positive, we may pursue certain expedited development, review and approval programs offered by the U.S. Food and Drug Administration, or FDA, to sponsors of drugs designed to treat serious diseases and conditions. These programs may offer the potential for a more rapid approval and commercialization process than traditional FDA review pathways. In order to prepare for the possibility that we may be required to develop and rapidly commercialize AT-527, we

may enter into agreements with, and make payments to, contract manufacturing organizations, or CMOs, prior to obtaining any approval to market AT-527 for the treatment of COVID-19. As a result, we may not be able to recover these costs if AT-527 is not approved for the treatment of COVID-19, which could have a material adverse effect on our business.

We currently expect that the market for a treatment for COVID-19 will be large, and we cannot be certain that our CMOs we will be able to meet any commercial demand for AT-527. If we are unable to meet commercial demand, we may not be able to fully capitalize on our development of AT-527, which could have an adverse effect on our business.

Furthermore, we have never commercialized a product and may not be successful in establishing the capabilities required for commercialization. In order to commercialize AT-527, we will need to rapidly establish and build sales and marketing capabilities prior to obtaining approval to market AT-527. If we do not obtain approval for AT-527, we will have expended those resources prematurely, and our business could be adversely affected.

There has also been significant media coverage regarding the pricing of any vaccine or treatment for COVID-19. For example, Gilead Sciences, Inc. has recently come under scrutiny regarding its pricing of remdesivir, after having donated its initial supply of the drug. Pricing for drugs to treat COVID-19 continues to evolve, and we cannot be certain of the factors that will determine the sales price of AT-527, if approved. If we are unable to sell AT-527 at a sufficient price point, our ability to commercialize AT-527, if approved, may be adversely affected.

AT-527 may face significant competition from vaccines and other treatments for COVID-19 that are in development.

Many biotechnology and pharmaceutical companies are developing treatments for COVID-19 or vaccines against severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2, the virus that causes COVID-19, and any treatment we may develop could face significant competition. Many of these companies, which include large pharmaceutical companies, have greater resources for development and established commercialization capabilities. These companies may develop treatments more rapidly or effectively than we do, may develop a treatment that becomes the standard of care, may develop a treatment at a lower cost, or may be more successful at commercializing an approved treatment, all of which could adversely impact our business. As a result, we may not be able to successfully commercialize AT-527 for the treatment of COVID-19, even if approved, or compete with other treatments or vaccines, which could adversely impact our business and operations.

COVID-19 may materially and adversely affect our business and financial results.

In December 2019, SARS-CoV-2 surfaced in China. Since then, COVID-19 has spread globally. In the United States, travel bans and government stay-at-home orders have caused widespread disruption in business operations and economic activity. Governmental authorities around the world have implemented measures to reduce the spread of COVID-19. These measures, including suggested or mandated “shelter-in-place” orders, have adversely affected workforces, customers, consumer sentiment, economies, and financial markets, and, along with decreased consumer spending, have led to an economic downturn in the United States. In response to the public health directives and orders and to help minimize the risk of COVID-19 for our employees, we have taken precautionary measures, including implementing work-from-home policies for all our employees. Many of our third-party collaborators, such as our CMOs, contract research organizations, or CROs, suppliers and others, have taken similar precautionary measures. These measures have disrupted our business and delayed certain of our clinical programs and timelines. For example, our Phase 1/2A clinical trial of AT-787 for the treatment of HCV is currently paused until the clinical trial sites are able to re-open and resume patient enrollment. Certain

countries, including the United States, have begun the process of re-opening. However, any re-opening could take a significant amount of time, require additional resources to implement social-distancing and other preventive measures, or may not be successful.

The impact to our operations due to the COVID-19 pandemic could be severe and could negatively affect our business, financial condition and results of operations. To the extent the COVID-19 pandemic adversely affects our business and financial results, it may also have the effect of heightening many of the other risk factors described in this “Risk Factors” section, such as those relating to our clinical trial timelines, our ability to enroll subjects for clinical trials and obtain materials that are required for the production of our product candidates, and our ability to raise capital.

COVID-19 may materially and adversely affect our clinical trials.

As a result of the COVID-19 pandemic, we may experience additional disruptions that could severely impact our clinical trials, including:

- delays or difficulties in enrolling patients in a clinical trial, including rapidly evolving treatment paradigms, and patients that may not be able to comply with clinical trial protocols if quarantines impede patient movement or interrupt healthcare services;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators, and clinical site staff, or the overwork of existing investigators and staff;
- diversion or prioritization of healthcare resources away from the conduct of clinical trials and towards the COVID-19 pandemic, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruptions or delays in preclinical studies due to restricted or limited operations at research and development laboratory facilities;
- interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel imposed or recommended by federal, state or provincial governments, employers and others;
- the risk that participants enrolled in our non-COVID-19-related clinical trials will contract COVID-19 while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events;
- limitations in employee resources that would otherwise be focused on the conduct of our clinical trials, including because of sickness of employees or their families or the desire of employees to avoid contact with large groups of people;
- delays in receiving approval from local regulatory authorities to initiate our planned clinical trials;
- delays in clinical sites receiving the supplies and materials needed to conduct our clinical trials;
- interruption in global shipping that may affect the transport of clinical trial materials, such as investigational drug product;
- changes in local regulations as part of a response to the COVID-19 outbreak that may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs, or to discontinue the clinical trials altogether;
- delays in necessary interactions with local regulators, ethics committees and other important agencies and contractors due to limitations in employee resources or forced furlough of government employees; and
- the refusal of the FDA to accept data from clinical trials in these affected geographies.

For example, our HCV program has been delayed until the clinical trial sites conducting our Phase 1/2A trial are able to re-open and resume enrollment, and our other development programs may be delayed or otherwise negatively impacted. As a result, the expected timeline for data readouts of our clinical trials and certain regulatory filings will likely be negatively impacted, which would adversely affect and delay our ability to obtain regulatory approvals for our product candidates, increase our operating expenses, and have a material adverse effect on our financial condition. Moreover, SARS-CoV-2 is a novel pathogen, and information regarding the symptoms, progression, and spread of COVID-19 continues to rapidly evolve, which may present additional challenges for the conduct of our clinical trials in COVID-19 patients. For example, COVID-19 patients have presented with a wide range of symptoms and side effects, which may make it more difficult for clinical trial investigators to determine whether any adverse events observed in our clinical trials are related to AT-527 or are consistent with the underlying disease. Any increase in the severity or incidence of adverse events deemed to be related to AT-527 could delay or prevent its regulatory approval, which could have a material adverse effect on our financial condition.

Risks Related to Our Financial Condition and Capital Requirements

We have a limited operating history and no history of successfully developing or commercializing any approved antiviral products, which may make it difficult to evaluate the success of our business to date and to assess the prospects for our future viability.

We are a clinical-stage biopharmaceutical company. 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 biopharmaceutical companies in their early stages of operations. We have not yet demonstrated an ability to complete any late-stage or pivotal clinical trials, obtain marketing approval, manufacture a commercial-scale product, or conduct sales and marketing activities necessary for successful product commercialization, or arrange for third parties to do these activities on our behalf. 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 antiviral therapies.

In addition, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown obstacles. If we successfully develop a product candidate, 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 this transition. For example, we may need to rapidly develop our commercialization capabilities if AT-527 is approved for the treatment of COVID-19.

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 have no products that have generated any commercial revenue and we may never achieve or maintain profitability.

We have incurred significant operating losses since our inception, including operating losses of $9.5 million, $14.6 million and $14.0 million for the years ended December 31, 2018 and 2019 and the six months ended June 30, 2020, respectively. As of June 30, 2020, we had an accumulated deficit of $68.2 million. 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 clinical trials and preclinical development activities.

We expect to continue to incur significant additional operating losses for the foreseeable future as we seek to advance product candidates through clinical development, continue preclinical development, expand our research and development activities, develop new product candidates, complete preclinical studies and clinical trials, seek regulatory approval and, if we receive regulatory approval, commercialize our products. In order to obtain FDA approval to market any product candidate in the United States, we must submit to the FDA a New Drug Application, or NDA, demonstrating to the FDA's satisfaction that the product candidate is safe and effective for its intended use(s). This demonstration requires significant research and extensive data from animal tests, which are referred to as nonclinical or preclinical 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 and difficult to accurately predict. Because of the numerous risks and uncertainties associated with the development of drug products, 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 or as we:

- progress our ongoing clinical trial or initiate additional clinical trials of our most advanced product candidate, AT-527, including our ongoing Phase 2 clinical trial for the treatment of patients with moderate COVID-19;
- advance the development of our product candidates, including our Phase 2 clinical trial of AT-527, commencing a Phase 1/2A clinical trial of AT-527 for the treatment of HCV, which has been delayed due to the COVID-19 pandemic, and a Phase 1 clinical trial of AT-752 for the treatment of dengue, and the preclinical development of our other product candidates, including AT-899, AT-934 and other product candidates for the treatment of respiratory syncytial virus, or RSV;
- continue to discover and develop additional product candidates;
- seek regulatory and marketing approvals for product candidates that successfully complete clinical trials, if any;
- establish manufacturing and supply chain capacity sufficient to provide commercial quantities of any product candidates for which we may obtain marketing approval, if any;
- establish a sales, marketing, internal systems and distribution infrastructure to commercialize any products for which we may obtain regulatory approval, if any, in geographies in which we plan to commercialize our products ourselves;
- maintain, expand, protect and enforce our intellectual property portfolio;
- hire additional staff, including clinical, scientific, technical, regulatory, operational, financial, commercial and support personnel, to execute our business plan and support our product development and potential future commercialization efforts;
- more extensively utilize external vendors for support with respect to research, development, manufacturing, commercialization, regulatory, pharmacovigilance and other functions;
- acquire or in-license commercial products, additional product candidates and technologies;
- make royalty, milestone or other payments under any future in-license agreements;
- incur additional legal, accounting and other expenses in operating our business; and
- operate as a public company.

Furthermore, our ability to successfully develop, commercialize and license any products and generate product revenue is subject to substantial additional risks and uncertainties. Each of our product candidates will require additional preclinical and/or clinical development, regulatory approval in not less than one jurisdiction, the securing of manufacturing supply, capacity, distribution channels 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 operating losses and negative cash flows for the foreseeable future. These operating 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 until we have successfully developed one or more product candidates, and might never generate revenues from the sale of products. Our ability to generate product 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 foreign regulatory authorities; establishing manufacturing and sales capabilities; market acceptance of our products, if approved, and establishing 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 we consummate this offering, we will require substantial additional financing, which may not be available on acceptable terms, or at all. A failure to obtain this necessary capital when needed could force us to delay, limit, reduce or terminate our product development or commercialization efforts.

Our operations have incurred substantial expenses since inception. We expect to continue to incur substantial expenses to continue the clinical development of AT-527 and AT-787, to initiate the clinical development of AT-752, for future clinical trials for our other product candidates and to continue to identify new product candidates.

Even after the consummation of this offering, we will continue to need additional capital beyond the proceeds of this offering to fund future clinical trials and preclinical development, 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 initiate or complete planned clinical trials or seek regulatory approvals 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.

As of June 30, 2020, we had cash and cash equivalents of $115.8 million. We estimate that our net proceeds from this offering will be approximately $ million, based on an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The net proceeds from this offering and our existing cash and cash equivalents will not be sufficient to fund all of our efforts that we plan to undertake.

Based on our current operating plan, we believe that the net proceeds from this offering, together with our existing cash and cash equivalents, will be sufficient to fund our operating expenses and capital expenditure requirements . 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. We will require significant additional funds in order to launch and commercialize our current and any future product candidates to the extent that such launch and commercialization are not the responsibility of a collaborator. In addition, other unanticipated costs may arise in the course of our development efforts. Because the design and outcome of our planned and anticipated clinical trials is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of any product candidate we develop.

Our future capital requirements depend on many factors, including:

- the scope, progress, results and costs of our preclinical studies and clinical trials;
- the timing of, and the costs involved in, obtaining marketing approvals for our current and future product candidates in regions where we choose to commercialize any products;
- the number of future product candidates and potential additional indications that we may pursue and their development requirements;
- the stability, scale, yield and cost of manufacturing our product candidates for clinical trials, in preparation for regulatory approval and in preparation for commercialization;
- the costs of commercialization activities for any approved product candidate to the extent such costs are not the responsibility of any collaborators, including the costs and timing of establishing product sales, marketing, distribution and manufacturing capabilities;
- revenue, if any, received from commercial sales of our product candidates, should any of our product candidates receive marketing approval;
- the costs and timing of changes in pharmaceutical pricing and reimbursement infrastructure;
- subject to receipt of regulatory approval and revenue, if any, received from commercial sales for any approved indications for any of our product candidates;
- our ability to compete with other therapies in the indications we target;
- the extent to which we in-license or acquire rights to other products, product candidates or technologies;
- our headcount growth and associated costs as we expand our research and development capabilities and establish a commercial infrastructure;
- the costs of preparing, filing and prosecuting patent applications and maintaining and protecting our intellectual property rights, including enforcing and defending intellectual property-related claims; and
- the costs of operating as a public company.

We cannot be certain that additional funding will be available on acceptable terms, or at all. If we are unable to raise additional capital in sufficient amounts, on terms acceptable to us, or on a timely basis, we may have to significantly delay, scale back or discontinue the development or commercialization of our product candidates or other research and development initiatives.

Raising additional capital may cause additional dilution to our stockholders, including purchasers of common stock in this offering, restrict our operations, require us to relinquish rights to our technologies or product candidates, and could cause our share price to fall.

Until such time, if ever, as we can generate substantial revenue from product sales, 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.

We have not generated any revenue and may never be profitable.

Our ability to become profitable depends upon our ability to generate revenue. To date, we have not generated any revenue and do not expect to generate significant product revenue unless or until we successfully complete clinical development and obtain regulatory approval of, and then successfully commercialize, at least one of our product candidates. Other than AT-527, AT-787 and AT-752, our product candidates are in the preclinical stages of development and will require additional preclinical studies and clinical development as well as regulatory review and approval, substantial investment, access to sufficient commercial manufacturing capacity and significant marketing efforts before we can generate any revenue from product sales. Our ability to generate revenue depends on a number of factors, including, but not limited to:

- timely initiation and completion of our clinical trials of AT-527, AT-787 and AT-752, our preclinical studies and our future clinical trials, which may be significantly slower or more costly than we currently anticipate and will depend substantially upon the performance of third-party contractors;
- our ability to complete additional investigational new drug application-, or IND-, enabling studies and successfully submit INDs or comparable applications to allow us to initiate additional clinical trials of AT-527, AT-787 and AT-752, and initiate clinical trials for any future product candidates;
- whether we are required by the FDA or similar foreign regulatory authorities to conduct additional clinical trials or other studies beyond those planned to support the approval and commercialization of our product candidates or any future product candidates;
- our ability to demonstrate to the satisfaction of the FDA or similar foreign regulatory authorities the safety and efficacy of our product candidates or any future product candidates;
- the prevalence, duration and severity of potential side effects or other safety issues experienced with our product candidates or future product candidates, if any;
- the timely receipt of necessary marketing approvals from the FDA or similar foreign regulatory authorities;
- the willingness of physicians, operators of clinics and patients to utilize or adopt any of our product candidates or future product candidates as potential antiviral therapies;

- our ability and the ability of third parties with whom we contract to manufacture adequate clinical and commercial supplies of our product candidates or any future product candidates, remain in good standing with regulatory authorities and develop, validate and maintain commercially viable manufacturing processes that are compliant with current good manufacturing practices, or cGMP;
- our ability to successfully develop a commercial strategy and thereafter commercialize our product candidates or any future product candidates in the United States and internationally, if licensed for marketing, reimbursement, sale and distribution in such countries and territories, whether alone or in collaboration with others; and
- our ability to establish, maintain, protect and enforce intellectual property rights in and to our product candidates or any future product candidates.

Many of the factors listed above are beyond our control, and could cause us to experience significant delays or prevent us from obtaining regulatory approvals or commercialize our product candidates. Even if we are able to commercialize our product candidates, we may not achieve profitability soon after generating product sales, if ever. If we are unable to generate sufficient revenue through the sale of our product candidates or any future product candidates, we may be unable to continue operations without continued funding.

Our ability to use our net operating loss carryforwards and other tax attributes to offset future taxable income may be subject to certain limitations.

As of December 31, 2019, we had U.S. federal net operating loss carryforwards, or NOLs, of $49.3 million, which may be available to offset future taxable income, if any, of which $27.5 million begin to expire in 2033 and of which $21.8 million do not expire but are limited in their usage (for taxable years beginning after December 31, 2020) to an annual deduction equal to 80% of annual taxable income. In addition, as of December 31, 2019, we had state NOLs of $49.2 million, which may be available to offset future taxable income, if any, and begin to expire in 2033. As of December 31, 2019, we also had federal and state research and development credit carryforwards of $0.35 million and $0.14 million, respectively, which begin to expire in 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. In addition, future changes in our stock ownership, some of which might be beyond our control, could result in an ownership change under Sections 382 and 383 of the Code. For these reasons, we may not be able to utilize a material portion of the NOLs or research and development credit carryforwards even if we attain profitability.

Risks Related to the Discovery, Development, Preclinical and Clinical Testing, Manufacturing and Regulatory Approval of Our Product Candidates

Our business is highly dependent on the success of our most advanced product candidates, particularly AT-527, each of which will require significant additional clinical testing before we can seek regulatory approval and potentially launch commercial sales. If these product candidates do not receive regulatory approval or are not successfully commercialized, or are 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 candidates, AT-527 for the treatment

of COVID-19, AT-787 for the treatment of HCV, and AT-752 for the treatment of dengue fever. We currently have no products that are approved for commercial sale and have not completed the development of any of our product candidates, and we may never be able to develop marketable products. Other than our development of AT-527 for the treatment of COVID-19, for which we expect to expend resources in the near term, we expect that a substantial portion of our efforts and expenditures over the next few years will be devoted to our most advanced product candidates, which will require additional clinical development, management of clinical, medical affairs and manufacturing activities, obtaining regulatory approvals in multiple jurisdictions, securing of manufacturing supply, building of a commercial organization, substantial investment and significant marketing efforts before we can generate any revenues from any commercial sales from any product candidate, if approved. We cannot be certain that any of these product candidates will be successful in clinical trials, receive regulatory approval or be successfully commercialized even if we receive regulatory approval. Further, our development of any of these product candidates may be delayed, which may affect our ability to successfully commercialize any product. For example, enrollment in our Phase 1/2A trial of AT-787 for the treatment of HCV has been delayed due to the COVID-19 pandemic. Additionally, if our competitors develop any products to treat COVID-19, HCV, RSV, dengue, or any other diseases which our current or future product candidates are designed to treat, before we are able to successfully develop a product candidate, or if our competitors develop any products that are superior to our product candidates, our potential market share could become smaller or non-existent. Even if we receive approval to market these product candidates from the FDA or other regulatory bodies, we cannot be certain that such 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 approved, the safety and efficacy profile of these product candidates will be consistent with the results observed in clinical trials. If we are not successful in the clinical development of our most advance product candidates, the required regulatory approvals for these product candidates are not obtained, there are significant delays in the development or approval of these product candidates, or any approved products are not commercially successful, our business, financial condition and results of operations may be materially harmed.

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

We are not permitted to commercialize, market, promote or sell any product candidate in the United States without obtaining marketing approval from the FDA. Foreign regulatory authorities impose similar requirements. The time required to obtain approval by the FDA and comparable foreign regulatory authorities is unpredictable, typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the type, complexity and novelty of the product candidates involved. 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, which may cause delays in the approval or the decision not to approve an application. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies. For example there are currently no drugs approved by the FDA for the treatment of COVID-19, and therefore the nature and amount of clinical and other data that may be required for the FDA to approve AT-527 for the treatment of moderate COVID-19 remains unclear. Although we believe that our ongoing and planned Phase 2 trials of AT-527 in moderate COVID 19, if successful, may enable us to submit an NDA seeking accelerated approval of AT-527 for the treatment of moderate COVID-19, we have not yet discussed potential registration pathways with the FDA, and there is no guarantee that the FDA will agree with any strategy we may propose. We have not submitted an NDA for, or obtained regulatory approval of, any product candidate. We must complete additional

preclinical or nonclinical studies and clinical trials to demonstrate the safety and efficacy of our product candidates in humans to the satisfaction of the regulatory authorities before we will be able to obtain these approvals, and it is possible that none of our existing product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval. Applications for our product candidates could fail to receive regulatory approval for many reasons, including but not limited to the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design, implementation or interpretation of results of our clinical trials;
- the FDA or comparable foreign regulatory authorities may determine that our product candidates are not safe and effective, only moderately effective or have undesirable or unintended side effects, toxicities or other characteristics that preclude our obtaining marketing approval or prevent or limit commercial use of our products;
- the population studied in the clinical program may not be sufficiently broad or representative to assure efficacy and safety in the full population for which we seek approval;
- we may be unable to demonstrate to the FDA or comparable foreign regulatory authorities that a product candidate's clinical and other benefits outweigh its safety risks;
- the data collected from clinical trials of our product candidates may not be sufficient to support the submission of an NDA or other submission or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes, test procedures and specifications, or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our or our collaborators' clinical data insufficient for approval.

This lengthy approval process, as well as the unpredictability of the results of clinical trials, may result in our failing to obtain regulatory approval to market any of our product candidates, which would seriously harm our business. In addition, even if we or our collaborators were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may impose significant limitations in the form of narrow indications, warnings, or a Risk Evaluation and Mitigation Strategy, or REMS. Regulatory authorities may not approve the price we or our collaborators intend to charge for products we may develop, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could seriously harm our business.

Clinical development is lengthy and uncertain. We may encounter substantial delays and costs in our clinical trials, or may not be able to conduct or complete our clinical trials on the timelines we expect, if at all.

Before obtaining marketing approval from the FDA or other comparable foreign regulatory authorities for the sale of our product candidates, we must complete preclinical development and extensive clinical trials to demonstrate the safety and efficacy of our product candidates. Clinical testing is expensive, time-consuming and subject to uncertainty. A failure of one or more clinical trials can occur at any stage of the process, and the outcome of preclinical studies and early-stage clinical trials may not be predictive of the success of later clinical trials. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their drugs. To date, we have not

completed any late-stage or pivotal clinical trials for any of our product candidates. We cannot guarantee that any of our ongoing clinical trials will be initiated or conducted as planned or completed on schedule, if at all. We also cannot be sure that submission of any future IND or similar application will result in the FDA or other regulatory authority, as applicable, allowing future clinical trials to begin in a timely manner, if at all. Moreover, even if these trials begin, issues may arise that could cause regulatory authorities to suspend or terminate such clinical trials. A failure of one or more clinical trials can occur at any stage of testing, and our future clinical trials may not be successful. Events that may prevent successful or timely initiation or completion of clinical trials include:

- inability to generate sufficient preclinical, toxicology, or other *in vivo* or *in vitro* data to support the initiation or continuation of clinical trials;
- delays in reaching a consensus with regulatory authorities on study design or implementation of the clinical trials;
- delays or failure in obtaining regulatory authorization to commence a trial;
- delays in reaching agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among CROs and clinical trial sites;
- delays in identifying, recruiting and training suitable clinical investigators;
- delays in obtaining required institutional review board, or IRB, approval at each clinical trial site;
- delays in recruiting suitable patients to participate in our clinical trials;
- delays in manufacturing, testing, releasing, validating or importing/exporting sufficient stable quantities of our product candidates for use in clinical trials or the inability to do any of the foregoing;
- insufficient or inadequate supply or quality of product candidates or other materials necessary for use in clinical trials, or delays in sufficiently developing, characterizing or controlling a manufacturing process suitable for clinical trials;
- imposition of a temporary or permanent clinical hold by regulatory authorities for a number of reasons, including after review of an IND or amendment or equivalent foreign application or amendment; as a result of a new safety finding that presents unreasonable risk to clinical trial participants; or a negative finding from an inspection of our clinical trial operations or study sites;
- developments on trials conducted by competitors for related technology that raises FDA or foreign regulatory authority concerns about risk to patients of the technology broadly, or if the FDA or a foreign regulatory authority finds that the investigational protocol or plan is clearly deficient to meet its stated objectives;
- delays in recruiting, screening and enrolling patients and delays caused by patients withdrawing from clinical trials or failing to return for post-treatment follow-up, including due to the COVID-19 pandemic;
- difficulty collaborating with patient groups and investigators;
- failure by our CROs, other third parties or us to adhere to clinical trial protocols; failure to perform in accordance with the FDA's or any other regulatory authority's good clinical practice requirements, or GCPs, or applicable regulatory guidelines in other countries;
- occurrence of adverse events associated with the product candidate that are viewed to outweigh its potential benefits, or occurrence of adverse events in trial of the same class of agents conducted by other companies;

- changes to the clinical trial protocols;
- clinical sites deviating from trial protocol or dropping out of a trial;
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols;
- changes in the standard of care on which a clinical development plan was based, which may require new or additional trials;
- selection of clinical endpoints that require prolonged periods of observation or analyses of resulting data;
- the cost of clinical trials of our product candidates being greater than we anticipate;
- clinical trials of our product candidates producing negative or inconclusive results, which may result in our deciding, or regulators requiring us, to conduct additional clinical trials or abandon development of such product candidates;
- transfer of manufacturing processes to larger-scale facilities operated by a CMO and delays or failure by our CMOs or us to make any necessary changes to such manufacturing process; and
- third parties being unwilling or unable to satisfy their contractual obligations to us.

In addition, disruptions caused by the COVID-19 pandemic may increase the likelihood that we encounter difficulties or delays in initiating, enrolling, conducting or completing our planned and ongoing clinical trials. For example, due to the COVID-19 pandemic, our Phase 1/2A clinical trial of AT-787 for the treatment of HCV has been paused until our clinical sites are able to re-open and resume enrollment. Any inability to successfully initiate or complete clinical trials could result in additional costs to us or impair our ability to generate revenue from product sales. In addition, if we make manufacturing or formulation changes to our product candidates, we may be required to or we may elect to conduct additional studies to bridge our modified product candidates to earlier versions. Clinical trial delays could also shorten any periods during which any approved products have patent protection and may allow our competitors to bring products to market before we do, which could impair our ability to successfully commercialize our product candidates and may seriously harm our business.

We could also encounter delays if a clinical trial is suspended or terminated by us, by the data safety monitoring board, or DSMB, for such trial or by the FDA or any other regulatory authority, or if the IRBs of the institutions in which such trials are being conducted suspend or terminate the participation of their clinical investigators and sites subject to their review. Such authorities may suspend or terminate a clinical trial 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, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial.

Further, conducting clinical trials in foreign countries, as we have for our COVID-19 and HCV product candidates and expect to do for our dengue product candidate, presents additional risks that may delay completion of our clinical trials. These risks include the failure of enrolled patients in foreign countries to adhere to clinical protocol as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, as well as political and economic risks relevant to such foreign countries.

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 authority 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 authority 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 authority, as the case may be, and may ultimately lead to the denial of marketing approval of one or more of our product candidates.

Delays in the completion of any clinical trial of our product candidates will increase our costs, slow down our product candidate development and approval process and delay or potentially jeopardize our ability to commence product sales and generate product revenue. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates. Any delays to our clinical trials that occur as a result could shorten any period during which we may have the exclusive right to commercialize our product candidates and our competitors may be able to bring products to market before we do, which could significantly reduce the commercial viability of our product candidates. Any of these occurrences may harm our business, financial condition and prospects significantly.

Our product candidates may be associated with serious adverse events, undesirable side effects or have other properties that could halt their clinical development, prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

Adverse events or other undesirable side effects caused by our product candidates could cause us, any DSMB for a trial, 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 regulatory authorities.

During the conduct of clinical trials, patients report changes in their health, including illnesses, injuries, and discomforts, to their study doctor. Often, it is not possible to determine whether or not the product candidate being studied caused these conditions. It is possible that as we test our product candidates in larger, longer and more extensive clinical trials, or as use of these product candidates becomes more widespread if they receive regulatory approval, illnesses, injuries, discomforts and other adverse events that were observed in previous trials, as well as conditions that did not occur or went undetected in previous trials, will be reported by patients. Many times, side effects are only detectable after investigational products are tested in large-scale clinical trials or, in some cases, after they are made available to patients on a commercial scale following approval.

If any serious adverse events occur, clinical trials or commercial distribution of any product candidates or products we develop could be suspended or terminated, and our business could be seriously harmed. Treatment-related side effects could also affect patient recruitment and the ability of enrolled patients to complete the trial or result in potential liability claims. Regulatory authorities could order us to cease further development of, deny approval of, or require us to cease selling any product candidates or products for any or all targeted indications. If we are required to delay, suspend or terminate any clinical trial or commercialization efforts, the commercial prospects of such product candidates or products may be harmed, and our ability to generate product revenues from them or other product candidates that we develop may be delayed or eliminated. Additionally, if one or more of our product candidates receives marketing approval and we or others later identify undesirable side effects or adverse events caused by such products, a number of potentially significant negative consequences could result, including but not limited to:

- regulatory authorities may suspend, limit or withdraw approvals of such product, or seek an injunction against its manufacture or distribution;
- regulatory authorities may require additional warnings on the label, including “boxed” warnings, or issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;

- we may be required to change the way the product is administered or conduct additional clinical trials or post-approval studies;
- we may be required to create a REMS which could include a medication guide outlining the risks of such side effects for distribution to patients;
- we may be subject to fines, injunctions or the imposition of criminal penalties;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could seriously harm our business.

We may develop future product candidates in combination with other therapies, which exposes us to additional risks.

We may develop future product candidates in combination with other product candidates or existing therapies. Even if any product candidate we develop was to receive marketing approval or be commercialized for use in combination with other existing therapies, we would continue to be subject to the risks that the FDA or similar foreign regulatory authorities could revoke approval of the therapy used in combination with our product candidate or that safety, efficacy, manufacturing or supply issues could arise with these existing therapies. Combination therapies are commonly used in antiviral treatments, and we would be subject to similar risks if we develop any of our product candidates for use in combination with other drugs or for indications other than currently anticipated. This could result in our own products being removed from the market or being less successful commercially.

We may also evaluate our product candidates in combination with one or more other therapies that have not yet been approved for marketing by the FDA or similar foreign regulatory authorities. We will not be able to market and sell the product candidates we develop in combination with any such unapproved therapies that do not ultimately obtain marketing approval.

If the FDA or similar foreign regulatory authorities do not approve these other drugs or revoke their approval of, or if safety, efficacy, manufacturing, or supply issues arise with, the drugs we choose to evaluate in combination with our product candidates, we may be unable to obtain approval of or market the product candidates we develop.

If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons. 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. The enrollment of patients depends on many factors, including:

- the patient eligibility criteria defined in the protocol;
- the size of the target disease population;
- 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;
- our ability to obtain and maintain patient consents;
- the risk that patients enrolled in clinical trials will drop out of the trials before trial completion; and
- other factors outside of our control, such as the COVID-19 pandemic.

For example, due to the COVID-19 pandemic, our Phase 1/2A trial of AT-787 for the treatment of HCV is paused until our clinical sites are able to re-open and resume enrollment. 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 or similar areas, 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 at such clinical trial sites.

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

We currently conduct clinical trials, and may in the future choose to conduct additional clinical trials, of our product candidates in sites outside the United States, and the FDA may not accept data from trials conducted in foreign locations.

We currently conduct, and may in the future choose to conduct, clinical trials outside the United States for our 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 conducted in accordance with GCP, and the FDA must also be able to validate the data from the study through an on-site inspection if necessary. 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, the 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, "topline" and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose preliminary or top-line data from our preclinical studies and clinical trials, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the top-line or preliminary results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Top-line 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, top-line data should be viewed with caution until the final data are available.

From time to time, we may also disclose interim data from our preclinical studies and 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 or as patients from our clinical trials continue other treatments for their disease. Adverse differences between preliminary or interim data and final data could significantly harm our business prospects. Further, disclosure of interim data by us or by our competitors could result in volatility in the price of our common stock after this offering.

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

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

Part of our strategy involves identifying novel product candidates. The process by which we identify novel 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' patent or other intellectual property or 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, if approved;

- 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.

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 focus on potential product candidates that may prove to be unsuccessful and we may have to forego opportunities to develop other product candidates that may prove to be more successful.

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. For example, we have allocated certain resources that could be used to develop AT-787 for the treatment of chronic HCV to prioritize development of AT-527 for the treatment of COVID-19. If we are unable to identify and successfully commercialize additional suitable product candidates, this would adversely impact our business strategy and our financial position.

Furthermore, we have limited financial and personnel resources and are placing significant focus on the development of our lead product candidates, particularly AT-527, and as such, we may forgo or delay pursuit of opportunities with other future product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and other future product candidates for specific indications may not yield any commercially viable future product candidates. If we do not accurately evaluate the commercial potential or target market for a particular future product candidate, we may relinquish valuable rights to those future product candidates 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 future product candidates.

A Breakthrough Therapy designation by the FDA, even if granted for any of our product candidates, may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.

We may seek a Breakthrough Therapy designation for our product candidates if the clinical data support such a designation for one or more product candidates. A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, 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. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor can help to identify the most efficient path for clinical development. Drugs designated as breakthrough therapies by the FDA may also be eligible for priority review.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a Breakthrough Therapy designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under non-expedited FDA review procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as breakthrough therapies, 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 attempt to secure FDA approval of certain product candidates through the use of the accelerated approval pathway. If we are unable to obtain such approval, we may be required to conduct additional preclinical studies or clinical trials beyond those that we contemplate, which could increase the expense of obtaining, and delay the receipt of, necessary marketing approvals. Even if we receive accelerated approval from the FDA, if our confirmatory trials do not verify clinical benefit, or if we do not comply with rigorous post-marketing requirements, the FDA may seek to withdraw accelerated approval.

We are developing certain product candidates for the treatment of serious and life-threatening conditions, including AT-527 for the treatment of COVID-19 and therefore may decide to seek approval of such product candidates under the FDA's accelerated approval pathway. A product may be eligible for accelerated approval if it is designed to treat a serious or life-threatening disease or condition and generally provides a meaningful advantage over available therapies upon a determination that the product candidate has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease, such as irreversible morbidity or mortality. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit.

The accelerated approval pathway may be used in cases in which the advantage of a new drug over available therapy may not be a direct therapeutic advantage, but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval is usually contingent on the sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the drug's clinical benefit. If the sponsor fails to conduct such studies in a timely manner, or if such post-approval studies fail to verify the drug's predicted clinical benefit, the FDA may withdraw its approval of the drug on an expedited basis.

If we decide to submit an NDA seeking accelerated approval or receive an expedited regulatory designation for our product candidates, there can be no assurance that such submission or application will be accepted or that any expedited development, review or approval will be granted on a timely basis, or at all. Failure to obtain accelerated approval or any other form of expedited development, review or approval for a product candidate would result in a longer time period to commercialization of such product candidate, if any, and could increase the cost of development of such product candidate, which could harm our competitive position in the marketplace.

Even if we complete the necessary preclinical studies and clinical trials, the marketing approval process is expensive, time-consuming and uncertain and may prevent us or any future collaboration partners from obtaining approvals for the commercialization of any product candidate we develop.

Any product candidate we may develop and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling,

storage, approval, advertising, promotion, sale and distribution, are subject to comprehensive regulation by the FDA and other regulatory authorities in the United States and by comparable authorities in other countries. Any product candidates we develop may not be effective, may be only moderately effective, or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude our obtaining marketing approval or prevent or limit commercial use. Failure to obtain marketing approval for a product candidate will prevent us from commercializing the product candidate in a given jurisdiction. Our development programs are early-stage and we have not received approval to market any product candidates from regulatory authorities in any jurisdiction. It is possible that none of the product candidates we are developing or that we may seek to develop in the future will ever obtain regulatory approval. We have no experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third-party CROs, suppliers, vendors or regulatory consultants to assist us in this process. Securing regulatory approval requires the submission of extensive preclinical and clinical data and supporting information to the various regulatory authorities for each therapeutic indication to establish the product candidate's safety and efficacy. Securing regulatory approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, the relevant regulatory authority.

The process of obtaining marketing approvals, both in the United States and abroad, is expensive, may take many years if numerous clinical trials are required, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. The FDA and comparable authorities in other countries have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit or prevent marketing approval of a product candidate. Any marketing approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

If we experience delays in obtaining approval or if we fail to obtain approval of any product candidates we may develop, the commercial prospects for those product candidates may be harmed, and our ability to generate product revenue will be materially impaired.

Even if we obtain FDA approval of any of our product candidates, we may never obtain approval or commercialize such products outside of the United States, which would limit our ability to realize their full market potential.

In order to market any products outside of the United States, we must establish and comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy. Clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not mean that regulatory approval will be obtained in any other country. Approval procedures vary among countries and can involve additional product testing and validation and additional administrative review periods. Seeking foreign regulatory approvals could result in significant delays, difficulties and costs for us and may require additional preclinical studies or clinical trials which would 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. Satisfying these and other regulatory requirements is costly, time-consuming, uncertain and subject to unanticipated delays. In addition, our failure to obtain regulatory approval in any country may delay or have negative effects on the process for regulatory approval in other countries. We do not have any product candidates approved for sale in any jurisdiction, including 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, our ability to realize the full market potential of our products will be harmed.

Even if a current or future product candidate receives marketing approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success.

If any current or future product candidate we develop receives marketing approval, whether as a single agent or in combination with other therapies, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. For example, current approved antiviral products are well established in the medical community for the treatment of HCV, and doctors may continue to rely on these therapies. If the product candidates we develop do not achieve an adequate level of acceptance, we may not generate significant product revenues and we may not become profitable. The degree of market acceptance of any product candidate, if approved for commercial sale, will depend on a number of factors, including:

- efficacy and potential advantages compared to alternative treatments;
- the ability to offer our products, if approved, for sale at competitive prices;
- 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 ability to obtain sufficient third-party coverage and adequate reimbursement, including with respect to the use of the approved product as a combination therapy;
- adoption of a companion diagnostic and/or complementary diagnostic; and
- the prevalence and severity of any side effects.

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved or commercialized in a timely manner or at all, which could negatively impact our business.

The ability of the FDA to review or approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory, and policy changes, the FDA's ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the FDA's ability to perform routine functions. Average review times at the FDA 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 FDA employees and stop critical activities.

Separately, in response to the COVID-19 pandemic, on March 10, 2020, the FDA announced its intention to postpone most inspections of foreign manufacturing facilities and, on March 18, 2020, the FDA temporarily

postponed routine surveillance inspections of domestic manufacturing facilities. Subsequently, on July 10, 2020, the FDA announced its intention to resume certain on-site inspections of domestic manufacturing facilities subject to a risk-based prioritization system. The FDA intends to use this risk-based assessment system to identify the categories of regulatory activity that can occur within a given geographic area, ranging from mission critical inspections to resumption of all regulatory activities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

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

Though we have insurance coverage for clinical trial product liability, 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, 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 any of our product candidates, 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 stock 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 and cash equivalents position and results of operations.

Our business and operations would suffer in the event of system failures, deficiencies or intrusions.

Our computer systems, as well as those of our CROs and other contractors and consultants, are vulnerable to failure or damage from computer viruses and other malware, unauthorized access or other cybersecurity attacks, natural disasters (including hurricanes), terrorism, war, fire and telecommunication or electrical failures. In the ordinary course of our business, we directly or indirectly collect, store and transmit sensitive data, including intellectual property, confidential information, preclinical 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. The risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. We may not be able to anticipate all types of security threats, nor may we be able to implement preventive measures effective against all such security threats. The techniques used by cyber criminals change frequently, may not be recognized until launched and can originate from a wide variety of sources, including outside groups such as external service providers, organized crime affiliates, terrorist organizations or hostile foreign governments or agencies. We cannot assure you that our data protection efforts and our investment in information technology will prevent significant breakdowns, data leakages or breaches in our systems or those of our CROs and other contractors and consultants.

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 preclinical studies or clinical trial data from completed, ongoing or planned studies or 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 our product candidates could be delayed. 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 and 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.

Our product candidates will be subject to extensive and rigorous domestic government regulation, including regulation by the FDA, the Centers for Medicare & Medicaid Services, or CMS, other divisions of the U.S. Department of Health and Human Services, the U.S. Department of Justice, state and local governments, and their respective equivalents outside of the United States. The FDA regulates the research, development, preclinical and clinical testing, manufacture, safety, effectiveness, record-keeping, reporting, labeling, packaging, storage, approval, advertising, promotion, sale, distribution, import and export of pharmaceutical products. If our products 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 preclinical testing and clinical trials of each product candidate, is lengthy, expensive and uncertain. We must obtain and maintain regulatory authorization to conduct preclinical studies and clinical trials. We 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 preclinical 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 consultants, CMOs, 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 and policies 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, or 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;
- 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 the Center for Medicare and Medicaid 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, Congressional and executive challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. By way of example, in 2017, President Trump signed into law federal tax legislation commonly referred to as the Tax Cuts and Jobs Act, or the Tax Act, which included a provision repealing, effective January 1, 2019, 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, the U.S. District Court for the Northern District of Texas ruled that the ACA is unconstitutional in its entirety because the penalty imposed by the individual mandate, which was deemed an integral part of the ACA, was reduced to $0 and effectively nullified by Congress as part of the Tax Act. Additionally, on December 18, 2019, the U.S. Court of Appeals for the Fifth Circuit ruled that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. On March 2, 2020, the United States Supreme Court granted the petitions for writs of certiorari to review this case, although it remains unclear how and when the Supreme Court will rule. On June 14, 2018, the U.S. Court of Appeals for the Federal Circuit ruled that the federal government was not required to pay more than $12 billion in ACA risk corridor payments to third-party payors who argued that these payments were owed to them. This was appealed to the Supreme Court, who reversed the Federal Circuit's decision on April 27, 2020, and ruled that the government must make risk corridor payments. It is unclear how other efforts to challenge, repeal or replace the ACA will impact the ACA or our business.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. In August 2011, the Budget Control Act of 2011 resulted in aggregate reductions of Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013. The Coronavirus Aid, Relief and Economic Security Act, or CARES Act, which was signed into law in March 2020 and was designed to provide financial support and resources to individuals and businesses affected by the COVID-19 pandemic, suspended the 2% reductions from May 1, 2020 through December 31, 2020, and extended the sequester by one year, through 2030. In addition, 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. Additionally, the orphan drug tax credit was reduced as part of a broader tax reform. 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 outcomes-based reimbursement. 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. 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, in the United States, 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 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 obtain regulatory approval for a product candidate, our products will remain subject to regulatory scrutiny and post-marketing requirements.

Any regulatory approvals that we may receive for our product candidates will require the submission of reports to regulatory authorities and surveillance to monitor the safety and efficacy of the product candidate, may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a REMS in order to approve our product candidates, which could entail requirements for a medication guide, physician training and communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if one of our product candidates is approved, it will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, conduct of post-marketing studies and submission of safety, efficacy, and other post- market information, including both federal and state requirements in the United States and requirements of comparable foreign regulatory authorities. Manufacturers and manufacturers' facilities are required to comply with extensive FDA and comparable foreign regulatory authority requirements, including ensuring that quality control and manufacturing procedures conform to cGMP regulations. As such, we and our contract manufacturers will be subject to continual review and inspections to assess compliance with cGMP and adherence to commitments made in any approved marketing application. 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.

If the FDA or another regulatory authority discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, or disagrees with the promotion, marketing or labeling of a product, such regulatory authorities may impose restrictions on that product or us, including requiring withdrawal of the product from the market. If we fail to comply with applicable regulatory requirements, a regulatory authority or enforcement authority may, among other things:

- issue warning letters;
- impose civil or criminal penalties;
- suspend or withdraw regulatory approval;
- suspend any of our clinical trials;
- refuse to approve pending applications or supplements to approved applications submitted by us;
- impose restrictions on our operations, including closing our contract manufacturers' facilities; or
- seize or detain products, or require a product recall.

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 adversely affect our ability to commercialize and generate revenue from our products. If regulatory sanctions are applied or if regulatory approval is withdrawn, our business will be seriously harmed.

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

The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses.

If any of our product candidates are approved and we are found to have improperly promoted off-label uses of those products, we may become subject to significant liability. The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription products, such as our product candidates, if approved. In particular, a product may not be promoted for uses that are not approved by the FDA or such other regulatory agencies as reflected in the product's approved labeling. If we receive marketing approval for a product candidate, physicians may nevertheless prescribe it to their patients in a manner that is inconsistent with the approved label. If we are found to have promoted such off-label uses, we may become subject to significant liability. The U.S. federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined several companies from engaging in off-label promotion. The FDA has also requested that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. If we cannot successfully manage the promotion of our product candidates, if approved, we could become subject to significant liability, which would materially adversely affect our business and financial condition.

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 makes it illegal for any person to knowingly and willfully solicit, offer, receive, pay or provide 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, or FCA, which prohibit individuals or entities from, among other things, knowingly presenting, or causing to be presented, to the U.S. federal government, claims for payment or approval that are false, fictitious 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. Manufacturers can be held liable under the FCA even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims. The government may deem manufacturers to have "caused" the submission of false or fraudulent claims by, for example, providing inaccurate billing or coding information to customers or promoting a product off-label. Companies that submit claims directly to payors may also be liable under the FCA for the direct submission of such claims. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the FCA. The FCA also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the FCA and to share in any monetary recovery. When an entity is determined to have violated the FCA, the government may

impose civil fines and penalties for each false claim, plus treble damages, and exclude the entity from participation in Medicare, Medicaid and other federal healthcare programs;

- 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, and its implementing regulations, which created additional federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters. Similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the Federal Food, Drug and Cosmetic Act, or 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), certain other healthcare providers starting in 2022, and teaching hospitals, as well as ownership and investment interests held by the physicians described above and their immediate family members;
- federal price reporting laws, which require manufacturers to calculate and report complex pricing metrics to government programs, where reported prices may be used in the calculation of reimbursement and/or discounts on approved products;
- 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; and state and local laws that require the registration of pharmaceutical sales representatives; and
- similar healthcare laws and regulations in the EU and other jurisdictions, including reporting requirements detailing interactions with and payments to healthcare providers.

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 or stock options for services provided to us and may be in the position to influence the ordering of or use of our product candidates, if approved, 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 General Data Protection Regulation, or 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 took effect on January 1, 2020. The CCPA creates individual privacy rights for California consumers, increases the privacy and security obligations of entities handling certain personal information, requires new disclosures to California individuals and affording such individuals new abilities to opt out of certain sales of personal information, and 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 processing, use or disclosure of sensitive or confidential patient, consumer or other personal information, whether by us, one of our CROs or 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; reputational damage; and injunctive relief.

The privacy laws in the EU have been significantly reformed in recent years. 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 applies extraterritorially, 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 collecting and processing

personal data, requires 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. The GDPR provides that EU member states may establish their own laws and regulations limiting the processing of personal data, including genetic, biometric or health data, which could limit our ability to use and share personal data or could cause our costs to increase. Additionally, following the United Kingdom's withdrawal from the EU, which is commonly referred to as Brexit, beginning in 2021 we will have to comply with the GDPR and the United Kingdom GDPR, each regime having the ability to fine up to the greater of €20 million or 4% of global turnover for violations. The relationship between the United Kingdom and the EU in relation to certain aspects of data protection law remains unclear, for example around how data can lawfully be transferred between each jurisdiction, which exposes us to further compliance risk. 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 CROs or other 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, use, storage and transmission of such information. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations, and prospects.

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 Health Information Technology for Economic and Clinical Health Act. We do not believe that we are currently classified as a covered entity or business associate under HIPAA and thus are not directly 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. Even when HIPAA does not apply, according to the Federal Trade Commission, or the FTC, failing to take appropriate steps to keep consumers' personal information secure constitutes unfair acts or practices in or affecting commerce in violation of the Federal Trade Commission Act. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities. Individually identifiable health information is considered sensitive data that merits stronger safeguards.

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. As such, we may be subject to state laws, including the CCPA, 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 GDPR 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 EU 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 privacy 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. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

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 applicable laws and regulations, our policies and other legal or contractual requirements, which may give rise to regulatory enforcement action, 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 expect our product candidates to face intense and increasing competition as new products enter the relevant markets and advanced technologies become available. We face potential competition from many different sources, including pharmaceutical, biotechnology and specialty pharmaceutical companies. Academic research institutions, governmental agencies and 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. Many of these competitors may also have compounds already approved or in development in the therapeutic categories that we are targeting with our 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 preclinical testing and clinical trials;
- obtaining NDA approval by the FDA;
- comparable foreign regulatory approvals of product candidates;
- formulating and manufacturing products; and
- launching, marketing and selling products.

If these competitors access the marketplace before we do with safer, more effective, 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.

Significant competition exists from approved treatments or treatments in development for the diseases that we are targeting. Many of the approved drugs are well-established therapies or products and are widely accepted by physicians, patients and third-party payors. There are pharmaceutical and biotechnology companies at various stages of development of treatments for COVID-19 (or vaccines for SARS-CoV-2), HCV, dengue and RSV.

There are several approved drugs for the treatment of HCV, an approved vaccine for dengue and an approved drug for the treatment of RSV. Our product candidates are intended to compete directly or indirectly with existing products and products currently in development. 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 products are less safe or effective or otherwise less attractive than 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.

Many of our competitors have substantially greater capital resources, robust product candidate pipelines, established presence in the market and expertise in research and development, manufacturing, preclinical 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 or other intellectual property 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 product revenue.

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. Our ability to successfully commercialize our product candidates will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and other third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. The availability of coverage and extent of reimbursement by governmental and private payors is essential for most patients to be able to afford treatments.

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. 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. 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.

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 and reimbursed. The Medicare program is increasingly used as a model for how private and other governmental payors develop their coverage and reimbursement policies for new drugs. However, 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. 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. 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. We cannot predict at this time what third-party payors will decide with respect to the coverage and reimbursement for our product candidates.

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.

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 any of our product candidates, if approved, and we may not be able to generate any product revenue.

We have limited personnel or infrastructure for the sales, marketing or distribution of products, and no experience as a company in commercializing a product candidate. The cost of building and maintaining such an organization may exceed the cost-effectiveness of doing so.

We may build our own focused sales, distribution and marketing infrastructure to market our product candidates, if approved, in the United States and other markets around the world. There are significant expenses and risks involved with building 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 our product candidate, if approved. Additionally, if the commercial launch of our product candidate 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 our 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.

If we are unable or decide not to establish internal sales, marketing and distribution capabilities, or decide not to do so for a particular country, we may pursue collaborative arrangements. If we pursue a collaborative arrangement, our sales will largely depend on the collaborator's strategic interest in the product and such collaborator's ability to successfully market and sell the product.

If we are unable to build our own sales force or access a collaborative relationship for the commercialization of any of our product candidates, we may be forced to delay the potential commercialization of our product candidates or reduce the scope of our sales or marketing activities for such product candidates. 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 any of our product candidates 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 our other product candidates 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.

In addition, even if we do establish adequate sales, marketing and distribution capabilities, the progress of general industry trends with respect to pricing models, supply chains and delivery mechanisms, among other things, could deviate from our expectations. If these or other industry trends change in a manner which we do not anticipate or for which we are not prepared, we may not be successful in commercializing our product candidates or become profitable.

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;
- our ability to supply our product candidates on a timely and large-scale basis in local markets;
- longer lead times for shipping which may necessitate local manufacture of our product candidates;
- language barriers for technical training and the need for language translations;
- reduced protection of patent and other 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.

If any of our product candidates is approved for commercialization, we may 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, including requirements specific to biologics or cell therapy products;
- reduced protection for patent and other 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 EU 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. 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.

In some countries, particularly 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 clinical trials that compare the cost-effectiveness of our product candidates 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.

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 in clinical trials and the sale of any products for which we obtain marketing approval exposes us to the risk of product liability claims. 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;
- injury to our reputation;
- initiation of investigations by regulators;
- 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 a product candidate;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- exhaustion of any available insurance and our capital resources, and the inability to commercialize any product candidate;
- decreased demand for a product candidate, if approved for commercial sale; and
- loss of revenue.

Failure to obtain or retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products we develop, alone or with corporate collaborators. Although we have clinical trial insurance, our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts. Even if our agreements with any future corporate collaborators entitle us to indemnification against losses, such indemnification may not be available or adequate should any claim arise.

Risks Related to our Dependence on Third Parties and Manufacturing

We will rely on third parties for the manufacture of raw materials for our research programs, preclinical studies and clinical trials and we do not have long-term contracts with many 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.

We expect to rely on third parties for the manufacture of raw materials for our clinical trials and preclinical and clinical development. We expect to rely on third parties 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 preclinical and clinical raw materials, and we 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 preclinical studies or clinical trials, and would materially and adversely affect our development and commercialization efforts.

We expect to continue to rely on third-party manufacturers for the commercial supply of any of our product candidates for which we obtain marketing approval, if any. We may be unable to maintain or establish required 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:

- the failure of the third party to manufacture our product candidates according to our schedule, or at all, including if our third-party contractors give greater priority to the supply of other products over our product candidates or otherwise do not satisfactorily perform according to the terms of the agreements between us and them;
- the reduction or termination of production or deliveries by suppliers, or the raising of prices or renegotiation of terms;

- the termination or nonrenewal of arrangements or agreements by our third-party contractors at a time that is costly or inconvenient for us;
- the breach by the third-party contractors of our agreements with them;
- the failure of third-party contractors to comply with applicable regulatory requirements;
- the failure of the third party to manufacture our product candidates according to our specifications;
- the mislabeling of clinical supplies, potentially resulting in the wrong dose amounts being supplied or active drug or placebo not being properly identified;
- clinical supplies not being delivered to clinical sites on time, leading to clinical trial interruptions, or of drug supplies not being distributed to commercial vendors in a timely manner, resulting in lost sales; and
- the misappropriation or unauthorized disclosure of our intellectual property or other proprietary information, including our trade secrets and know-how.

We do not have complete control over all aspects of the manufacturing process of, and are dependent on, our contract manufacturing partners for compliance with cGMP regulations for manufacturing both active drug substances and finished drug products. Third-party manufacturers may not be able to comply with cGMP regulations or similar regulatory requirements outside of the United States. If our contract 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 authorization for their manufacturing facilities. In addition, we do not have control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not authorize these facilities for the manufacture of our product candidates or if it withdraws any such authorization in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain marketing 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 fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or drugs, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our product candidates or drugs and harm our business and results of operations.

Our third-party manufacturers may be unable to successfully scale up manufacturing of our product candidates in sufficient quality and quantity, which may impair the clinical advancement and commercialization of our product candidates.

In order to conduct clinical trials of our product candidates and commercialize any approved product candidates, our manufacturing partners need to manufacture them in large quantities. However, they may be unable to successfully increase the manufacturing capacity for any of our product candidates in a timely or cost-effective manner, or at all. In addition, quality issues may arise during scale-up activities, as discussed above. If we, or any manufacturing partners, are unable to successfully scale up the manufacture of our product candidates in sufficient quality and quantity, the development, testing and clinical trials of these product candidates may be delayed or infeasible, and regulatory approval or commercial launch of any resulting products may be delayed or not obtained, which could significantly harm our business. Supply sources could be interrupted from time to time and, if interrupted, it is not certain that supplies could be resumed (whether in part or in whole) within a reasonable timeframe and at an acceptable cost, or at all. If we are unable to obtain or maintain third-party manufacturing for commercial supply of our product candidates, or to do so on commercially reasonable terms, we may not be able to develop and commercialize our product candidates successfully.

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

We do not have multiple sources of supply for each of the components used in the manufacturing of AT-527, AT-752, AT-787 or any of our other product candidates. We have a sole supplier located in China for our active pharmaceutical ingredients. For fill-finish work, we have a supplier located in Canada and a back-up supplier located in the United States. We do not have long-term supply agreements with all 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 applicable regulatory authorities. 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 and redesign of processes can trigger the need for conducting additional studies such as comparability or bridging studies. 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 a NDA amendment or supplement, which could result in further delay. The FDA or other regulatory authorities 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 our product candidates or, if we obtain regulatory approval for our product candidates, to commercialize them.

We rely on third parties to conduct our preclinical 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 critical aspects of our preclinical studies and clinical trials, including our ongoing Phase 2 clinical trial for AT-527 for the treatment of COVID-19, our Phase 1/2A clinical trial of AT-787 for the treatment of HCV and our IND-enabling studies for AT-752, and we expect to rely on third parties to conduct future clinical trials and preclinical studies for our product candidates. 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 or research activities 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.

Any third parties conducting our clinical trials or preclinical studies are not and will not be our employees and, except for remedies available to us under our agreements with such third parties, we cannot 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 and cash equivalents 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.

Our CROs have the right to terminate their agreements with us in the event of an uncured material breach. In addition, some of our CROs and substantially all our clinical trial sites have an ability to terminate their respective agreements with us if it can be reasonably demonstrated that the safety of the subjects participating in our clinical trials warrants such termination.

If 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 could 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 our candidates. We may not succeed in establishing and maintaining collaborative relationships, which may significantly limit our ability to develop and commercialize our product candidates successfully, if at all.

We may seek collaborative relationships for the development and commercialization of our product candidates. If we enter into any such arrangements with any third parties, we will likely have shared or limited control over the amount and timing of resources that our collaborators dedicate to the development or potential commercialization of any product candidates we may seek to develop with them. Our ability to generate product revenue from these arrangements with commercial entities will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements. We cannot predict the success of any collaboration that we enter into. Collaborations involving our product candidates pose the following risks to us:

- collaborators generally have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not properly obtain, maintain, enforce or defend intellectual property or proprietary rights relating to our product candidates or may use our proprietary information inappropriately or in such a way as to expose us to potential litigation or other intellectual property-related proceedings, including proceedings challenging the scope, ownership, validity and enforceability of our intellectual property;
- collaborators may own or co-own intellectual property rights covering our product candidates that result from our collaboration with them, and in such cases, we may not have the exclusive right to commercialize such intellectual property or such product candidates;
- disputes may arise with respect to the ownership of intellectual property developed pursuant to collaborations;
- we may need the cooperation of our collaborators to enforce or defend any intellectual property we contribute to or that arises out of our collaborations, which may not be provided to us;
- collaborators may infringe, misappropriate or otherwise violate the intellectual property rights of third parties, which may expose us to litigation and potential liability;
- disputes may arise between the collaborators and us that result in the delay or termination of the research, development or commercialization of our product candidates or that result in costly litigation or arbitration that diverts management attention and resources;
- collaborators may decide not to pursue development and commercialization of any product candidates we develop or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborator's strategic focus or available funding or external factors, such as an acquisition that diverts resources or creates competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials, or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- collaborators with marketing and distribution rights to one or more product candidates may not commit sufficient resources to the marketing and distribution of such product candidates;

- we may lose certain valuable rights under circumstances identified in our collaborations, including if we undergo a change of control;
- collaborators may undergo a change of control and the new owners may decide to take the collaboration in a direction which is not in our best interest;
- collaborators may become party to a business combination transaction and the continued pursuit and emphasis on our development or commercialization program by the resulting entity under our existing collaboration could be delayed, diminished or terminated;
- collaborators may become bankrupt, which may significantly delay our research or development programs, or may cause us to lose access to valuable technology, devices, materials, know-how or intellectual property of the collaborator relating to our product candidates;
- key personnel at our collaborators may leave, which could negatively impact our ability to productively work with our collaborators;
- collaborations may require us to incur short- and long-term expenditures, issue securities that dilute our stockholders, or disrupt our management and business;
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates; and
- collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all.

We may face significant competition in seeking appropriate collaborations. Business combinations among biotechnology and pharmaceutical companies have resulted in a reduced number of potential collaborators. In addition, the negotiation process is time-consuming and complex, and we may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate or 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 product candidates or bring them to market and generate product revenue.

If we enter into collaborations to develop and potentially commercialize any product candidates, we may not be able to realize the benefit of such transactions if we or our collaborator elect not to exercise the rights granted under the agreement or if we or our collaborator are unable to successfully integrate a product candidate into existing operations and company culture. In addition, if our agreement with any of our collaborators terminates, our access to technology and intellectual property licensed to us by that collaborator may be restricted or terminate entirely, which may delay our continued development of our product candidates utilizing the collaborator’s technology or intellectual property or require us to stop development of those product candidates completely. We may also find it more difficult to find a suitable replacement collaborator or attract new collaborators, and our development programs may be delayed or the perception of us in the business and financial communities could be adversely affected. Any collaborator may also be subject to many of the risks relating to product development, regulatory approval, and commercialization described in this “Risk Factors” section, and any negative impact on our collaborators may adversely affect 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 product revenue.

We may enter into collaborations, 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 product revenues.

In the ordinary course of our business, we may enter into collaborations, licensing arrangements, joint ventures, strategic alliances, partnerships or other arrangements to develop new products and to pursue new markets. Proposing, negotiating and implementing collaborations, 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 product 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, maintain, defend and enforce the intellectual property rights licensed to us, in which case we would depend on the ability and will of our licensors to do so. 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 or enforce 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, payment or other obligations on us, and future licensors may allege that we have breached our license agreement with them and accordingly seek to terminate our license. Any of the foregoing could adversely affect our competitive business position and have a material adverse effect on our business, financial condition, results of operations, and prospects.

Data provided by collaborators and others upon which we rely that have 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, preclinical 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.

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, 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 preclinical studies or clinical trials, creation of fraudulent data in preclinical 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.

If our CMOs use hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by our manufacturers. Our manufacturers are subject to federal, state and local laws and regulations in the United States and in the countries in which they operate governing the use, manufacture, storage, handling and disposal of medical and hazardous materials. Although we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. Generally, we do not have any insurance for liabilities arising from medical or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development and production efforts, which could harm our business, prospects, financial condition or results of operations.

Risks Related to Intellectual Property

If we are unable to obtain, maintain, enforce and adequately protect our intellectual property rights with respect to our technology and product candidates, or if the scope of the patent or other intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and products similar or identical to ours, and our ability to successfully develop and commercialize our technology and product candidates may be adversely affected.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect our intellectual property and prevent others from duplicating AT-511, AT-527, AT-281, AT-752, AT-777, and AT-787, or their use or manufacture, or any of our other pipeline product candidates and any future product candidates, and our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to such product candidates.

The patent prosecution process is expensive, time-consuming, and complex, and we may not be able to file, prosecute, maintain, enforce, or license all necessary or desirable patent applications at a reasonable cost or in a timely manner. Although we enter into confidentiality agreements with parties who have access to confidential or patentable aspects of our research and development output, such as our employees, CROs, consultants, scientific advisors and other contractors, any of these parties may breach the agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection. In addition, publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, and some remain so until issued. Therefore, we cannot be certain that we were the first to make the inventions claimed in our patents or pending patent applications, or that we were the first to file any patent application related to an invention or product candidate. 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.

The strength of patents in the 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. Our pending and future patent applications may not result in patents being issued which protect our technology or product candidates or which effectively prevent others from commercializing competitive technologies and product candidates. Additionally, any U.S. provisional patent application that we file is not eligible to become an issued patent until, among other things, we file a non-provisional patent application within 12 months of filing the related provisional patent application. If we do not timely file any non-provisional patent application, we may lose our priority date with respect to the provisional patent application and any patent protection on the inventions disclosed in the provisional patent application.

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 similar or alternative 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 the breadth or strength of protection of our current or future issued patents 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, or threaten our ability to commercialize our current or future product candidates. Several patent applications covering our product candidates have been filed recently by us. We cannot offer any assurances about which, if any, will result in issued patents, 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.

The issuance of a patent is not conclusive as to its inventorship, ownership, scope, validity or enforceability, and our patents may be challenged in 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, as third parties may have blocking patents that could prevent us from marketing our product candidate, if approved, or practicing our own patented technology.

Wide-ranging patent reform legislation in the United States, including the Leahy-Smith America Invents Act of 2011, or the Leahy-Smith Act, may increase the uncertainty of the strength or enforceability of our intellectual property and the cost to defend it. 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 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 prompt going forward during the time from invention to filing of a patent application and to be diligent in filing patent applications, but circumstances could prevent us from promptly filing or prosecuting patent applications on our inventions. The Leahy-Smith Act also enlarged the scope of disclosures that qualify as prior art. Furthermore, if a third party filed a patent application before effectiveness of applicable provisions 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 if it was the first to invent any of the subject matter covered by the claims of our patent applications. We may also be subject to a third party preissuance submission of prior art to the U.S. Patent and Trademark Office, or USPTO.

The Leahy-Smith Act created for the first time new procedures to challenge issued patents in the United States, including post-grant review, *inter partes* review and derivation proceedings, which are adversarial proceedings conducted at the USPTO, which some third parties have been using to cause the cancellation of selected or all claims of issued patents of competitors. For a patent with a priority date of March 16, 2013 or later, which all of our patent filings have, a petition for post-grant review can be filed by a third party in a nine-month window from issuance of the patent. A petition for *inter partes* review can be filed immediately following the issuance of a patent if the patent was filed prior to March 16, 2013. A petition for *inter partes* review can be filed after the nine-month period for filing a post-grant review petition has expired for a patent with a priority date of March 16, 2013 or later. Post-grant review proceedings can be brought on any ground of challenge, whereas *inter partes* review proceedings can only be brought to raise a challenge based on published prior art. These adversarial actions at the USPTO include review of patent claims without the presumption of validity afforded to U.S. patents in lawsuits in U.S. federal courts. The USPTO issued a final rule effective November 13, 2018 announcing that it will now use the same claim construction standard currently used in the U.S. federal courts to interpret patent claims in USPTO proceedings, which is the plain and ordinary meaning of words used. If any of our patents are challenged by a third party in such a USPTO proceeding, there is no guarantee that we will be successful in defending the patent, which would result in a loss of the challenged patent right to us, including loss of exclusivity, or in patent claims being narrowed, invalidated, or held unenforceable, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and product candidates. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us.

As a result of all of the foregoing, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Third-party claims of intellectual property infringement, misappropriation or other violation may result in substantial costs or prevent or delay our development and commercialization efforts.

Our commercial success depends in part on our avoiding actual and allegations of infringement, misappropriation or other violation 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 pharmaceutical industry, including patent infringement lawsuits, interferences, oppositions, re-examination, and post-grant and *inter partes* review proceedings before the USPTO and similar proceedings in foreign jurisdictions, such as oppositions before the European Patent Office, or EPO. 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 pharmaceutical industry, have employed intellectual property litigation as a means to gain an advantage over their competitors. As the pharmaceutical industry expands 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, misappropriate or otherwise violate 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. In order to successfully challenge the validity of a U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. 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 or 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 at all or on commercially reasonable terms, or until such patents expire.

The legal threshold for initiating litigation or contested proceedings is low, so that even lawsuits or proceedings with a low probability of success might be initiated and require significant resources to defend. Litigation and contested proceedings can also be expensive and time-consuming, and our adversaries in these proceedings may have the ability to dedicate greater resources to prosecuting these legal actions than we can. The risks of being involved in such litigation and proceedings may increase if and as our product candidates near commercialization and as we gain the greater visibility associated with being a public company. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of the merit of such claims. We may not be aware of all intellectual property rights potentially relating to our technology and product candidates and their uses, or we may incorrectly conclude that third-party intellectual property is invalid or that our activities and product candidates do not infringe, misappropriate or otherwise violate such intellectual property. Thus, we do not know with certainty that our

technology and product candidates, or our development and commercialization thereof, do not and will not infringe, misappropriate or otherwise violate any third party's intellectual property.

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 addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. 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 and other third parties 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. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations, and prospects.

A number of companies and universities file and obtain patents in the same area as our products, which are nucleotide prodrugs, and these patent filings could be asserted against us, which may affect our business, and if successful, could lead to expensive litigation, affect the profitability of our products and/or prohibit the sale of a product or its use.

Our product candidates are nucleotide prodrugs, or nucleotide phosphoramidates. A number of companies and universities have patent applications and issued patents in this general area, including for viral indications, such as, for example, Gilead Pharmasset, LLC.; Gilead Sciences, Inc.; Merck & Co.; Bristol Myers Squibb; Hoffman-La Roche; University of Cardiff; University College Cardiff Consultants; NuCana, plc; Alios Biopharma; Medivir; and others. If any of these companies or universities, or others, assert that a patent it holds is infringed by any of our product candidates or their use or manufacture, we may be drawn into expensive litigation, which may affect our business, take the time of and distract the attention of our employees, and if the litigation is successful, could affect the profitability of our products or prohibit their sale. On June 3, 2019, we received an anonymous Third Party Observation filed in connection with our international Patent Cooperation Treaty patent application for our second patent family, which covers the hemisulfate salt form of AT-511, or AT-527. The Observation generally challenges the patentability of the hemisulfate salt AT-527 over the free base AT-511. On August 1, 2019, we filed a response to the Observation describing that the AT-527 hemisulfate salt of AT-511 is not obvious in view of the AT-511 free base because AT-527 disproportionately concentrates in the liver over the heart, as shown in vivo in a dog model, which can provide an increased therapeutic effect to treat HCV, and decreased toxicity because hepatitis C is a disease of the liver. Further, while not raised in the response to the Observation, we have now also shown that AT-527 has a longer half-life and higher concentration in the lung than in the liver in vivo in monkeys, which is relevant to our COVID19 indication. On August 10, 2020, an anonymous party filed a Third Party Observation against our Patent Cooperation Treaty patent application covering a method to treat HCV patients with compensated or decompensated cirrhosis using our drug AT-527. The anonymous party asserted that it would have been obvious that the hemisulfate salt of AT-511 (AT-527) would be effective to treat HCV-infected cirrhotic patients. We disagree for several reasons, including that the hemisulfate salt of AT-511 had not been publicly disclosed at the time of the filing of our method of treatment of cirrhosis application and second it is well known that treating HCV-infected cirrhotic patients is very difficult. Our Patent Cooperation Treaty patent application provides human data that supports the efficacy of using

AT-527 to treat cirrhotic HCV-infected patients. The Third Party Observations are not acted on by the Patent Cooperation Treaty, which does not examine patent applications. The Observations by anonymous third parties as well as our responses are placed in the file and available to be read and considered by any country examining our respective patent applications. In December 2019, the U.S. Patent Office issued a patent to us covering the composition of matter AT-527. However, other than the foregoing issued U.S. patent, there can be no assurance that the Observations will not adversely affect our ability to obtain issued patents from national-stage filings of such Patent Cooperation Treaty patent applications in any jurisdictions. We may not be aware of patent claims that are currently or may in the future be pending that affect our business by the competitors working in this area. Patent applications are typically published between six and eighteen months from filing, and the presentation of new claims in already pending applications can sometimes not be visible to the public, including to us, for a period of time, or if publicly available, not yet seen by us. We cannot provide any assurance that a third party practicing in the general area of our technology will not present a patent claim that covers one or more of our products or their methods of use or manufacture at any time, including before or during this registration period. If that does occur, we may have to take steps to try to invalidate such patent or application, and we may either choose not to or may not be successful in such attempt. A license to the patent or application may not be available on commercially reasonable terms or at all.

Our products are subject to The Drug Price Competition and Patent Term Restoration Act of 1984, as amended (also referred to as the Hatch-Waxman Act), in the United States, that can increase the risk of litigation with generic companies trying to sell our products, and may cause us to lose patent protection.

Because our clinical candidates are pharmaceutical molecules reviewed by the Center for Drug Evaluation and Research of the FDA, after commercialization they will be subject in the United States to the patent litigation process of the Hatch-Waxman Act, as currently amended, which allows a generic company to submit an Abbreviated New Drug Application, or ANDA, to the FDA to obtain approval to sell our drug using bioequivalence data only. Under the Hatch-Waxman Act, we will have the opportunity to list our patents that cover our drug product or its method of use in the FDA's compendium of "Approved Drug Products with Therapeutic Equivalence Evaluation," sometimes referred to as the FDA's Orange Book.

Currently, in the United States, the FDA may grant five years of exclusivity for new chemical entities, or NCEs, for which all of our products may qualify. An NCE is a drug that contains no active moiety that has been approved by the FDA in any other New Drug Application, or NDA. A generic company can submit an ANDA to the FDA four years after approval of our product. The submission of the ANDA by a generic company is considered a technical act of patent infringement. The generic company can certify that it will wait until the natural expiration date of our listed patents to sell a generic version of our product or can certify that one or more of our listed patents are invalid, unenforceable or not infringed. If the latter, we will have 45 days to bring a patent infringement lawsuit against the generic company. This will initiate a challenge to one or more of our Orange Book-listed patents based on arguments from the generic company that our listed patents are invalid, unenforceable or not infringed. Under the Hatch-Waxman Act, if a lawsuit is brought, the FDA is prevented from issuing a final approval on the generic drug until 30 months after the end of our data exclusivity period, or a final decision of a court holding that our asserted patent claims are invalid, unenforceable or not infringed. If we do not properly list our relevant patents in the Orange Book, do not timely file a lawsuit in response to a certification from a generic company under an ANDA, or if we do not prevail in the resulting patent litigation, we can lose our proprietary protection, and our product can rapidly become generic. Further, even if we do correctly list our relevant patents in the Orange Book, bring a lawsuit in a timely manner and prevail in that lawsuit, the generic litigation may be at a very significant cost to us of attorneys' fees and employee time and distraction over a long period. Further, it is common for more than one generic company to try to sell an innovator drug at the same time, and so we may be faced with the cost and distraction of multiple lawsuits. We may also determine it is necessary to settle the lawsuit in a manner that allows the generic company to enter

our market prior to the expiration of our patent or otherwise in a manner that adversely affects the strength, validity or enforceability of our patent.

A number of pharmaceutical companies have been the subject of intense review by the FTC or a corresponding agency in another country based on how they have conducted or settled drug patent litigation, and certain reviews have led to an allegation of an antitrust violation, sometimes resulting in a fine or loss of rights. We cannot be sure that we would not also be subject to such a review or that the result of the review would be favorable to us, which could result in a fine or penalty.

The FTC has brought a number of lawsuits in federal court in the past few years to challenge Hatch-Waxman Act ANDA litigation settlements between innovator companies and generic companies as anti-competitive. As an example, the FTC has taken an aggressive position that anything of value is a payment, whether money is paid or not. Under its approach, if an innovator as part of a patent settlement agrees not to launch or delay launch of an authorized generic during the 180-day period granted to the first generic company to challenge an Orange Book-listed patent covering an innovator drug, or negotiates a delay in entry without payment, the FTC may consider it an unacceptable reverse payment. The pharmaceutical industry argues that such agreements are rational business decisions to dismiss risk and are immune from antitrust attack if the terms of the settlement are within the scope of the exclusionary potential of the patent. In 2013, the U.S. Supreme Court, in a five-to-three decision in FTC v. Actavis, Inc., rejected both the pharmaceutical industry's and FTC's arguments with regard to so-called reverse payments, and held that whether a "reverse payment" settlement involving the exchange of consideration for a delay in entry is subject to an anticompetitive analysis depends on five considerations: (a) the potential for genuine adverse effects on competition; (b) the justification of payment; (c) the patentee's ability to bring about anticompetitive harm; (d) whether the size of the payment is a workable surrogate for the patent's weakness; and (e) that antitrust liability for large unjustified payments does not prevent litigating parties from settling their lawsuits, for example, by allowing the generic to enter the market before the patent expires without the patentee's paying the generic. Furthermore, whether a reverse payment is justified depends upon its size, its scale in relation to the patentee's anticipated future litigation costs, its independence from other services for which it might represent payment, as was the case in Actavis, and the lack of any other convincing justification. The Court held that reverse payment settlements can potentially violate antitrust laws and are subject to the standard antitrust rule-of-reason analysis, with the burden of proving that an agreement is unlawful on the FTC, leaving to lower courts the structuring of such rule of reason analysis. If we are faced with drug patent litigation, including Hatch-Waxman Act litigation with a generic company, we could be faced with such an FTC challenge based on that activity, including how or whether we settle the case, and even if we strongly disagree with the FTC's position, we could face a significant expense or penalty.

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, however there can be no assurance that we will be granted any patent term extension we seek, or that any such patent term extension will provide us with any competitive advantage.

The Hatch-Waxman Act in the United States provides for the opportunity to seek a patent term extension on one selected patent for each of our products, and the length of that patent term extension, if at all, is subject to review and approval by the USPTO and the FDA.

In the United States, the Hatch-Waxman Act permits one patent term extension of up to five years beyond the normal expiration of one patent per product, which if a method of treatment patent, is limited to the approved indication (or any additional indications approved during the period of extension). The length of the patent term extension is typically calculated as one half of the clinical trial period plus the entire period of time during the review of the NDA by the FDA, minus any time of delay by us during these periods. There is also a limit on the patent term extension to a term that is no greater than fourteen years from drug approval. Therefore, if we select and are granted a patent term extension on a recently filed and issued patent, we may not receive the full benefit of a possible patent term extension, if at all. We might also not be granted a patent term extension at all, because of, for example, failure to apply within the applicable period, 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 authorities in other countries, may not agree with our assessment of whether such extensions are available, 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 preclinical 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 product revenue.

In 1997, as part of the Food & Drug Administration Modernization Act, or FDAMA, Congress enacted a law that provides incentives to drug manufacturers who conduct studies of drugs in children. The law, which provides six months of exclusivity in return for conducting pediatric studies, is referred to as the pediatric exclusivity provision. If clinical studies are carried out by us that comply with the FDAMA, we may receive an additional six-month term added to our regulatory data exclusivity period and our patent term extension period, if received, on our product. However, if we choose not to carry out pediatric studies that comply with the FDAMA, or are not accepted by the FDA for this purpose, we would not receive this additional six-month exclusivity extension to our data exclusivity or our patent term extension.

In Europe, supplementary protection certificates are available to extend a patent term up to five years to compensate for patent term lost during regulatory review, and can be extended for an additional six months if data from clinical trials is obtained in accordance with an agreed-upon pediatric investigation plan. Although all countries in Europe must provide supplementary protection certificates, there is no unified legislation among European countries and so supplementary protection certificates must be applied for and granted on a country-by-country basis. This can lead to a substantial cost to apply for and receive these certificates, which may vary among countries or not be provided at all.

If we are unable to obtain licenses from third parties on commercially reasonable terms or at all, or fail to comply with our obligations under such agreements, our business could be harmed.

It may be necessary for us to use the patented or other proprietary technology of third parties to commercialize our products, in which case we would be required to obtain a license from these third parties. If we are unable to license such technology, or if we are forced to license such technology on unfavorable terms, our business could be materially harmed. If we are unable to obtain a necessary license, we may be unable to develop or commercialize the affected product candidates, which could materially harm our business and the third parties owning or otherwise controlling such intellectual property rights could seek either an injunction prohibiting our sales or an obligation on our part to pay royalties and/or other forms of compensation. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors and other third parties access to the

same technologies licensed to us. The licensing or acquisition of third-party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us.

If we are unable to obtain rights to required third-party intellectual property rights or maintain the existing intellectual property rights we have, we may be required to expend significant time and resources to redesign our technology, product candidates or the methods for manufacturing them or to develop or license replacement technology, all of which may not be feasible on a technical or commercial basis. If we are unable to do so, we may be unable to develop or commercialize the affected technology and product candidates, which could harm our business, financial condition, results of operations and prospects significantly.

Additionally, if we fail to comply with our obligations under any future license agreements, our counterparties may have the right to terminate these agreements, in which event we might not be able to develop, manufacture or market, or may be forced to cease developing, manufacturing or marketing, any product that is covered by these agreements or may face other penalties under such agreements. Such an occurrence could materially adversely affect the value of the product candidate being developed under any such agreement. Termination of these agreements or reduction or elimination of our rights under these agreements, or restrictions on our ability to freely assign or sublicense our rights under such agreements when it is in the interest of our business to do so, may result in our having to negotiate new or reinstated agreements with less favorable terms, cause us to lose our rights under these agreements, including our rights to important intellectual property or technology, or impede, or delay or prohibit the further development or commercialization of one or more product candidates that rely on such agreements.

Although we are not currently involved in any relevant litigation, we may become involved in lawsuits to protect or enforce our patents or other intellectual property, which could be expensive, time-consuming and unsuccessful.

Competitors and other third parties may infringe, misappropriate or otherwise violate our or our future licensors' patents, trademarks, copyrights or other intellectual property. As a result, we may need to file infringement, misappropriation or other intellectual property-related claims against third parties. To counter infringement or other unauthorized use, we may be required to file 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 claims, which often last for years before they are concluded.

Any claims we assert against third parties could also provoke these parties to assert counterclaims against us alleging that we infringe, misappropriate or otherwise violate their intellectual property. In addition, in a patent infringement proceeding, such parties could counterclaim that the patents we have asserted are invalid or unenforceable, or both. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. 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 institute such claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings and equivalent proceedings in foreign jurisdictions (*e.g.,* opposition proceedings). The outcome following legal assertions of invalidity and unenforceability is unpredictable.

In any such proceeding, a court may decide that a patent of ours, or a patent that we in-license, is not valid, is unenforceable and/or is not infringed, or may construe such 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 in whole or in part, 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, misappropriation or other violation of our intellectual property, the court may decide not to grant an injunction against further such 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. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Weakening patent laws and enforcement by courts and other authorities in the United States and other jurisdictions may impact our ability to protect our patents.

The U.S. Supreme Court has issued opinions in patent cases in the last few years that many consider may weaken patent protection in the United States, either by narrowing the scope of patent protection available in certain circumstances, holding that certain kinds of innovations are not patentable or generally otherwise making it easier to invalidate patents in court. Additionally, there have been recent proposals for additional changes to the patent laws of the United States and other countries that, if adopted, could impact our ability to obtain patent protection for our proprietary technology or our ability to enforce our proprietary technology. Depending on future actions by the U.S. Congress, the U.S. courts, the USPTO and the relevant law-making and other 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 and defend our existing patents and patents that we might obtain in the future.

The laws of some foreign jurisdictions do not protect intellectual property rights to the same extent as in the United States and many companies have encountered significant difficulties in protecting and defending such rights in foreign jurisdictions. If we encounter such difficulties in protecting or are otherwise precluded from effectively protecting our intellectual property rights in foreign jurisdictions, our business prospects could be substantially harmed. For example, we could become a party to foreign opposition proceedings, such as at the EPO, or patent litigation and other proceedings in a foreign court. If so, uncertainties resulting from the initiation and continuation of such proceedings could have a material adverse effect on our ability to compete in the marketplace. The cost of foreign adversarial proceedings can also be substantial, and in many foreign jurisdictions, the losing party must pay the attorney fees of the winning party.

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, EPO 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 such fees due to non-U.S. patent agencies. While, 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, 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 or other third parties might be able to enter the market with similar or identical products or technology, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

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

Filing, prosecuting and defending patents on our product candidates in all countries throughout the world would be prohibitively expensive. Therefore, we may choose not to pursue or maintain protection for certain intellectual property in certain jurisdictions. The requirements for patentability may differ in certain countries, particularly in developing countries. 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 may obtain patent protection, but where patent enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have any issued or licensed patents and any future patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by changes in foreign intellectual property laws. Additionally, laws of some countries outside of the United States and Europe do not afford intellectual property protection to the same extent as the laws of the United States and Europe. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, including India, China and other developing countries, may not favor the enforcement of our patents and other intellectual property rights.

This could make it difficult for us to stop the infringement of our patents or the misappropriation or other violation of our other intellectual property rights. A number of foreign countries have stated that they are willing to issue compulsory licenses to patents held by innovator companies on approved drugs to allow the government or one or more third-party companies to sell the approved drug without the permission of the innovator patentee where the foreign government concludes it is in the public interest. India, for example, has used such a procedure to allow domestic companies to make and sell patented drugs without innovator approval. There is no guarantee that patents covering any of our drugs will not be subject to a compulsory license in a foreign country, or that we will have any influence over if or how such a compulsory license is granted. Further, Brazil allows its regulatory agency ANVISA to participate in deciding whether to grant a drug patent in Brazil, and patent grant decisions are made based on several factors, including whether the patent meets the requirements for a patent and whether such a patent is deemed in the country’s interest. In addition, several other countries have created laws that make it more difficult to enforce drug patents than patents on other kinds of technologies. Further, under the treaty on the Trade-Related Aspects of Intellectual Property, or

TRIPS, as interpreted by the Doha Declaration, countries in which drugs are manufactured are required to allow exportation of the drug to a developing country that lacks adequate manufacturing capability. Therefore, our drug markets in the United States or foreign countries may be affected by the influence of current public policy on patent issuance, enforcement or involuntary licensing in the healthcare area.

In addition, in November 2015, members of the World Trade Organization, or WTO, which administers TRIPS, voted to extend the exemption against enforcing pharmaceutical drug patents in least developed countries until 2033. We currently have no patent applications filed in least developed countries, and our current intent is not to file in these countries in the future, at least in part due to this WTO pharmaceutical patent exemption.

We rely on our ability to stop others from competing by enforcing our patents, however some jurisdictions may require us to grant licenses to third parties. Such compulsory licenses could be extended to include some of our product candidates, which may limit our potential revenue opportunities.

Many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties, in certain circumstances. For example, compulsory licensing, or the threat of compulsory licensing, of life-saving products and expensive products is becoming increasingly popular in developing countries, either through direct legislation or international initiatives. Compulsory licenses could be extended to include some of our product candidates, if they receive marketing approval, which may limit our potential revenue opportunities. Consequently, we may not be able to prevent third parties from practicing our inventions in certain countries outside the United States and Europe. Competitors may also 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, if our ability to enforce our patents to stop infringing activities is inadequate. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Proceedings to enforce our patent rights in foreign jurisdictions, whether or not successful, could result in substantial costs and divert our efforts and resources from other aspects of our business. Furthermore, while we intend to protect our intellectual property rights in major markets for our products where such patent rights exist, we cannot ensure that we will be able to initiate or maintain similar efforts in all jurisdictions in which we may wish to market our products. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate.

In addition, some countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may be limited to monetary relief and may be unable to enjoin infringement if a government is the infringer, which could materially diminish the value of the patent.

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

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 parties who have access to them, such as our employees, CROs, consultants, scientific advisors and other contractors. We cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes. 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 our trade secrets could be disclosed, and we may not have adequate remedies for any such breach. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. Misappropriation or unauthorized disclosure of our trade secrets or other confidential proprietary information could cause us to lose trade secret protection, impair our competitive position and have a material adverse effect on our business. 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.

Further, we cannot provide any assurances that competitors or other third parties will not otherwise gain access to our trade secrets and other confidential proprietary information or independently discover or develop substantially equivalent technology and processes. If we are unable to prevent disclosure of the trade secrets and other non-patented intellectual property related to our product candidates and technologies to third parties, there is no guarantee that we will have any such enforceable trade secret protection and 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.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties, that our employees have wrongfully used or disclosed alleged trade secrets of their former employers, or asserting ownership of what we regard as our own intellectual property.

We have employed, and may in the future 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 such individuals' 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.

Although it is our policy to 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. We may also be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Our proprietary rights may not adequately protect our technologies and product candidates, and intellectual property rights 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 our patents;
- 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, misappropriating or otherwise violating 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 inventions;
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property;
- our pending patent applications might not result in issued patents;
- there might be 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 or other third parties;
- 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 patents;
- patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time;
- our competitors or other third parties 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 or pending or future applications of third parties, if issued, may have an adverse effect on our business.

Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Risks Related to Employee Matters, Managing Growth and Other Risks Related to Our Business

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 over time in the number of our employees and the scope of our operations, particularly in the areas of product candidate development, regulatory and clinical affairs and sales, marketing and distribution. 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;
- managing our internal development efforts effectively, including the clinical and FDA review process for our product candidates, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems and procedures.

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 product 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.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services, including substantially all aspects of regulatory approval, clinical trial management and manufacturing. There can be no assurance that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval of our product candidates or otherwise advance our business. There can be no assurance that we will be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all. If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, or we are not able to effectively build out new facilities to accommodate this expansion, we may not be able to successfully implement the tasks necessary to further develop and commercialize our product candidates and, accordingly, may not achieve our research, development and commercialization goals.

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.

We only have a limited number of employees to manage and operate our business.

As of September 30, 2020, we had 19 full-time employees. Our focus on the development of AT-527 alone requires us to manage and operate our business in a highly efficient manner. We cannot assure you that we will be able to hire and/or retain adequate staffing levels to develop our product candidates or run our operations and/or to accomplish all of the objectives that we otherwise would seek to accomplish.

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, Jean-Pierre Sommadossi, Ph.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 any officers or directors. In general, the employment arrangements that we have with our executive officers 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 or costly 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 effectively incentivize 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, and we may never realize the anticipated benefits of such acquisitions or partnerships. 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 and cash equivalents 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 or pandemics and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Natural disasters or pandemics, other than or in addition to COVID-19, 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, pandemic, such as the COVID-19 pandemic, 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.

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.

Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and share price.

The global economy, including credit and financial markets, has experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in

economic growth, increases in unemployment rates and uncertainty about economic stability. For example, the COVID-19 pandemic has resulted in a widespread unemployment, an economic slowdown and extreme volatility in the capital markets. If the equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult to obtain in a timely manner or on favorable terms, more costly or more dilutive. In addition, there is a risk that one or more of our CROs, suppliers, CMOs or other third-party providers may not survive an economic downturn. As a result, our business, results of operations and price of our common stock may be adversely affected.

The United Kingdom's withdrawal from the European Union may have a negative effect on global economic conditions, financial markets, and our business, which could reduce our share price.

On January 31, 2020, the United Kingdom formally withdrew from the European Union. The potential impact of the withdrawal of the United Kingdom will vary significantly depending on the exit route that is negotiated and agreed between the European Union and the United Kingdom during the transition period, which is due to end December 31, 2020. For example, companies in the United Kingdom could lose access to the benefits of certain EU directives (such as the interest and royalties directive and the parent-subsidiary directive), which apply only to arrangements concerning EU Member States.

These developments have had and may continue to have a significant adverse effect on global economic conditions and the stability of global financial markets, and could significantly reduce global market liquidity and restrict the ability of key market participants to operate in certain financial markets. In particular, it could also lead to a period of considerable uncertainty in relation to the U.K. financial and banking markets, as well as on the regulatory process in the United Kingdom and in Europe. As a result of this uncertainty, global financial markets could experience significant volatility, which could adversely affect the market price of our common stock. Asset valuations, currency exchange rates, and credit ratings may also be subject to increased market volatility. Lack of clarity about future U.K. laws and regulations as the United Kingdom determines which European Union rules and regulations to replace or replicate after withdrawal, including financial laws and regulations, tax and free trade agreements, intellectual property rights, data protection laws, supply chain logistics, environmental, health, and safety laws and regulations, immigration laws, and employment laws, could decrease foreign direct investment in the United Kingdom, increase costs, depress economic activity, and restrict our access to capital. If the United Kingdom and the European Union are unable to negotiate acceptable withdrawal terms or if other EU Member States pursue withdrawal, barrier-free access between the United Kingdom and other EU Member States or among the European Economic Area overall could be diminished or eliminated.

We may also face new regulatory costs and challenges that could have an adverse effect on our operations. Depending on the terms of Brexit, the United Kingdom could lose the benefits of global trade agreements negotiated by the European Union on behalf of its members, which may result in increased trade barriers that could make our doing business in Europe more difficult. In addition, currency exchange rates between the pound sterling, the euro and the U.S. dollar have already been, and may continue to be, affected by Brexit.

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. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of common stock as consideration.

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 our ongoing, planned or any future preclinical studies, clinical trials or clinical development of our product candidates or those of our competitors;
- unanticipated serious safety concerns related to the use of our product candidates;
- developments related to our existing or any future collaborations;
- developments concerning our manufacturers or our manufacturing plans;
- our inability to obtain adequate product supply for any approved product or inability to do so at acceptable prices;
- 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 third-party 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;
- our decision to initiate a clinical trial, not to initiate a clinical trial or to terminate an existing clinical trial;
- our failure to commercialize our product candidates;
- 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 intellectual property or proprietary rights;
- the recruitment or departure of key scientific or management 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;

- changes in accounting practices;
- the trading volume of our common stock;
- our cash and cash equivalents position;
- our ability to effectively manage our growth;
- sales of our common stock by us or our stockholders in the future;
- publication of research reports about us or our industry, or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- ineffectiveness of our internal controls;
- significant lawsuits, including intellectual property or stockholder litigation;
- 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;
- actual or anticipated 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.

In addition, the stock market in general, and The Nasdaq Global Market and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common shares, regardless of our actual operating performance. If the market price of our common shares after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company’s securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management’s attention and resources, which would harm our business, financial condition and results of operations.

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 , 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 (assuming no exercise of the underwriters’ option to purchase additional shares). 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 , 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.

This dilution is due to our investors who purchased shares of our common stock prior to this offering, having paid substantially less when they purchased their shares of common stock than the price offered to the public in this offering. To the extent that outstanding stock options or warrants are exercised, there will be further dilution to new investors. As a result of the dilution to investors purchasing shares of common stock in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. For a further description of the dilution that you will experience immediately after this offering, see the section entitled “Dilution.”

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, including for any of the purposes described in the section entitled “Use of Proceeds,” and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. We anticipate that we will use the net proceeds from this offering, together with our existing cash and cash equivalents, to advance the clinical development of AT-527 for the treatment of moderate COVID-19, AT-787 for the treatment of chronic HCV, AT-752 for the treatment of dengue, our RSV program, and the remainder, if any, for working capital and other general corporate purposes. See “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.

Our principal stockholder and management own a significant percentage of our shares of common stock and will be able to exert significant influence over matters subject to stockholder approval.

Upon the closing of this offering, based on the number of shares outstanding as of , our executive officers, directors, and 5% stockholders will beneficially own approximately % of our common shares, assuming the sale by us of shares of common stock in this offering, and not accounting for any shares of common stock purchased in this offering by certain of our existing stockholders (or their affiliates). Therefore, after this offering, these stockholders will have the ability to influence us through this ownership position. These stockholders may be able to determine all matters requiring stockholders approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents or approval of any merger, sale of assets or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our shares of common stock that you may feel are in your best interest as one of our stockholders.

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 September 30, 2020. 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, pursuant to the terms of such lock-up agreement), 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 earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the date of the closing of this offering, (b) in which we have total annual gross revenue of at least $1.07 billion or (c) in which we are deemed to be a large accelerated filer, which requires the market value of our common shares that are held by non-affiliates to exceed $700 million as of the prior June 30th, and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-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;
- 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. 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. Further, 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 obligations regarding executive compensation in our periodic reports and proxy statements. 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.

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 for as long as we remain a smaller reporting company, such as an exemption from providing selected financial data and executive compensation information. If we qualify as a smaller reporting company because we meet the revenue limits under the definition of a smaller reporting company, we will be a "low-revenue smaller reporting company." Low-revenue smaller reporting companies are not required to obtain an external audit on the effectiveness of their internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404. These exemptions and reduced disclosures 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.

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, in our second annual report due to be filed with the SEC after becoming a public company, 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 or a low-revenue smaller reporting 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 in our internal control over financial reporting, 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 we fail to maintain effective internal control over financial reporting and effective disclosure controls and procedures, we may not be able to accurately report our financial results in a timely manner or prevent fraud, which may adversely affect investor confidence in our company.

We are not currently required to comply with the rules of the SEC implementing Section 404 and, therefore, we are not required to make a formal assessment of the effectiveness of our internal control over financial reporting for that purpose. Upon becoming a public company, we will be required to comply with the SEC's rules implementing Sections 302 and 404 of the Sarbanes-Oxley Act, which require management to certify financial and other information in our quarterly and annual reports and provide an annual management report on the effectiveness of controls over financial reporting. Although we will be required to disclose changes made in our internal controls and procedures on a quarterly basis, we are not required to make our first annual assessment of our internal control over financial reporting pursuant to Section 404 until the year following our first annual report required to be filed with the SEC. As an emerging growth company and a low-revenue smaller reporting company, our independent registered public accounting firm will not be required to attest to the effectiveness of our internal control over financial reporting pursuant to Section 404 until the later of the year following our first annual report required to be filed with the SEC or the date we are no longer an emerging growth company or a low-revenue smaller reporting company. At such time, our independent registered public accounting firm may issue a report that is adverse in the event material weaknesses have been identified in our internal control over financial reporting.

To comply with the requirements of being a public company, we will need to undertake actions, such as implementing new internal controls and procedures and hiring additional accounting or internal audit staff. Testing and maintaining internal control can divert our management's attention from other matters that are important to the operation of our business. In addition, when evaluating our internal control over financial reporting, we may identify material weaknesses that we may not be able to remediate in time to meet the applicable deadline imposed upon us for compliance with the requirements of Section 404. If we identify any material weaknesses in our internal controls over financial reporting or we are unable to comply with the requirements of Section 404 in a timely manner or assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal control over financial reporting once we are no longer an emerging growth company, investors may lose confidence in the accuracy and completeness of our financial reports. As a result, the market price of our common stock could be materially adversely affected.

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

Upon the closing of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. We are continuing to refine our disclosure controls and procedures to provide reasonable assurance that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

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 downgrades our common stock or issues an adverse or misleading opinion regarding us, our business model, our intellectual property or our stock performance, or if our target preclinical 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.

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, other than suits brought to enforce any liability or duty created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction and any action that the Court of Chancery of the State of Delaware has dismissed for lack of subject matter jurisdiction, which may be brought in another state or federal court sitting in the State of Delaware. Our restated certificate of incorporation also specifies that unless we consent in writing to the selection of an alternate forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933. 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 or federal judges experienced in resolving Securities Act 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 stock 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 stock. We currently anticipate that we will retain all available funds and 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 stock would be your sole source of gain on an investment in our common stock 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.

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 future results of operations and financial position, business strategy, prospective products, product approvals, research and development costs, future revenue, timing and likelihood of success, plans and objectives of management for future operations, future results of anticipated products and prospects, 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. These forward-looking statements are subject to numerous risks, including, without limitation, the following:

- our status as a development-stage company and our expectation to incur losses in the future;
- the effects of the COVID-19 pandemic on business operations, the initiation, development and operation of our clinical trials, and patient enrollment of our clinical trials;
- our future capital needs and our need to raise additional funds;
- the prospects of AT-527 and other product candidates, which are still in development;
- our expectations regarding the timing of data from our clinical trials for AT-527 and other product candidates;
- our ability to continuously build a pipeline of product candidates and develop and commercialize drugs;
- our unproven approach to antiviral treatments;
- our ability to enroll patients and volunteers in clinical trials, timely and successfully complete those trials and receive necessary regulatory approvals;
- our ability to establish our own manufacturing facilities and to receive or manufacture sufficient quantities of our product candidates;
- our ability to obtain, maintain, protect and enforce our intellectual property rights;
- federal, state, and foreign regulatory requirements, including FDA regulation of our product candidates;
- the timing of clinical trials and the likelihood of regulatory filings and approvals;
- developments relating to our competitors and our industry;

- our ability to obtain and retain key executives and attract and retain qualified personnel; and
- our ability to successfully manage our growth.

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.

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

MARKET AND INDUSTRY DATA

We obtained the market and industry 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 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 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, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

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 estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase (decrease) of 1,000,000 in the number of shares offered by us as set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by $ million, assuming no change in the assumed initial public offering price and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

We currently anticipate that we will use the net proceeds from this offering, together with our existing cash and cash equivalents, to advance the clinical development of AT-527 for the treatment of moderate COVID-19, AT-787 for the treatment of chronic HCV, AT-752 for the treatment of dengue, our RSV program, and the remainder, if any, 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 our ongoing clinical trial(s) or any 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, and investors will be relying on our judgment regarding the application of the net proceeds.

Based on our planned use of the net proceeds from 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. See "Management's Discussion and Analysis of Financial Condition and Results of Operation—Liquidity and Capital Resources—Future Funding Requirements" and "Risk Factors—Risks Related to Our Financial Condition and Capital Requirement."

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 development, operation and expansion of our business and do not anticipate declaring or paying any dividends in the foreseeable future. The payments of dividends, if any, will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, business prospects, contractual arrangements, any limitations on payment of dividends present in our future debt agreements and other factors that our board of directors may deem relevant, and will be subject to the restrictions contained in any future financing instruments.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and total capitalization as of June 30, 2020, as follows:

- on an actual basis;
- on a pro forma basis to give effect to the conversion of all outstanding shares of our convertible preferred stock into an aggregate of shares of common stock in connection with the closing of this offering and the filing of our restated certificate of incorporation; and
- on a pro forma as adjusted basis to further reflect 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 estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma as adjusted information below is illustrative only, and our capitalization following the completion 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 elsewhere in this prospectus, as well as the sections of this prospectus titled “Selected Consolidated Financial Data,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Description of Capital Stock.”

	As of June 30, 2020		
	Actual	Pro Forma	Pro Forma As Adjusted(1)
	(in thousands, except share and per share data) (unaudited)		
Cash and cash equivalents	$ 115,792		
Convertible preferred stock, $0.001 par value per share; 57,932,090 shares authorized, 48,958,829 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$ 175,745		
Stockholders’ (deficit) equity:			
Preferred stock, $0.001 par value per share; no shares authorized, issued and outstanding, actual; shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—		
Common stock, $0.001 par value per share; 80,529,575 shares authorized, 10,309,847 shares issued and outstanding, actual; shares authorized, shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	10		
Additional paid-in capital	5,057		
Accumulated deficit	(68,194)		
Total stockholders’ (deficit) equity	(63,127)		
Total capitalization	$ 112,618		

(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 (deficit) 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 1,000,000 shares in the number of shares offered by us at 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 (deficit) and total capitalization by approximately $ million.

The number of shares in the table above excludes the following:

- 4,186,747 shares of common stock issuable upon exercise of options outstanding under our Prior Plan to purchase shares of our common stock outstanding as of June 30 , 2020, at a weighted-average exercise price of $1.51 per share;
- 2,815,000 shares of common stock issuable upon exercise of options outstanding under the Prior Plan that we granted between July 1, 2020 and September 30, 2020, at a weighted-average exercise price of $6.84 per share;
- 514,477 shares of common stock for future issuance under our Prior Plan, as of September 30, 2020, which shares will be added to the shares to be reserved under our 2020 Plan upon its effectiveness;
- shares of 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 common stock reserved for future issuance under the 2020 Plan; and
- shares of common stock reserved for issuance under our 2020 ESPP, which will become effective in connection with this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2020 ESPP.

DILUTION

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

Our historical net tangible book deficit as of June 30, 2020 was $(64.3) million, or $(6.36) per share of our common stock. Our historical net tangible book value (deficit) is the amount of our total tangible assets (total assets less deferred offering costs) less our total liabilities and convertible preferred stock, which is not included within our stockholders' (deficit) equity. Historical net tangible book value per share represents historical net tangible book value (deficit) divided by the number of shares of our common stock outstanding as of June 30, 2020.

Our pro forma net tangible book value as of June 30, 2020 was $ million, or $ per share of our common stock. Pro forma net tangible book value (deficit) represents the amount of our total tangible assets less our total liabilities, after giving effect to the automatic conversion of all of the shares of our convertible preferred stock outstanding into an aggregate of shares of common stock upon the completion of this offering. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of June 30, 2020, after giving effect to the pro forma adjustments described above.

After giving further effect to receipt of the net proceeds from 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, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2020 would have been $ million, or $ per share. This represents an immediate increase in pro forma as adjusted net tangible book value per share of $ to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value per share of $ to new investors purchasing common stock in this offering. Dilution per share to new investors purchasing common stock in this offering is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the initial public offering price per share paid by new investors.

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

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of June 30, 2020	$(6.36)	
Increase per share attributable to the pro forma adjustments described above		
Pro forma net tangible book value (deficit) per share as of June 30, 2020		
Increase in pro forma as adjusted net tangible book value per share attributable to new investors purchasing shares in this offering		
Pro forma as adjusted net tangible book value per share after this offering		$
Dilution per share to new investors purchasing shares 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 1,000,000 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 common stock in this offering in full, the pro forma as adjusted net tangible book value per share after this offering would be $ per share, and the dilution in pro forma as adjusted net tangible book value per share to new investors purchasing common stock in this offering 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 estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The following table summarizes, on a pro forma as adjusted basis, as of June 30, 2020, the number of shares of common stock purchased from us on an as-converted to common stock basis, the total consideration paid, or to be paid and the weighted-average price per share paid, or to be paid, by existing stockholders and by new investors in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares Purchased		Total Consideration		Weighted-Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders before this offering		%	$	%	$
Investors participating in this offering					$
Total		100%	$	100%	

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 1,000,000 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 percentage points 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 table above assumes no exercise of the underwriters' option to purchase additional shares in this offering and no purchase of shares by any existing stockholders in this offering. If the underwriters' option to purchase additional shares is exercised in full, the number of shares of our common stock held by existing stockholders would be reduced to approximately % of the total number of shares of our common stock outstanding after this offering, and the number of shares of common stock held by new investors participating in the offering would be increased to approximately % of the total number of shares outstanding after this offering.

The above tables and discussion exclude the following:

- 4,186,747 shares of common stock issuable upon exercise of options outstanding under our Prior Plan to purchase shares of our common stock outstanding as of June 30, 2020, at a weighted-average exercise price of $1.51 per share;
- 2,815,000 shares of common stock issuable upon exercise of options outstanding under our Prior Plan that we granted between July 1, 2020 and September 30, 2020, at a weighted-average exercise price of $6.84 per share;
- 514,477 shares of common stock for future issuance under our Prior Plan, as of September 30, 2020, which shares will be added to the shares to be reserved under our 2020 Plan upon its effectiveness;
- shares of 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 common stock reserved for future issuance under the 2020 Plan; and
- shares of common stock reserved for issuance under our 2020 ESPP, which will become effective in connection with this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2020 ESPP.

To the extent that any outstanding options are exercised or new options are issued under the equity benefit plans, or we issue additional shares of common stock or other securities convertible into or exercisable or exchangeable for shares of our capital stock in the future, there will be further dilution to investors participating in this offering.

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables summarize our selected consolidated financial data for the periods and as of the dates indicated. We have derived our selected consolidated statements of operations and comprehensive loss data for the years ended December 31, 2019 and 2018 (except for the pro forma net loss per share and the pro forma share information), and the consolidated balance sheet data as of December 31, 2019 and 2018, from our audited consolidated financial statements and related notes included elsewhere in this prospectus. The consolidated statements of operations data for the six months ended June 30, 2020 and 2019 and the consolidated balance sheet data as of June 30, 2020 are derived from our unaudited consolidated financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited consolidated financial statements. In the opinion of management, the unaudited data reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the financial information in those statements. Our historical results are not necessarily indicative of the results that may be expected in the future, and our results for any interim period are not necessarily indicative of results that may be expected for any full year. You should read the financial and other data below in conjunction with the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus.

	Six Months Ended June 30,		Years Ended December 31,	
	2020	2019	2019	2018
	(in thousands, except share and per share amounts) (unaudited)			
Statement of Operations and Comprehensive Loss Data				
Operating expenses:				
Research and development	$ 10,576	$ 4,270	$ 10,170	$ 6,675
General and administrative	3,472	1,820	4,438	2,802
Total operating expenses	14,048	6,090	14,608	9,477
Loss from operations	(14,048)	(6,090)	(14,608)	(9,477)
Interest income and other, net	67	343	574	413
Net loss and comprehensive loss	$ (13,981)	$ (5,747)	$ (14,034)	$ (9,064)
Net loss per share attributable to common stockholders - basic and diluted(1)	$ (1.39)	$ (0.57)	$ (1.39)	$ (0.90)
Weighted-average common shares outstanding - basic and diluted(1)	10,093,689	10,091,100	10,091,100	10,039,392
Pro forma net loss per share attributable to common stockholders - basic and diluted (unaudited)(2)	$ (0.30)		$ (0.32)	
Pro forma weighted-average common shares outstanding - basic and diluted (unaudited)(2)	47,292,517		43,736,547	

(1) For details on the calculation of our basic and diluted net loss per share attributable to common stockholders see Notes 10 and 11 to our unaudited and audited consolidated financial statements, respectively, included elsewhere in this prospectus.

(2) For details on the calculation of our pro forma basic and diluted net loss per share attributable to common stockholders see Notes 10 and 11 to our unaudited and audited consolidated financial statements, respectively, included elsewhere in this prospectus.

	As of June 30, 2020	As of December 31, 2019	2018
	(unaudited)	(in thousands)	
Balance Sheet Data			
Cash and cash equivalents	$ 115,792	$ 21,661	$ 34,492
Working capital(1)	111,392	19,475	32,938
Total assets	119,745	22,073	34,861
Total liabilities	7,127	2,530	1,908
Convertible preferred stock	175,745	69,114	69,114
Accumulated deficit	(68,194)	(54,213)	(40,179)
Total stockholders' deficit	(63,127)	(49,571)	(36,161)

(1) We define working capital as current assets less current liabilities.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our financial statements and the related notes to those statements included elsewhere in this prospectus. In addition to historical financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results and timing of selected events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those discussed under "Risk Factors" and elsewhere in this prospectus. See "Special Note Regarding Forward-Looking Statements."

Overview

We are a clinical stage biopharmaceutical company focused on discovering, developing and commercializing antiviral therapeutics to improve the lives of patients suffering from life threatening viral infections. Leveraging our deep understanding of antiviral drug development, nucleoside biology, and medicinal chemistry, we have built a proprietary purine nucleotide prodrug platform to develop novel product candidates to treat single stranded ribonucleic acid viruses, which are a prevalent cause of severe viral diseases. Currently, we are focused on the development of orally available, potent, and selective nucleotide prodrugs for difficult to treat, life-threatening viral infections, including SARS-CoV-2, the virus that causes COVID-19, HCV, dengue virus, and RSV.

Since our formation in July 2012, we have devoted substantially all of our resources to developing our product candidates. We have incurred significant operating losses to date. Our net loss was $14.0 million and $9.1 million for the years ended December 31, 2019 and 2018, respectively. Our net loss was $14.0 million for the six months ended June 30, 2020. As of June 30, 2020, we had an accumulated deficit of $68.2 million. We expect that our operating expenses will increase significantly as we advance our product candidates through preclinical and clinical development, seek regulatory approval, and prepare for and, if approved, proceed to commercialization; acquire, discover, validate and develop additional product candidates; obtain, maintain, protect and enforce our intellectual property portfolio; and hire additional personnel. In addition, upon the completion of this offering, we expect to incur additional costs associated with operating as a public company.

We do not have any product candidates approved for sale and have not generated any revenue since inception. We have funded our operations primarily from the sale and issuance of convertible preferred stock. As of June 30, 2020, we had cash and cash equivalents of $115.8 million. We believe that our available cash and cash equivalents will be sufficient to fund our planned operations through .

Our ability to generate product revenue will depend on the successful development, regulatory approval and eventual commercialization of one or more of our product candidates. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through private or public equity or debt financings, collaborative or other arrangements with corporate sources, or through other sources of financing. Adequate funding may not be available to us on acceptable terms, or at all. If we fail to raise capital or enter into such agreements as and when needed, we may have to significantly delay, scale back or discontinue the development and commercialization of our product candidates.

We plan to continue to use third-party service providers, including CROs and CMO, to carry out our preclinical and clinical development and to manufacture and supply the materials to be used during the development and commercialization of our product candidates.

We expect to continue to incur significant expenses and operating losses over the next several years. We anticipate that our expenses will increase significantly in connection with our ongoing activities, as we:

- continue clinical development of AT-527 for the treatment of COVID-19;

- re-initiate clinical development of AT-787 for the treatment of HCV;
- continue IND-enabling activities and commence the planned clinical development activities for product candidates for the treatment of dengue;
- continue activities to discover, validate and develop product candidates for the treatment of RSV;
- maintain, expand, protect and enforce our intellectual property portfolio;
- hire additional research, development and general and administrative personnel; and
- incur additional costs associated with operating as a public company upon the closing of this offering.

Components of Results of Operations

Revenue

We have not generated any revenue from product sales and do not expect to generate any revenue from the sale of products in the near future. If our development efforts for our product candidates are successful and result in commercialization, we may generate revenue in the future from a combination of product sales or payments from collaboration or license agreements that we may enter into with third parties.

Operating Expenses

Research and Development Expenses

Substantially all of our research and development expenses consist of expenses incurred in connection with the development of our product candidates. These expenses include fees paid to third parties to conduct certain research and development activities on our behalf, consulting costs, certain payroll and personnel-related expenses, including salaries and bonuses, employee benefit costs and stock-based compensation expenses for our research and product development employees and allocated overhead, including rent, equipment, depreciation, information technology costs and utilities attributable to research and development personnel. We expense both internal and external research and development expenses as they are incurred. In circumstances where amounts have been paid in advance or in excess of costs incurred, we record a prepaid expense, which is expensed as services are performed or goods are delivered.

A significant portion of our research and development costs have been external costs, which we track by therapeutic area. Our internal research and development costs are primarily personnel-related costs, facility costs, including depreciation and lab consumables. We have not historically tracked our internal research and development expenses by therapeutic area basis as they are deployed across multiple programs. The following table summarizes our external research and development expenses by indication and internal research and development expenses:

	Six Months Ended June 30,		Years Ended December 31,	
	2020	2019	2019	2018
	(in thousands)			
HCV external costs	$ 1,683	$ 2,353	$ 5,837	$ 2,979
COVID-19 external costs	5,487	—	—	—
Dengue external costs	1,049	207	768	297
RSV external costs	660	656	1,379	1,790
Internal research and development costs	1,697	1,054	2,186	1,609
Total research and development costs	$ 10,576	$ 4,270	$ 10,170	$ 6,675

We are focusing substantially all of our resources on the development of our product candidates, particularly AT-527. We expect our research and development expenses to increase substantially following this offering and for at least the next few years, as we seek to initiate additional clinical trials for our product candidates, complete our clinical programs, pursue regulatory approval of our product candidates and prepare for the possible commercialization of these product candidates. Predicting the timing or cost to complete our clinical programs or validation of our commercial manufacturing and supply processes is difficult and delays may occur because of many factors, including factors outside of our control. For example, if the FDA or other regulatory authorities were to require us to conduct clinical trials beyond those that we currently anticipate, we could be required to expend significant additional financial resources and time on the completion of clinical development. Furthermore, we are unable to predict when or if our product candidates will receive regulatory approval with any certainty.

General and Administrative Expenses

General and administrative expenses consist principally of payroll and personnel expenses, including salaries and bonuses, benefits and stock-based compensation expenses, professional fees for legal, consulting, accounting and tax services, allocated overhead, including rent, equipment, depreciation, information technology costs and utilities, and other general operating expenses not otherwise classified as research and development expenses.

We anticipate that our general and administrative expenses will increase as a result of increased personnel costs, expanded infrastructure and higher consulting, legal and accounting services costs associated with complying with Nasdaq and SEC requirements, investor relations costs and director and officer insurance premiums associated with being a public company.

Interest Income and Other, Net

Interest income and other, net, consists primarily of interest income earned on our cash and cash equivalents.

Results of Operations

Comparison of the Six Months Ended June 30, 2020 and 2019

The following table summarizes our results of operations for the periods indicated:

	Six Months Ended June 30,		
	2020	2019	Change
	(in thousands)		
Operating expenses:			
Research and development	$ 10,576	$ 4,270	$ 6,306
General and administrative	3,472	1,820	1,652
Total operating expenses	14,048	6,090	7,958
Loss from operations	(14,048)	(6,090)	(7,958)
Interest income and other, net	67	343	(276)
Net loss	$ (13,981)	$ (5,747)	$ (8,234)

Research and Development Expenses

Research and development expenses increased by $6.3 million from $4.3 million for the six months ended June 30, 2019 to $10.6 million for the six months ended June 30, 2020. The increase in research and

development expenses was primarily due to the advancement of product candidates for the treatment of COVID-19 and dengue and reflected an increase in expenses incurred related to CRO and CMO services of $5.7 million and a $0.6 million increase in consulting, payroll and personnel-related expenses, including salaries and bonuses, benefits and stock-based compensation expense for our research and product development employees.

General and Administrative Expenses

General and administrative expenses increased by $1.7 million from $1.8 million for the six months ended June 30, 2019 to $3.5 million for the six months ended June 30, 2020. The increase in general and administrative expenses was primarily due to the expansion of our organization and reflected an increase in professional fees of $1.1 million; payroll and personnel- related expenses, including salaries, benefits and stock-based compensation expense, of $0.3 million; a license termination fee of $0.2 million; and an increase in other general and administrative expenses $0.1 million.

Interest Income and Other, Net

Interest income and other, net, decreased by $0.3 million for the six months ended June 30, 2020 compared to the six months ended June 30, 2019, primarily due to lower average cash and cash equivalents balances and lower interest rates.

Comparison of the Years Ended December 31, 2019 and 2018

The following table summarizes our results of operations for the periods indicated:

	Years Ended December 31,		
	2019	2018	Change
	(in thousands)		
Operating expenses:			
Research and development	$ 10,170	$ 6,675	$ 3,495
General and administrative	4,438	2,802	1,636
Total operating expenses	14,608	9,477	5,131
Loss from operations	(14,608)	(9,477)	(5,131)
Interest income and other, net	574	413	161
Net loss	$ (14,034)	$ (9,064)	$ (4,970)

Research and Development Expenses

Research and development expenses increased by $3.5 million from $6.7 million for the year ended December 31, 2018 to $10.2 million for the year ended December 31, 2019. The increase in research and development expenses was primarily due to the advancement of preclinical, manufacturing and clinical expense of $2.9 million related to product candidates for the treatment of HCV and an increase of $0.5 million in consulting, payroll and personnel-related expenses, including salaries and bonuses, benefits and stock-based compensation expense.

General and Administrative Expenses

General and administrative expenses increased by $1.6 million from $2.8 million for the year ended December 31, 2018 to $4.4 million for the year ended December 31, 2019. The increase in general and administrative expenses was primarily due to the expansion of our organization and reflected an increase of $0.5 million in payroll and personnel-related expenses, including salaries, benefits and stock-based compensation expense; and an increase in other general and administrative expenses, including legal and accounting of $1.1 million.

Interest Income and Other, Net

Interest income and other, net increased by $0.2 million for year ended December 31, 2019 from the year ended December 31, 2018 due higher average cash and cash equivalent balances during the year.

Liquidity and Capital Resources

Sources of Liquidity

Since our formation in 2012 through June 30, 2020, we have funded our operations with an aggregate of $178.1 million in gross cash proceeds from the sale of convertible preferred stock. As of June 30, 2020, we had cash and cash equivalents of $115.8 million. The Series D investors are obligated to purchase $35.8 million of Series D-1 convertible preferred stock if we achieve a clinical development milestone as defined in the agreement. In addition, the investors have the option to purchase up to $71.7 million of Series D-1 convertible preferred stock following the aforementioned clinical development milestone and receipt of certain additional preclinical data. Unless previously exercised, the option to purchase the shares of Series D-1 convertible preferred stock will terminate (i) eight days after the filing of the registration statement relating to this offering or (ii) in the event that the clinical development milestone discussed above occurs after the filing of the registration statement relating to this offering and prior to the consummation of the offering, upon the consummation of the offering.

Future Funding Requirements

We have incurred net losses since our inception. For the years ended December 31, 2019 and 2018, we incurred net losses of $14.0 million and $9.1 million, respectively. For the six months ended June 30, 2020 we incurred a net loss of $14.0 million and expect to incur substantial additional losses in future periods. As of June 30, 2020, we had an accumulated deficit of $68.2 million. Based on our current business plan, we believe that our existing cash and cash equivalents will be sufficient to fund our planned operations into .

To date, we have not generated any revenue. We do not expect to generate any meaningful revenue unless and until we obtain regulatory approval of and commercialize any of our product candidates or enter into collaborative agreements with third parties, and we do not know when, or if, either will occur. We expect to continue to incur significant losses for the foreseeable future, and we expect the losses to increase as we continue the development of, and seek regulatory approvals for, our product candidates and begin to commercialize any approved products. We are subject to all of the risks typically related to the development of new product candidates, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. Moreover, following the completion of this offering, we expect to incur additional costs associated with operating as a public company.

We will continue to require additional capital to develop our product candidates and fund operations for the foreseeable future. We may seek to raise capital through private or public equity or debt financings, collaborative or other arrangements with corporate sources, or through other sources of financing. We anticipate that we will need to raise substantial additional capital, the requirements for which will depend on many factors, including:

- the scope, timing, rate of progress and costs of our drug discovery efforts, preclinical development activities, laboratory testing and clinical trials for our product candidates;
- the number and scope of clinical programs we decide to pursue;
- the cost, timing and outcome of preparing for and undergoing regulatory review of our product candidates;
- the scope and costs of development and commercial manufacturing activities;
- the cost and timing associated with commercializing our product candidates, if they receive marketing approval;

- the extent to which we acquire or in-license other product candidates and technologies;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- our efforts to enhance operational systems and our ability to attract, hire and retain qualified personnel, including personnel to support the development of our product candidates and, ultimately, the sale of our products, following regulatory approval;
- our implementation of operational, financial and management systems; and
- the costs associated with being a public company.

A change in the outcome of any of these or other variables with respect to the development of any of our product candidates could significantly change the costs and timing associated with the development of that product candidate. Furthermore, our operating plans may change in the future, and we will continue to require additional capital to meet operational needs and capital requirements associated with such operating plans. If we raise additional funds by issuing equity securities, our stockholders may experience dilution. Any future debt financing into which we enter may impose upon us additional covenants that restrict our operations, including limitations on our ability to incur liens or additional debt, pay dividends, repurchase our common stock, make certain investments or engage in certain merger, consolidation or asset sale transactions. Any debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders.

Adequate funding may not be available to us on acceptable terms or at all. Our failure to raise capital as and when needed could have a negative impact on our financial condition and our ability to pursue our business strategies. If we are unable to raise additional funds when needed, we may be required to delay, reduce, or terminate some or all of our development programs and clinical trials or we may also be required to sell or license to others rights to our product candidates in certain territories or indications that we would prefer to develop and commercialize ourselves. If we are required to enter into collaborations and other arrangements to supplement our funds, we may have to give up certain rights that limit our ability to develop and commercialize our product candidates or may have other terms that are not favorable to us or our stockholders, which could materially affect our business and financial condition.

See the section of this prospectus titled “Risk Factors” for additional risks associated with our substantial capital requirements.

Summary Statement of Cash Flows

The following table sets forth the primary sources and uses of cash, cash equivalents, and restricted cash for each of the periods presented below:

	Six Months Ended June 30,		Years Ended December 31,	
	2020	2019	2019	2018
	(in thousands)			
Net cash (used in) provided by:				
Operating activities	$ (12,306)	$(5,207)	$ (12,814)	$ (7,908)
Investing activities	(6)	—	(2)	(12)
Financing activities	106,443	—	(15)	27,483
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 94,131	$(5,207)	$ (12,831)	$ 19,563

Cash Flows from Operating Activities

Net cash used in operating activities was $12.3 million for the six months ended June 30, 2020. Cash used in operating activities was primarily due to the use of funds in our operations to develop our product candidates, resulting in a net loss of $14.0 million, offset by stock based compensation of $0.4 million. Additional uses of cash during the period included an increase in prepaid expenses and other current assets of $2.4 million offset by an increase in accounts payable and accrued expenses of $3.7 million.

Net cash used in operating activities was $5.2 million for the six months ended June 30, 2019. Cash used in operating activities was primarily due to the use of funds in our operations to develop our product candidates resulting in a net loss of $5.7 million, offset by stock based compensation of $0.3 million. Additional uses of cash during the period included an increase in accounts payable and accrued expenses of $0.2 million.

Net cash used in operating activities was $12.8 million for the year ended December 31, 2019. Cash used in operating activities was primarily due to the use of funds in our operations to develop our product candidates resulting in a net loss of $14.0 million, offset by stock based compensation of $0.6 million and increases in accounts payable and accrued expenses of $0.6 million.

Net cash used in operating activities was $7.9 million for the year ended December 31, 2018. Cash used in operating activities was primarily due to the use of funds in our operations to develop our product candidates resulting in a net loss of $9.1 million, offset by stock based compensation of $0.4 million and increases and accrued expenses of $0.7 million.

Cash Flows from Financing Activities

Net cash provided by financing activities was $106.4 million for the six months ended June 30, 2020, which consisted primarily of $106.6 million of net proceeds from the sale of Series D convertible preferred stock partially offset by payment of deferred offering costs of $0.2 million.

Net cash provided by financing activities was $27.5 million for the year ended December 31, 2018, which consisted primarily of $27.4 million of net proceeds from the sale of Series C convertible preferred stock.

Contractual Obligations and Commitments

We lease our office space under a non-cancelable operating lease in Boston, Massachusetts, that expires in July 2022. The following table summarizes our contractual obligations as of December 31, 2019:

	Payments Due by Period				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
	(in thousands)				
Operating lease obligations	$ 335	$ 540	$ —	$ —	$ 875

We enter into contracts in the normal course of business with third-party contract organizations for preclinical and clinical studies and testing, manufacture and supply of our preclinical materials and other services and products used for operating purposes. These contracts do not contain any minimum purchase commitments and generally provide for termination following a certain period after notice, and therefore we believe that our non-cancelable obligations under these agreements are not material. Payments due upon cancelation consist only of payments for services provided and expenses incurred up to the date of cancelation.

The table above also does not include potential milestone and success fees that we may be required to pay under agreements we have entered into with certain consultants. We have an agreement with a consultant that requires payment of a success fee of up to a maximum of $1.75 million if a business development transaction that meets or exceeds certain thresholds is executed on or before December 31, 2020. We also have an

agreement with a consultant that requires payment of a success fee calculated as a percentage of certain product sales, subject to a cumulative maximum payout of $5.0 million. We have not included such potential obligations in the table above because they are contingent upon the occurrence of future events and the timing and likelihood of such potential obligations are not known with certainty.

Critical Accounting Policies, Significant Judgments and Use of Estimates

Our financial statements have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported expenses incurred during the reporting periods. Our estimates are based on our historical experience 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. Actual results may differ from these estimates under different assumptions or conditions. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

Accrued Research and Development

We have entered into various agreements with CMOs and CROs. Our research and development accruals are estimated based on the level of services performed, progress of the studies, including the phase or completion of events, and contracted costs. The estimated costs of research and development provided, but not yet invoiced, are included in accrued liabilities on the balance sheet. If the actual timing of the performance of services or the level of effort varies from the original estimates, we will adjust the accrual accordingly. Payments made to CMOs and CROs under these arrangements in advance of the performance of the related services are recorded as prepaid expenses and other current assets until the services are rendered. 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 use a fair value-based method to account for all stock-based compensation arrangements with employees and non-employees, including stock options and stock awards. The fair value of the option granted is recognized on a straight-line basis over the period during which an optionee is required to provide services in exchange for the option award, known as the requisite service period, which usually is the vesting period. In determining fair value of the stock options granted, we use the Black–Scholes model, which requires the input of subjective assumptions. These assumptions include: estimating the fair market value of the common stock, estimating the length of time employees will retain their vested stock options before exercising them (expected term), the estimated volatility of our common stock price over the expected term (expected volatility), risk-free interest rate and expected dividends. See Note 9 to our audited and unaudited consolidated financial statements included elsewhere in this prospectus for information concerning certain of the specific assumptions we used in applying the Black-Scholes option pricing model to determine the estimated fair value of our stock options granted during the six months ended June 30, 2020 and the years ended December 31, 2019 and 2018, respectively. Estimating the fair value of our common stock involves significant judgement and the use of estimates.

Estimating the Fair Value of Common Stock

We are required to estimate the fair value of the common stock underlying our share-based awards when performing the fair value calculations using the Black-Scholes option pricing model. Because our common stock is not currently publicly traded, the fair value of the common stock underlying our stock options has been determined on each grant date by our board of directors, with input from management, considering the most recently available third-party valuation of our common shares. All options to purchase shares of our common stock are intended to be granted with an exercise price per share no less than the estimated fair value per share of our common stock underlying those options on the date of grant, based on the information known to us on the date of grant.

In the absence of a public trading market for our common stock, on each grant date, we develop an estimate of the fair value of our common stock based on valuations from an independent third-party valuation firm using information known to us on the date of grant, a review of any recent events and their potential impact on the estimated fair value per share of the common stock.

The third-party valuations of our common stock were determined in accordance with the guidelines outlined in the American Institute of Certified Public Accountants Practice Aid, Valuation of Privately-Held-Company Equity Securities Issued as Compensation, or the Practice Aid.

The assumptions used to determine the estimated fair value of our common stock are based on numerous objective and subjective factors, combined with management judgment, including:

- external market conditions affecting the pharmaceutical and biotechnology industry and trends within the industry;
- our stage of development and business strategy;
- the rights, preferences and privileges of our redeemable convertible preferred stock relative to those of our common stock;
- the prices at which we sold shares of our redeemable convertible preferred stock;
- our financial condition and operating results, including our levels of available capital resources;
- the progress of our research and development efforts;
- equity market conditions affecting comparable public companies; and
- general U.S. market conditions and the lack of marketability of our common stock.

The Practice Aid identifies various available methods for allocating enterprise value across classes and series of capital stock to determine the estimated fair value of common stock at each valuation date. In accordance with the Practice Aid, we considered the following methods:

- *Option Pricing Method.* Under the option pricing method, or OPM, shares are valued by creating a series of call options with exercise prices based on the liquidation preferences and conversion terms of each equity class. The estimated fair values of the preferred and common stock are inferred by analyzing these options.
- *Probability-Weighted Expected Return Method.* The probability-weighted expected return method, or PWERM, is a scenario-based analysis that estimates value per share based on the probability-weighted present value of expected future investment returns, considering each of the possible outcomes available to us, as well as the economic and control rights of each share class.

Based on our early stage of development and other relevant factors, we determined that OPM method as well as a hybrid approach of the OPM and the PWERM methods were the most appropriate methods for allocating

our enterprise value to determine the estimated fair value of our common stock. In determining the estimated fair value of our common stock, our board of directors also considered the fact that our stockholders could not freely trade our common stock in the public markets. Accordingly, we applied discounts to reflect the lack of marketability of our common stock based on the weighted-average expected time to liquidity. The estimated fair value of our common stock at each grant date reflected a non-marketability discount partially based on the anticipated likelihood and timing of a future liquidity event.

Following the completion of this offering, the fair value of our common stock will be based on the closing quoted market price of our common stock.

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:

Grant date	Number of 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]
April 6, 2018	75,000	$ 1.53	$ 1.53	$ 0.94
December 14, 2018	935,000	$ 1.43	$ 1.43	$ 0.71
July 31, 2019	116,891	$ 1.43	$ 1.43	$ 0.87
September 20, 2019	75,000	$ 1.43	$ 1.43	$ 0.66
December 13, 2019	899,742	$ 1.85	$ 1.85	$ 1.26
April 3, 2020	293,861	$ 1.57	$ 1.57	$ 1.08
August 3, 2020	1,490,000	$ 6.83	$ 6.83	$ 4.96
August 17, 2020	1,005,000	$ 6.84	$ 6.84	$ 5.08
August 26, 2020	620,000	$ 6.85	$ 6.85	$ 5.09
October 1, 2020	160,000	$ 8.02	$ 8.02	$ 5.98

(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 valuation of our common stock

(2) The per share estimated fair value of award represents the weighted average fair value of options as estimated at the date of grant using the Black-Scholes option pricing model.

Off-Balance Sheet Arrangements

Since our inception, we have not engaged in any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Indemnification Agreements

We enter into standard indemnification arrangements in the ordinary course of business. Pursuant to these arrangements, we indemnify, hold harmless and agree to reimburse the indemnified parties for losses suffered or incurred by the indemnified party, including in connection with any trade secret, copyright, patent or other intellectual property infringement claim by any third party with respect to its technology. The term of these indemnification agreements is generally perpetual any time after the execution of the agreement. The maximum potential amount of future payments we could be required to make under these arrangements is not determinable. We have never incurred costs to defend lawsuits or settle claims related to these indemnification agreements. As a result, we believe the fair value of these agreements is minimal.

We have also agreed to indemnify our directors and officers for certain events or occurrences while the director or officer is, or was serving, at our request in such capacity. The indemnification period covers all pertinent events and occurrences during the director’s or officer’s service. The maximum potential amount of future payments we could be required to make under these indemnification agreements is not specified in the

agreements; however, we have director and officer insurance coverage that reduces our exposure and enables us to recover a portion of any future amounts paid. We believe the estimated fair value of these indemnification agreements in excess of applicable insurance coverage is minimal.

JOBS Act Accounting Election

The Jumpstart Our Business Startups Act of 2012 (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. We have elected to avail ourselves of this exemption from new or revised accounting standards, and, therefore, will not be subject to the same new or revised accounting standards as public companies that are not emerging growth companies. We intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act.

We will remain an emerging growth company until the earliest to occur of: (1) the last day of our first fiscal year in which we have total annual revenues of more than $1.07 billion; (2) the date we qualify as a "large accelerated filer," with at least $700.0 million of equity securities held by non-affiliates; (3) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period; and (4) the last day of the fiscal year ending after the fifth anniversary of our initial public offering.

Recently Issued Accounting Pronouncements

See the section titled "Summary of Significant Accounting Policies—Recently Issued Accounting Pronouncements" in Note 2 to our consolidated financial statements included elsewhere in this prospectus for additional information.

Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Sensitivity

The market risk inherent in our financial instruments and in our financial position represents the potential loss arising from adverse changes in interest rates or exchange rates. As of June 30, 2020, we had cash and cash equivalents of $115.8 million, consisting of interest-bearing money market funds for which the fair value would be affected by changes in the general level of U.S. interest rates. However, due to the short-term maturities and the low-risk profile of our cash equivalents, an immediate 10% relative change in interest rates would not have a material effect on the fair value of our cash equivalents or on our future interest income.

We do not believe that inflation, interest rate changes or foreign currency exchange rate fluctuations have had a significant impact on our results of operations for any periods presented herein.

BUSINESS

Overview

We are a clinical-stage biopharmaceutical company focused on discovering, developing and commercializing antiviral therapeutics to improve the lives of patients suffering from life-threatening viral infections. Leveraging our deep understanding of antiviral drug development, nucleoside biology, and medicinal chemistry, we have built a proprietary purine nucleotide prodrug platform to develop novel product candidates to treat single stranded ribonucleic acid, or ssRNA, viruses, which are a prevalent cause of severe viral diseases. Currently, we are focused on the development of orally available, potent, and selective nucleotide prodrugs for difficult-to-treat, life-threatening viral infections, including severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2, the virus that causes COVID-19, hepatitis C virus, or HCV, dengue virus, and respiratory syncytial virus, or RSV. We believe our team's expertise from decades of developing innovative antiviral treatments uniquely positions us to advance medicines that have the potential to cure some of the world's most severe viral diseases by inhibiting the enzymes central to viral replication.

Over the last 40 years, nucleoside and nucleotide, or together, nucleos(t)ide, analogs have been developed to mimic naturally occurring nucleic acids and block viral replication by inhibiting enzymes involved in RNA and DNA viral growth cycles. Nucleos(t)ide analogs have become the backbone of therapies that treat life-threatening viral infections, including human immunodeficiency virus, or HIV, hepatitis B, or HBV, and HCV. Our expertise has allowed us to develop a proprietary platform, which facilitates the development of product candidates that combine unique purine nucleotide scaffolds with a novel double prodrug strategy. We believe that utilizing this double prodrug moiety approach allows us to maximize formation of the active metabolite, potentially resulting in oral antiviral product candidates that are selective for and highly effective at preventing replication of ssRNA viruses while avoiding toxicity to host cells. We have produced a large library of nucleoside and nucleotide prodrugs specifically designed to target viral RNA-dependent RNA polymerase, or RdRp, a key enzyme that is encoded in the viral genome. All ssRNA viruses, including SARS-CoV-2 and HCV, depend on RdRp for replication and transcription and, since viral RdRp is not present in the host cell, RdRp is an ideal target to inhibit virus replication.

Our lead product candidate, AT-527, is an orally administered, novel antiviral agent for the treatment of patients infected with SARS-CoV-2, which causes COVID-19. AT-527 has been shown to be well tolerated and highly effective against HCV in Phase 2 clinical trials with HCV-infected subjects and this highly selective antiviral activity has now been demonstrated *in vitro* against SARS-CoV-2. The RdRps in SARS-CoV-2 support the transcription and replication of the approximately 30,000-nucleotide RNA viral genome. The RdRps in SARS-CoV-2 and severe acute respiratory syndrome coronavirus 1, or SARS-CoV, the virus that causes severe acute respiratory disease, are the largest and most complex RdRps among RNA viruses. AT-527 was specifically designed as a purine nucleotide prodrug to inhibit viral RdRp and has shown *in vitro* activity in several assays against human coronaviruses, including SARS-CoV and SARS-CoV-2. We are currently evaluating AT-527 in a randomized, double blind, placebo-controlled Phase 2 trial in approximately 190 adult patients with moderate COVID-19 and one or more risk factors for poor outcomes. We dosed our first patient in September 2020 and expect to report topline data from this trial in the first half of 2021. We anticipate initiating a Phase 3 clinical trial to study AT-527 in adult patients with mild to moderate COVID-19 requiring outpatient management in the first half of 2021.

We are also developing additional small molecule antiviral product candidates for the treatment of HCV, dengue virus and RSV:

- For the treatment of chronic HCV infection, we have created a novel combination of AT-527 with AT-777, a nonstructural protein 5A, or NS5A, inhibitor into a single, oral, pan-genotypic fixed-dose combination product candidate, AT-787. Despite significant recent advances in treatment, HCV remains a global health burden due to the limitations of currently available treatment options. We believe that AT-787 has the potential to offer a

short duration protease-sparing regimen for HCV-infected patients with or without cirrhosis. For patients with decompensated cirrhosis, a life-threatening stage of liver disease, AT-787 has the potential to treat these patients without the co-administration of ribavirin. Upon the resolution of industry wide clinical trial challenges associated with the COVID-19 pandemic, we expect to initiate our Phase 1/2A clinical trial, which is designed to evaluate the safety and pharmacokinetics, or PK, of different dosages of AT-777 in healthy adults and to evaluate the combination of AT-527 and AT-777 in HCV infected subjects.

- AT-752 is an oral, purine nucleotide prodrug for the treatment of dengue virus – a disease that infects up to 400 million people a year for which there are currently no therapies approved by either the U.S. Federal Food and Drug Administration, or the FDA, or European Medicines Agency, or EMA. AT-752 targets the inhibition of the dengue viral polymerase and, in preclinical studies, AT-752 showed potent *in vitro* activity against all serotypes tested as well as potent *in vivo* antiviral activity in a small animal model. We expect to initiate a randomized, double-blind, placebo-controlled Phase 1 trial to evaluate the safety and PK, of different dosages of AT-752 in healthy adults in the first half of 2021. Following the completion of the Phase 1 trial, we expect to initiate a Phase 2 trial to evaluate the antiviral activity, safety and PK of AT-752 in adult patients with dengue in the first half of 2021.
- We are evaluating two lead compounds, AT-889 and AT-934, second-generation nucleoside pyrimidine prodrugs and other compounds for the treatment of RSV. AT-889 and AT-934 inhibit RNA polymerase through both initiation of viral replication and viral transcription and showed potent *in vitro* activity in several cell based assays against RSV. In the second half of 2021, we expect to file an IND or CTA and initiate clinical development of our selected product candidate.

All of our product candidates have been discovered and developed internally and we retain full global rights to commercialize our product candidates. The following table summarizes our orally administered product candidate pipeline.

[1] AT-787 is our selected product candidate for the treatment of HCV

Our team

Our management team has significant experience discovering, developing and commercializing antiviral therapies for life-threatening viral infections. Our Founder, Chairman, and Chief Executive Officer, Jean-Pierre Sommadossi, Ph.D., has over 30 years of scientific, operational, strategic, and management experience in the biopharmaceutical industry, and holds more than 60 U.S. patents related to the treatment of infectious disease and cancer. Dr. Sommadossi was the principal founder of Idenix Pharmaceuticals, Inc., or Idenix, which was acquired by Merck & Co., Inc. in 2014, and a co-founder of Pharmasset, Inc., or Pharmasset, which was acquired by Gilead Sciences, Inc. in 2012.

We have assembled an experienced management and scientific team with a track record of success in the field of antiviral drug development, many of whom have worked together previously. Our team has significant expertise in nucleos(t)ide chemistry and biology and has applied that expertise towards the discovery and development of innovative antiviral treatments, including Epivir, Sovaldi, Tyzeka, Valtrex, Wellferon, Videx, Reyataz, Sustiva, Mavyret, Xofluza, Relenza and Zerit. Members of our team have held senior positions at AstraZeneca plc, GlaxoSmithKline plc, Chiron, Novartis International AG, Biogen, F. Hoffmann La Roche, Abbvie, Bristol Myers Squibb, Shire, Biohaven Pharma, Pharmasset, Idenix, Valeant Pharmaceuticals International and Alnylam Pharmaceuticals.

We have been supported by a leading syndicate of investors, which include Adage, Aju IB Investment, Ally Bridge Group, Bain Capital Life Sciences, Cormorant Asset Management, Morningside Ventures, Omega Funds, Perceptive Advisors, PICTET, RA Capital, Redmile Group, RMI Partners, Rock Springs Capital, Sectoral Asset Management, T. Rowe Price and Valence Life Sciences.

Our strategy

Our goal is to become a global leader in the discovery, development, and commercialization of novel antiviral therapies for severe or life-threatening viral infections. We intend to achieve this goal by pursuing the following strategies:

- ***Rapidly complete development and obtain approval for our lead product candidate, AT-527, an oral drug for the treatment of COVID-19***. We are currently evaluating AT-527 in a randomized, double-blind, placebo-controlled Phase 2 trial in approximately 190 adult patients with moderate COVID-19 and one or more risk factors for poor outcomes. We dosed the first patient in September 2020 and expect to report topline data from this trial in the first half of 2021. We intend to initiate a AT-527 Phase 3 trial enrolling patients with mild to moderate COVID-19 requiring outpatient management in the first half of 2021. We intend to work closely with the FDA and other regulatory authorities as we plan and implement our clinical trials to align on the most efficient regulatory pathway and may seek expedited development review programs such as Breakthrough Therapy designation.
- ***Deploy our medicinal chemistry expertise and proprietary purine nucleotide platform against severe ssRNA viruses with high unmet need.*** We are also developing additional small molecule antiviral product candidates for the treatment of HCV, dengue virus and RSV. We are developing AT-787, a co-formulated, oral, pan-genotypic fixed dose combination of AT-527 and AT-777, for the treatment of HCV. We believe AT-787 has the potential to shorten treatment duration compared to existing therapies, cure difficult-to-treat populations not currently served by existing therapies, and eliminate the need for ribavirin in patients suffering from decompensated cirrhosis. We are also developing AT-752 for the treatment of dengue virus, which we believe has the potential to be the first approved treatment for dengue fever – a disease that infects up to 400 million people each year. Finally, we are developing AT-889 and AT-934, second-generation nucleoside pyrimidine prodrugs, and other compounds for the treatment of RSV. We believe that the product candidate we develop could be the first therapy in over 30 years to be approved specifically for the treatment of RSV.

- ***Focus on excellent clinical and regulatory execution.*** We believe that building a successful antiviral-focused company requires very specific expertise in the areas of clinical study design and conduct and regulatory strategy. We have assembled a team with a successful track record of managing global clinical development activities in an efficient manner, and with multinational experience in obtaining regulatory approvals for antiviral therapeutics. Due to the high unmet need of the patients we seek to treat, we intend to work closely with the FDA and EMA to align on the most efficient regulatory pathways for our product candidates.
- ***Maximize the value of our product candidates.*** We generally intend to retain global commercialization rights to our product candidates, which we believe will allow us to retain the greatest potential value of our product portfolio. However, we may opportunistically enter into collaborations where we believe there is an opportunity, particularly outside the United States, to accelerate the development of our product candidates and commercialization of products, if any, that we successfully develop. Currently, we plan to establish our own commercial organization in the United States and we may build additional organizations in other selected markets for any of our product candidates that are approved.
- ***Maintain our entrepreneurial outlook, scientifically rigorous approach, and culture of tireless commitment to patients.*** The patients we seek to treat suffer from life-threatening viral infections for which there are no approved therapies or the therapies that are approved have significant drawbacks which may include limited efficacy, or issues with safety and/or tolerability. Members of our team have dedicated their lives to discovering, developing, and commercializing novel antiviral therapies for severe or life-threatening viral infections. We intend to continue building our team of qualified individuals who share our commitment to collaboration and scientific rigor in the development of novel antiviral therapies that have the potential to treat or cure some of the world's most severe viral diseases.

Antiviral therapy

Background on viruses

Viruses are cellular parasites that can only replicate using a host cell's replication processes, as viruses lack the machinery required to survive and replicate on their own. Unlike living organisms that use DNA as the basis for their genetic material, viruses can use either DNA or RNA. Approximately 70% of all viruses are RNA viruses.

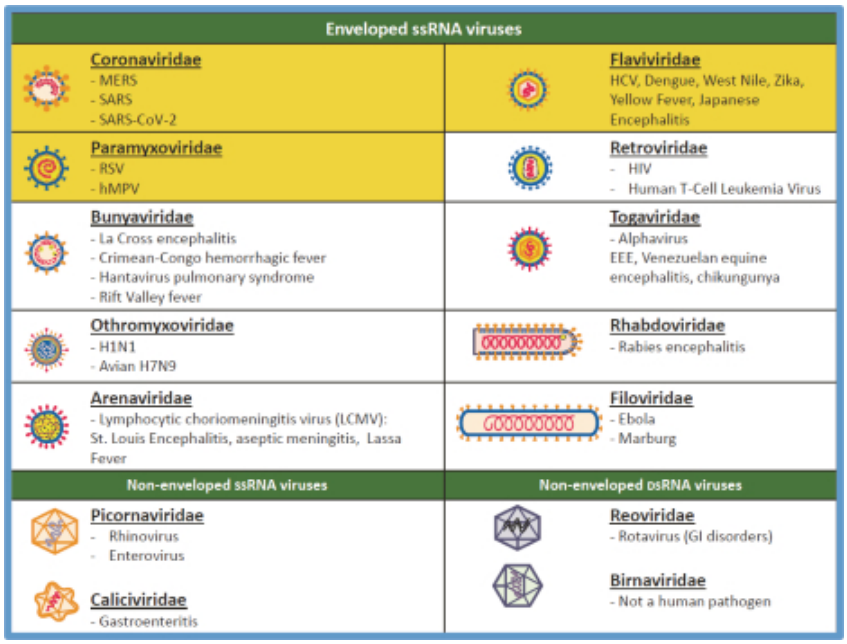
Viruses have two primary components: nucleic acid (single or double stranded RNA or DNA) and a protective shell (the capsid). Some viruses may also have a lipid bilayer (the envelope) surrounding the capsid, an additional membrane derived from host cell membranes that contains viral proteins.

The viral replication process begins when a virus attaches itself to a specific receptor site on the host-cell membrane through attachment proteins. The replication mechanism is dependent upon whether the virus is an RNA or DNA virus. DNA viruses use host cell proteins and enzymes to make additional DNA that is used to copy the viral genome or is transcribed to messenger RNA, or mRNA. RNA viruses use their RNA as a template for synthesis of viral genomic RNA and mRNA. The mRNA then instructs the host cell to assemble viral structural proteins. Finally, the newly created virus particles, or virions, are released from the host cell in order to repeat the infection and replication cycle. RNA viruses can be particularly challenging to treat, as the error rates around the RdRp enzyme directed RNA synthesis cause high mutation rates during reproduction, creating resistance challenges for antiviral therapies.

Background of ssRNA viruses

RNA viruses can be ssRNA viruses or double-stranded, or dsRNA, viruses, depending on the type of RNA used as the genetic material. A virus encased within a lipid bilayer is known as an enveloped virus, while a virus without

this bilayer is called a non-enveloped virus. Enveloped ssRNA viruses are the more prevalent cause of severe human viral diseases. Studies from the last decade have placed RNA viruses as primary etiological agents of many emerging human pathogens, representing as much as up to 50% of all emerging infectious diseases. Types of enveloped and non-enveloped ssRNA viruses and some of the diseases they cause are shown in the table below, with the types of ssRNA viruses that we are currently targeting with our product candidates highlighted in yellow.



Over the last 40 years, a great deal of progress has been made in the treatment of some of the most severe viral infections. However, many highly pathogenic ssRNA viruses, such as SARS-CoV-2 and dengue virus, remain untreated.

Viral polymerase as an antiviral target

From the discovery and approval of the first antiviral drug in 1963, there have been more than 100 antiviral drugs approved in the United States for the treatment of nine different human viral diseases. A historical challenge with the treatment of intracellular viruses has been selectivity or discovering drug targets that can completely inhibit viral replication without harming the host cells, leading to toxic side effects. Advances in technology and high throughput screening in recent years have driven the discovery of more selective antiviral product candidates. The viral polymerase, which is the single protein present in all RNA viruses, is a key enzyme in the replication of viruses, making for an ideal drug target as its core structural features are highly conserved across different viruses. There are four types of viral polymerase, depending upon the virus and its genomic makeup:

- RdRp: All ssRNA viruses, including SARS-CoV-2 and HCV, depend on the RdRp, encoded in the viral genome, for replication and transcription. Since these enzymes are not present in the host cell, this facilitates the design of selective inhibitors of viral replication, which target viral but not host cell polymerases.
- DNA-dependent DNA polymerase, or DdDP: DdDP is used by DNA viruses to replicate their genome.

- RNA-dependent DNA polymerase, or reverse transcriptase: Reverse transcriptase is used by certain DNA or RNA viruses, such as HBV and HIV-1, to replicate their genomes.
- DNA-dependent RNA polymerase, or DdRP: DdRP is used by DNA viruses to transcribe mRNA from DNA templates during replication.

As RdRp-based synthesis does not occur in human host cells, antiviral drug development for RNA viruses focuses on identifying selective drug-like molecules that target viral RdRp. Advances in technology have enabled intensive structural and functional studies of viral polymerase and have opened avenues for the development of new and more effective antiviral therapies.

Viral resistance and mutations

A major obstacle to antiviral therapy is viral resistance. Resistance is a function of a virus' ability to genetically mutate, which, in the case of RNA viruses, is substantially higher than DNA viruses, as most RdRp lack proofreading abilities. The rate of mutation of RNA viruses can occur at six orders of magnitude greater than the rate of mutation of host cells. The ability of viruses to evolve makes the design of ssRNA-directed therapies challenging, as these viral strains continue to mutate and become more resistant to certain antiviral therapies over time. Since all the enzymes involved in the metabolic pathway of AT-511 to its active triphosphate are designed to be essentially ubiquitous host cell enzymes and not virally encoded proteins, we believe that the high rate of viral mutation does not affect the activation of the prodrug.

At times, combination therapy has been used to combat viral resistance for specific types of human viral infections. The guiding principles to decide when combination therapy may be needed, include: the in vitro inhibitory potency and human pharmacology of the antiviral; viral replication kinetics in patients; viral polymerase error rate; and whether the viral disease is an acute or a chronic infection. With RNA viruses, the treatment of acute infection, such as influenza is monotherapy (e.g., Tamiflu), as compared to the treatment of chronic infection, such as HCV, is combination therapy (e.g., Epclusa). COVID-19, dengue and RSV are each the result of acute RNA viral infections.

Nucleos(t)ide analogs and prodrugs

Nucleic acid, which comprises human and viral genetic material, is composed of natural chemical compounds termed nucleosides and nucleotides. Nucleos(t)ide analogs are synthetic compounds that mimic naturally occurring nucleic acids, so that viral polymerases mistakenly incorporate these analogs as natural nucleic acids causing inhibition of viral replication. These synthetic nucleic acids, once modified into nucleosides and nucleotides within human cells, target the viral polymerase directly. Nucleos(t)ide analogs, compared to other classes of antiviral therapies have a high barrier to resistance due to the conservation of the nucleotide sequences in the RdRp that is required to produce viable virions.

Prodrugs of nucleos(t)ide analogs have become the backbone of therapies to treat life threatening viral infections, including HIV, HBV, and HCV. Prodrugs are employed to bypass rate limiting activation steps and, improve the oral bioavailability and permeation of cell membranes by the nucleos(t)ide analog.

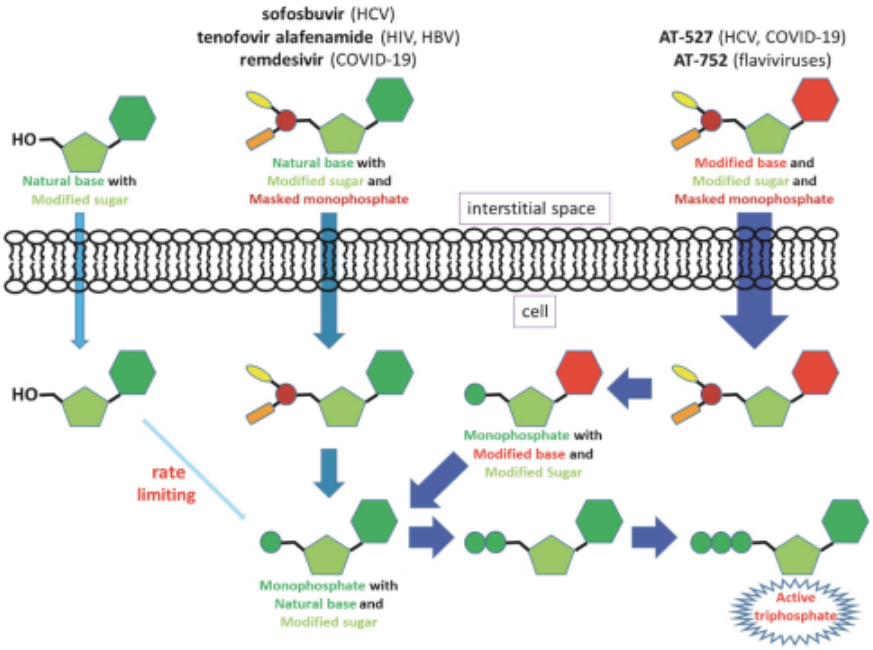
Our platform

Leveraging our deep understanding of antiviral drug development, nucleoside biology, and medicinal chemistry, we have built a proprietary purine nucleotide prodrug platform to develop novel treatments for ssRNA viruses.

Our proprietary nucleotide prodrug platform, as illustrated below, is comprised of the following critical components:

- specific modifications at the 6-position of the purine base, acting as a prodrug, enhance cell membrane permeability, resulting in an intermediate metabolite that maximizes formation of the triphosphate active metabolite in cells;
- stereospecific phosphoramidate, acting as a prodrug, designed to bypass the first rate-limiting phosphorylation enzyme in the intracellular activation pathway;
- specific modifications in the sugar moiety of the purine nucleotide scaffold, producing potent antiviral activity with a high degree of selectivity; and
- highly specific salt form to enhance solubility and drug bioavailability.

Atea's purine nucleotide prodrug platform



We believe that product candidates derived from our platform, which combines unique purine nucleotide scaffolds with a novel double prodrug strategy, have the following potential advantageous characteristics and features:

- enhanced antiviral activity and selectivity, as well as well-established pharmacology and animal models to predict clinical activity;
- favorable safety profile;
- convenience of once- or twice-daily oral administration; and
- efficient, predictable, scalable, and reproducible manufacturing, as well as long shelf life for potential stockpiling.

Our product candidates

Leveraging our proprietary purine nucleotide prodrug platform, we are advancing a pipeline of orally available, potent, and selective product candidates for difficult-to-treat, life threatening viral infections. All of our product candidates have been discovered and developed internally and we retain full global rights to commercialize our product candidates. The following table summarizes our product candidate pipeline.

[1] AT-787 is our selected product candidate for the treatment of HCV

AT-527 for the treatment of COVID-19

SARS-CoV-2

Background

SARS-CoV-2 is a coronavirus, belonging to the *Coronaviridae* family, and is an enveloped virus with a positive sense ssRNA genome which encodes 29 viral proteins. It is one of six other human coronaviruses that exist, with four responsible for one third of common cold infections. To date, no therapies or vaccines have been developed that have proven effective for treating or preventing any of the six discovered coronavirus infections.

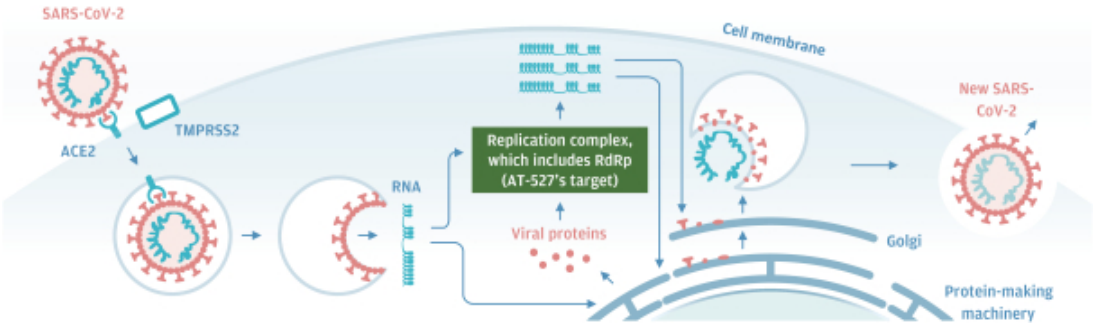
SARS-CoV-2 is structurally similar to two other life-threatening coronaviruses: SARS-CoV and Middle East Respiratory Syndrome coronavirus, or MERS-CoV-1. SARS-CoV-2 impairs respiratory function and spreads primarily from person to person via respiratory droplets among close contacts. Symptoms include fever, cough, shortness of breath and fatigue, with symptoms generally appearing two to 12 days after exposure. Severe complications include pneumonia, multi-organ failure, and death.

SARS-CoV-2 was first identified as part of an investigation into an outbreak in Wuhan, China in December 2019, and is thought to have zoonotic origins. Case fatality rates, which measure the number of deaths as a percentage of total infections, have varied widely across different geographies due to variabilities in testing protocols and associated availability, differing demographics across different countries, differences in access to

high quality healthcare, and variability in public policy responses for virus control. The World Health Organization, or WHO, estimated a case fatality rate of approximately 3% on March 3, 2020. The Centers for Disease Control, or CDC, has identified populations at high risk of severe illness, including the elderly, those residing in a long-term care facility, and those with underlying health conditions.

SARS-CoV-2 is a spherical virus that carries four different structural proteins: spike protein, envelope protein, membrane glycoprotein and nucleocapsid protein. As shown in the illustration below, the infection cycle begins when the spike proteins bind to the angiotensin-converting enzyme 2 cellular receptor, or ACE2, on the surface of the target cells. A second cell surface protein, transmembrane serine protease 2, or TMPRSS2, enables the virion to enter the cell, where it releases its RNA. Some of this RNA is translated into new proteins using the host cell's machinery—these proteins include the four structural proteins, as well as a number of non-structural proteins that form the replication complex. Within this complex, RdRps catalyze the synthesis of the approximately 30,000-nucleotide RNA viral genome. The proteins and RNA are then assembled into a new virion in the Golgi and released through exocytosis.

SARS-CoV-2 replication process



Given the lack of approved treatments or vaccines for SARS-CoV-2 infections, the primary approach employed to slow the potential transmission of the virus has been to confirm infections through diagnostic testing, followed by the isolation of any infected persons or communities. Testing access and capacity have varied greatly across different countries, as have standards required for testing. In the United States, CDC guidelines recommend analyzing a blend of both clinical and epidemiological evidence to determine potential exposure to SARS-CoV-2. If diagnostic testing is then warranted, the CDC recommends collecting and testing upper respiratory tract specimens via nasopharyngeal swab and, if available, the collection of lower respiratory tract specimens.

Based on data from 44,000 SARS-CoV-2 infected patients in China provided by the Chinese Centers for Disease Control and Prevention, researchers observed that approximately 81% of COVID-19 cases were mild to moderate, with an overall fatality rate of approximately 2%. Severe patients, or those with dyspnea, hypoxia, or greater than 50% lung involvement on imaging, represented approximately 14% of patients. A sub-group of approximately 5% of patients constituted the most critical cases, resulting in an approximately 50% fatality rate within this sub-group. In the United States, the CDC has estimated an overall cumulative hospitalization rate reported as of September 19, 2020 of approximately 174.8 per 100,000 people, with the highest rates in the elderly ages 65 years and older.

Market opportunity

As of October 7, 2020, there were more than 35.6 million confirmed cases of COVID-19 worldwide, with more than 7.4 million cases and over 210,000 deaths from COVID-19 in the United States. This rate of mortality has COVID-19 on track to become one of the deadliest pandemics of the century.

Estimates for global peak cumulative infections vary, as epidemiologists have estimated an infection rate of between approximately 40% and 80% of the population. The lower end of this range would translate to total U.S. and global infections of 131 million and 3.1 billion, respectively.

The COVID-19 pandemic has caused a global public health and economic crisis. As a result, we believe governments are likely to stockpile an effective oral treatment for COVID-19. In response to the 2009 H1N1 swine flu pandemic, governments have been stockpiling Tamiflu, with stockpiles in the United States sufficient to treat 25% of the population, and those in France and the United Kingdom sufficient to treat 50% of the population. Due to the significant health and economic impact of COVID-19, we believe that future stockpiles of a safe and effective therapy could exceed those from the 2009 H1N1 swine flu. Given the novelty of COVID-19, the rapidly evolving response to its treatment, the possibility of the introduction of a vaccine, and the extent of subsequent waves, if any, of the pandemic, the market opportunity for a COVID-19 therapeutic is difficult to predict. However, we believe that stockpiling alone of a COVID-19 therapeutic presents a potentially multibillion-dollar market opportunity.

Treatment landscape

Several therapies and vaccines are currently being investigated to treat or prevent SARS-CoV-2 infection. These include small molecules designed to work as direct acting antivirals, which may be administered for both treatment and potentially prophylaxis, and antibody therapies that will require parenteral administration and may have application in both treatment and prevention. In addition to treatments directed at the virus, there are other immunomodulatory therapies such as interleukin-6 inhibitors, steroids, JAK inhibitors, and anti-tumor necrosis factor antibodies which are being developed to treat the host inflammatory response to the disease. Vaccines are being developed to prevent infection, and to create herd immunity, with the aim of preventing disease, and reducing the amount of virus circulating within the community. Antiviral therapies are complementary to vaccines, and we anticipate that antivirals will continue to be essential because of uncertainties around the level of immunity that the vaccines will be able to generate and the durability of such immunity.

Many therapies under investigation for treatment of COVID-19 were originally designed for other diseases, including HIV, Ebola, and malaria. Remdesivir, the prodrug of an adenosine nucleotide analog, developed for the treatment of ebola virus infection has shown *in vitro* activity against several coronaviruses, including SARS-CoV-2, and in interim data from an ongoing clinical trial, it has been shown that remdesivir accelerated recovery in patients with severe COVID-19. Based on these data and an increasing base of available scientific knowledge, the FDA has granted remdesivir emergency use authorization for the treatment of hospitalized patients with suspected or laboratory-confirmed COVID-19, irrespective of the severity of disease. Remdesivir has also received full marketing approval in Japan. The bioavailability of remdesivir requires that it be administered via intravenous infusion, which we believe is likely to limit its use to hospitalized patients.

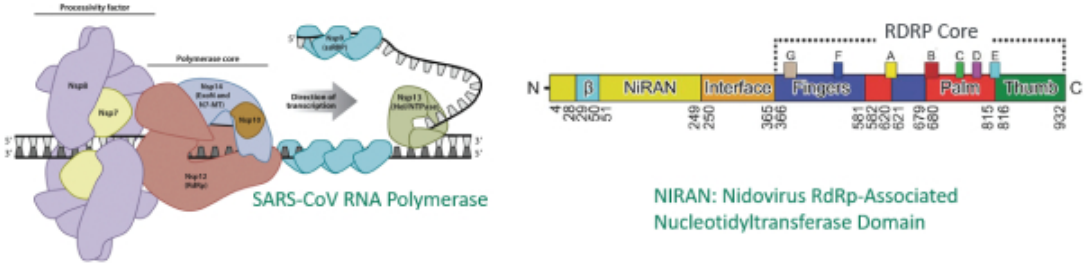
Other therapeutic agents under development for the treatment of COVID-19 that are RdRp inhibitors include favipiravir, a nucleoside analog approved in Japan for the treatment of emerging influenza strains and COVID-19, and EIDD-2801, a nucleoside analog that incorporates into the viral RNA leading to lethal accumulation of mistakes or “error catastrophe”.

An example of a monoclonal antibody in development is REGN-COV2, an antibody cocktail which targets two different areas of the receptor-binding domain on the spike protein of the coronavirus. Preliminary data from the first 275 outpatients enrolled in a Phase 1/2/3 study demonstrated reductions in viral load and time to symptom alleviation in seronegative patients. Antibodies are historically more complex than small molecules to manufacture and are administered parenterally. We believe that these two factors will impact and limit use of antibodies for treatment of patients with COVID-19.

Targeting RdRp to treat SARS-CoV-2

The RdRps in SARS-CoV and SARS-CoV-2 support the transcription and replication of their approximately 30,000-nucleotide RNA viral genomes. These RdRps are the largest and most complex RdRps among RNA viruses. As shown in the illustration below, the multi-subunit SARS-CoV RNA synthesis machinery is a complex of non-structural proteins, or nsps, that incorporates processivity factors (nsp-7, nsp-8), an RdRp core with a NIRAN domain (nsp-12), a proofreading exonuclease, a N7-methyl transferase (nsp-14), and a helicase (nsp-13), as well as predicted stimulatory cofactors and capping activities.

SARS-CoV RNA Polymerase



It is possible that any one or more than one of the non-structural proteins in the viral replication complex (RdRp) could be the target for inhibition of coronavirus replication, and the specific mechanism(s) of inhibition by the triphosphate formed from AT-511 is being investigated using SARS-CoV as the model virus. This potential mechanism includes incorporation of the triphosphate formed from AT-511 into the nascent RNA chain followed by premature termination of its elongation as has been observed with other nucleotide analog inhibitors and in other viruses. In addition, the active triphosphate metabolite may bind to the nucleotide binding site of the NIRAN function leading to its potent inhibition. Viral growth inhibition was demonstrated following impairment of the NIRAN function.

It is also conceivable that the proofreading exonuclease activity of nsp14 could remove the terminating analog nucleotide from the RdRp Core, and experiments are ongoing. However, the NIRAN function has no exonuclease activity.

Our approach

We are developing AT-527, an orally administered, novel antiviral product candidate, for the treatment of COVID-19 disease. AT-527 was specifically designed to uniquely inhibit viral RdRp. AT-511, the free base of AT-527, has shown *in vitro* antiviral activity against multiple ssRNA viruses, including human flaviviruses and coronaviruses.

We assessed the *in vitro* potency of AT-511 against SARS-CoV and SARS-CoV-2. The data observed is summarized in the table below.

Antiviral activity was assessed after exposure of Huh-7 cells to virus and serial dilutions of test compound by determining the effective concentration required to reduce secretion of infectious virus into the culture medium by 90% (EC_{90}) after a 3-day incubation using a standard endpoint dilution $CCID_{50}$ assay to determine virus yield reduction (VYR). Half-maximal cytotoxicity (CC_{50}) was measured by neutral red staining of compound-treated duplicates in the absence of virus.

Since Huh-7 cells were unable to support infection by and replication of SARS-CoV-2, human airway epithelial (HAE) cell preparations were used to assess the activity of AT-511 against this virus, using the same method as described above. Cytotoxicity was assessed by visual inspection of the cells at the end of the 5-day incubation period.

In Vitro Activity of AT-511 (free base of AT-527) Against Human Coronaviruses

Virus (genus)	Cell line	Compound	Cytopathic Effect Assay CC_{50}(µM)	Virus Yield Reduction Assay EC_{90} (µM)	Selectivity Index (CC_{50}/EC_{90})
SARS-CoV (beta)	Huh-7	AT-511	>86	0.34	>250
SARS-CoV-2 (beta)	HAE	AT-511 N^4-hydroxycytidine remdesivir AT-034 (remdesivir)	>86[a]/>8.6[a]/>1.7[a] >19[a] >1.6 >8.3/>1.6	0.64/0.47/0.51 3.9 0.002 0.27/0.014	>130 />18/>3.3 >4.8 >800 >30/>110

[a] Cytotoxicity assessed by visual inspection of cell monolayers

Huh-7, human hepatocyte carcinoma cell line (established ability to form triphosphate from AT-511) HAE, human airway epithelial cell culture (established ability to form triphosphate from AT-511)

N^4 -hydroxycytidine, nucleoside formed from EIDD-2801 (Ridgeback/Merck orally bioavailable ester prodrug)

AT-034 is commercial remdesivir (with COA) purchased by Atea and supplied blinded to be included in second assay

The EC_{90} values for AT-511 against SARS-CoV and SARS-CoV-2 were 0.34 µM and an average of 0.5 µM from three independent experiments. The concentration of AT-511 required to exhibit CC_{50} of the host cells used in these assays to support viral infection and propagation was consistently greater than the highest concentration tested (>86 µM). The sub-micromolar EC_{90} values, in combination with the lack of toxicity observed in the host cells, suggests the potential for high potency and selectivity of AT-511 *in vitro* against these SARS coronaviruses.

The EC_{90} for remdesivir, which was included in both SARS-CoV-2 assays as a positive control and also included as a blinded test article (AT-034) in the second assay, ranged from 0.001-0.27 µM. The potency of remdesivir, however, is likely a combination of its antiviral activity and cytotoxicity since dying and dead cells cannot support efficient viral replication. The CC_{50} for remdesivir, determined by neutral red staining in the SARS-CoV assay conducted in human cells (Huh-7; less precise visual assessments without staining were used to determine cytotoxicity in the HAE assays) ranged from 5-11 µM. Similar *in vitro* cytotoxicity of remdesivir (1.7-36 µM CC_{50}) has been reported in other cell lines.

We also assessed the *in vitro* potency of N4-hydroxycytidine, the nucleoside formed from the oral prodrug EIDD-2801 currently being developed by Ridgeback/Merck for the treatment of COVID-19. N4-hydroxycytidine was eight times less potent than AT-511 in the same experiment. Lastly, sofosbuvir did not inhibit coronavirus replication at concentrations as high as 100 µM.

In addition to assessing the *in vitro* potency of AT-511 against SARS-CoV-2 and SARS-CoV, we evaluated the formation and intracellular half-life of AT-9010, the active triphosphate metabolite of AT-527, in primary human nasal and bronchial epithelial cells. Also, we evaluated the pharmacokinetics and intracellular half-life of AT-9010 in tissues of non-human primates after oral administration of AT-527.

Substantial levels of the active triphosphate of AT-527 were formed in normal human bronchial and nasal epithelial cells incubated *in vitro* with 10 µM AT-511. After an 8-hour incubation, intracellular concentrations of the triphosphate were 698 and 236 µM in the bronchial and nasal cells, respectively. After replacement of the culture medium at 8 hours with fresh medium without AT-511, the half-life of the active triphosphate was determined to be 39 and 38 hours in the respective cell incubations. The accumulation and half-life of

remdesivir triphosphate has been reported in the same type of human bronchial epithelial cells incubated with 1 µM remdesivir. After similar eight hour incubations, the concentration of remdesivir triphosphate, normalized to a dose of 10 µM, is at least 7-fold lower than the observed concentration of AT-9010 in the same cell type. In similar incubations of 1 µM remdesivir with human bronchial epithelial cells for two hours followed by washout of drug and continued incubation for 30 hours, the initial half-life of remdesivir triphosphate is less than 8 hours which is at least 4 times shorter than the half-life of AT-9010 in the same primary human lung cells suggesting the accumulation of higher levels of AT-9010 leading to a potentially greater antiviral effect after twice daily oral administration of 550 mg AT-527 versus daily intravenous administration of remdesivir (200 mg loading + 100 mg maintenance doses).

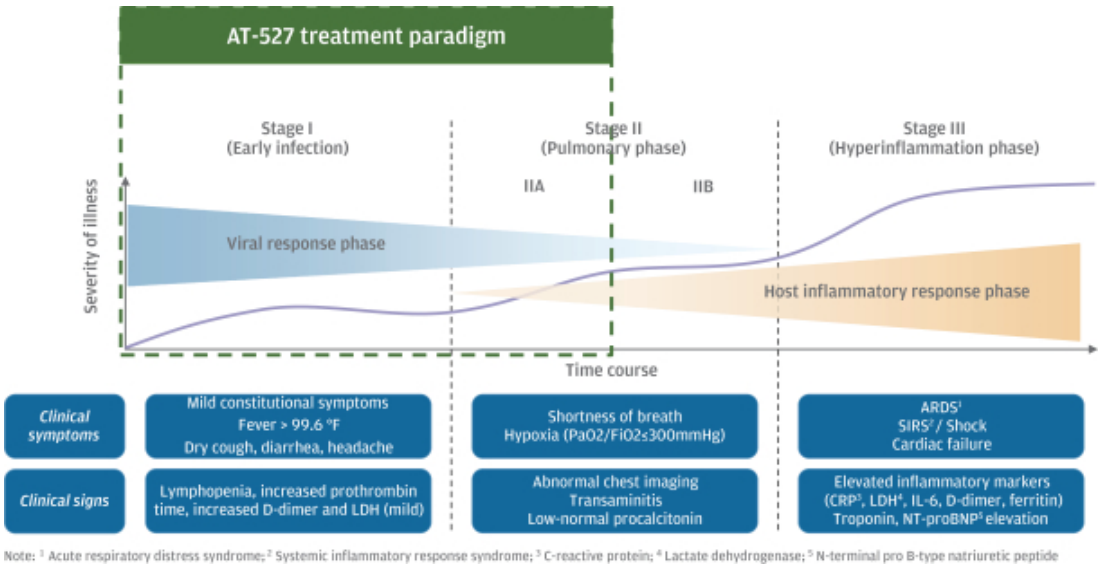
In non-human primates (NHP) administered AT-527 orally for three days in the form of a loading dose (60 mg/kg) followed by five doses (30 mg/kg each) 12 hours apart, intracellular concentrations of the active triphosphate metabolite in lung, kidney and liver tissue 12 hours after the last dose (trough levels with respect to twice daily dosing) were 0.14, 0.13 and 0.09 µM, respectively. Since the NHP doses were allometrically scaled to be equivalent to the initially intended clinical doses for COVID-19 subjects (1100 mg loading dose + 550 mg maintenance doses) and since *in vitro* levels of the triphosphate in primary NHP hepatocytes incubated with 10 µM AT-511 had previously been determined to be 7-fold lower than the corresponding levels in primary human hepatocytes, this ratio was used to predict steady-state intracellular trough triphosphate concentrations of 0.98, 0.91 and 0.62 µM in lung, kidney and liver tissues, respectively, of COVID-19 subjects treated with AT-527. The predicted trough concentration of the triphosphate in lung cells in prospective COVID-19 subjects was also obtained from a simulation of the steady-state plasma pharmacokinetics of AT-273 (surrogate for intracellular triphosphate concentrations) with twice daily dosing obtained from published data in HCV subjects given once-daily oral doses of 550 mg AT-527 and adjusted by the 1.6-fold greater triphosphate concentration in lung versus liver 12 hours after the last dose in NHP. This estimate is based on the established close pharmacokinetic-pharmacodynamic relationship between plasma AT-273 concentrations and the antiviral effect in HCV-infected patients. The predicted human lung trough concentration of the active triphosphate from this simulation (0.86 µM) was in good agreement with that obtained from the trough concentration scaled from NHP lung tissue (0.98 µM). We believe both predictions suggest that trough levels of the active triphosphate in COVID-19 patients during treatment with AT-527 should exceed the EC_{90} of 0.5 µM for AT-511 against SARS-CoV-2 replication. Moreover, we believe both predictions likely underestimate triphosphate trough levels in human lung since neither account for the extended intracellular half-life (39 hours) of the triphosphate in human lung epithelial cells.

Development history

AT-527 was initially developed for the treatment of chronic HCV, and we have conducted two clinical trials of AT-527 in HCV. See *–Hepatitis C virus (HCV)—Clinical development*. By utilizing data we obtained in our HCV clinical trials of AT-527, we were able to initiate our clinical development program of AT-527 for the treatment of patients with COVID-19 with a Phase 2 trial. Using the PK data from our HCV clinical trials, which showed 50-60% bioavailability and a long intracellular half-life of the active triphosphate derived from AT-527, we have selected doses for our COVID-19 clinical trial that are intended to obtain drug exposure at pharmacologically relevant concentrations. The safety and tolerability of AT-527 has been evaluated in 82 clinical trial subjects comprised of 30 healthy volunteers (ages 29 to 65 years old) and 52 HCV-infected patients (ages 29 to 64 years old). No serious adverse effects were observed in these trials. The most common side effects observed were headache and small increases in blood lipid levels, with no consistent patterns in other reported side effects. Most side effects were not severe and were not thought to be related to AT-527.

Clinical development strategy

COVID-19 is an acute viral infection. We believe antiviral therapeutics should be most effective against COVID-19 within the first stage of the infection when the viral load is at its maximum, which is consistent with rapid viral replication initially in nasal cells, throat cells and ultimately pulmonary cells. As shown in the illustration below, we believe that the use of a potent, safe, oral antiviral therapeutic to treat SARS-CoV-2-infected individuals in the early stage of infection will mitigate the onset of severe COVID-19 and avert hospitalization.



Note: [1] Acute respiratory distress syndrome; [2] Systemic inflammatory response syndrome; [3] C-reactive protein; [4] Lactate dehydrogenase; [5] N-terminal pro B-type natriuretic peptide

Phase 2 clinical trial

We are currently conducting a randomized, double blind, placebo-controlled multi-center global Phase 2 trial of AT-527 which is expected to enroll approximately 190 COVID-19 hospitalized patients.

Patients eligible for enrollment in this Phase 2 clinical trial are aged 45 to 80 years with moderate COVID-19 illness and at least one risk factor suggestive of poor outcome (such as obesity, hypertension, a history of diabetes, or a history of asthma). Moderate severity is defined as having at least one symptom of lower respiratory infection consistent with COVID-19, as well as oxygen saturation below 93% on room air or requiring £2L/min oxygen to maintain oxygen saturation in excess of 93%. The primary efficacy endpoint is the change in level of respiratory insufficiency, assessed on an ordinal 6-category scale of respiratory support levels, as compared to placebo, where a statistically significant finding would be reflected by a significantly lower probability for AT-527-treated subjects to exhibit a worsening of respiratory insufficiency (requiring £2 level higher respiratory support) during the study compared to placebo recipients. The six categories of the ordinal scale are: (1) no respiratory support; (2) low-level passive O2 supplementation (up to 2 L/min) by mask or nasal cannula; (3) higher O2 supplementation (>2 L/min); (4) any non-invasive form of positive-pressure oxygenation/ventilation; (5) invasive respiratory support; and (6) death. We believe the most important outcomes to be assessed in this trial are the reduction in progression to higher levels of required respiratory support, which we believe could be life-saving for patients with significant risk factors, as well as reduced duration of the COVID-19 acute illness and hospitalizations.

Trial participants are being randomized 1:1 (AT-527: placebo). The first 20 patients (10 AT-527, 10 placebo) received a dose of either 550 mg free base of AT-527 or placebo twice daily for five days in addition to

supportive standard of care. In accordance with the protocol, an independent Data Safety Monitoring Board, or DSMB, conducted a safety review and approved continued enrollment of patients in the trial.

In accordance with the protocol, we will enroll a second cohort of 20 patients and enrollment will again be paused for a planned DSMB review of the safety data associated with this second cohort of 20 patients. Upon DSMB approval to proceed after the second cohort of 20 patients, the enrollment of the remainder of the patients will be re-initiated with planned pauses and DSMB reviews at each of the 50% and 75% enrollment levels.

To enhance the virological data we may derive from the Phase 2 clinical trial, we are planning to add a virology pharmacokinetic/pharmacodynamic sub-study which will be conducted at a limited number of the clinical trial sites participating in the Phase 2 clinical trial. This sub-study will include additional biological sampling for quantitative (viral load) evaluation.

We expect to complete enrollment and report topline data from the Phase 2 trial and virological sub-study in first half of 2021.

Planned clinical development

In addition to the Phase 2 clinical trial, we also plan to conduct a clinical trial of AT-527 in healthy volunteers. From this clinical trial, we anticipate obtaining additional pharmacokinetics and safety data of AT-527 at the 550 mg twice daily dose. We expect to initiate and complete enrollment in the healthy volunteer clinical trial prior to the end of 2020.

After receiving the safety results from at least 40 patients enrolled in our Phase 2 trial as well as the supportive data from the healthy volunteer clinical trial, we expect to initiate a Phase 3 clinical trial to study AT-527 in patients with mild to moderate COVID-19 requiring outpatient management.

We are designing this Phase 3 trial to enroll up to 600 patients aged 18 years or older. The primary objective of the trial is expected to be evaluation of the efficacy of AT-527 compared to placebo by measuring the time to alleviation of symptoms, or TAS, in patients with SARS-CoV-2 virus infection with mild or moderate disease. The primary endpoint of TAS is defined as the time when all COVID-19 symptoms are assessed and self reported by the patient as none or mild for a duration of at least 24 hours. Patients will assess the severity of disease on a 4-point scale (with 0 indicating no symptoms, 1 mild symptoms, 2 moderate symptoms, and 3 severe symptoms).

We are also planning to conduct a randomized double-blind, post-exposure prophylaxis Phase 3 clinical trial evaluating the reduction of direct transmission from SARS-CoV-2 infected patients (index case) to contacts. Pending additional discussions with regulatory authorities, the primary endpoint is expected to be the proportion of participants who test positive by PCR at predetermined timepoints.

To align on the most efficient regulatory pathway for AT-527 in COVID-19, we intend to work closely with the FDA and other regulatory authorities as we plan and implement the clinical trials described above. We may pursue expedited FDA review and approval programs, such as Breakthrough Therapy designation.

We are currently conducting manufacturing campaigns at third-party contract manufacturers that will result, when combined with our current drug tablet inventory, in an inventory of AT-527 550 mg tablets and matching placebo that is expected to satisfy the clinical trial material requirements for our currently planned COVID-19 clinical trials. Additionally, we are engaged, through our contract manufacturers, in the optimization of the synthetic process and formulation for commercial scale manufacture of AT-527 550 mg tablets. We are targeting availability of initial commercial supply of AT-527 beginning in 2021.

AT-787 for the treatment of hepatitis C

Hepatitis C virus (HCV)

Background

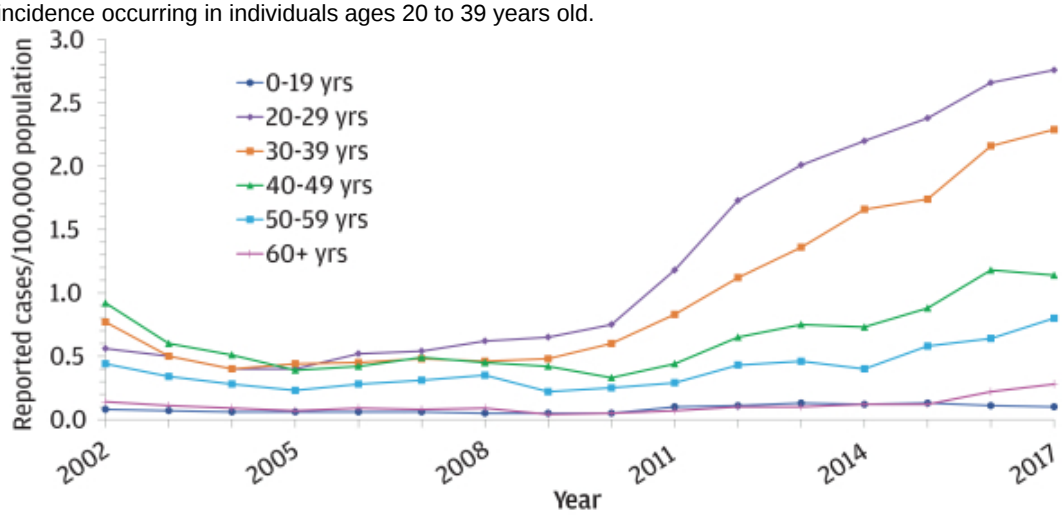
HCV is a blood-borne, positive sense, ssRNA virus, primarily infecting cells of the liver. HCV is a leading cause of chronic liver disease and liver transplants and spreads via blood transfusion, hemodialysis and needle sticks. Injection drug use accounts for approximately 60% of all new cases of HCV. Diagnosis of HCV is made through blood tests, including molecular tests that allow for the detection, quantification and analysis of viral genomes and the classification of an infection into specific viral genotypes. Hepatitis C becomes chronic Hepatitis C in 75% to 85% of cases, with an incubation period lasting from two to 26 weeks.

HCV is classified into seven genotypes and 67 subtypes, with genotype 1 responsible for more than 70% of HCV cases in the United States. Patients with HCV are also classified by liver function status: compensated cirrhosis (liver scarring) denotes those patients that do not yet have impaired liver function, while decompensated cirrhosis describes patients with moderate to severe liver function impairment.

Market opportunity

According to the WHO, an estimated 71 million people are chronically infected with HCV, a significant portion of which are likely to develop cirrhosis or liver cancer. Of those infected with HCV, only 20% are diagnosed and 2% are treated globally. The WHO estimates that 399,000 people died from HCV in 2016.

As shown in the table below, the CDC reported that new infections in the United States have increased substantially from 2011 to 2017 with the greatest increase in incidence occurring in individuals ages 20 to 39 years old.



Despite recent advances in treatment, there remains a large undeserved HCV patient population which continues to grow. The CDC estimated the incidence of HCV in 2018 increased by 50,300 cases in the United States. In 2019, aggregated global sales of direct acting antiviral HCV therapeutics manufactured by Gilead Sciences, Inc. and AbbVie Inc. approximated $5.8 billion. It is estimated that a substantial global market for HCV therapeutics will exist to 2050 and beyond.

Current treatment landscape

No vaccine exists for the prevention of HCV, but several recently introduced oral antiviral therapeutics have boosted sustained virologic response rates to over 95% in a majority of patients, with treatment durations reduced to eight to 12 weeks depending upon the regimen and patient population. There are three classes of direct acting antiviral therapeutics, defined by their mechanism of action and therapeutic target: NS3/4A protease inhibitors, NS5A inhibitors, and NS5B non-nucleos(t)ide polymerase inhibitors. A patient's genotype, cirrhotic status, and prior treatment failures determine the appropriate antiviral therapeutic used in treatment. The two leading therapeutics for treatment of chronic HCV are:

- **Epclusa** (sofosbuvir/velpatasvir): Epclusa was first approved by the FDA in 2016 for the treatment of adults with chronic HCV infection with any of genotypes one through six infection, either without cirrhosis or with compensated cirrhosis. For patients with decompensated cirrhosis, Epclusa is approved for use in combination with ribavirin. Patients on Epclusa require 12 weeks of treatment.
- **Mavyret** (glecaprevir/pibrentasvir): Mavyret was first approved by the FDA in 2017 for the treatment of adults with chronic HCV with any of genotypes one through six infection, without cirrhosis or with compensated cirrhosis. Mavyret is also approved for HCV patients with genotype 1 infection who have been previously treated with a regimen either containing an NS5A inhibitor or an NS3/4A protease inhibitor (but not both). Mavyret was the first eight-week treatment approved for HCV genotypes one through six in adult patients without cirrhosis who have not been previously treated. In 2019, the FDA approved shortening the treatment duration from 12 weeks to eight weeks in treatment-naïve, compensated cirrhotic HCV patients across all genotypes one through six. Mavyret is not approved for use in patients with decompensated cirrhosis.

Our approach

We are developing AT-787 for the treatment of chronic HCV infection, including patients with decompensated cirrhosis. AT-787 combines AT-527 with a second-generation NS5A inhibitor, AT-777, into a single, oral, pan-genotypic fixed-dose combination therapy. Based on our preclinical and clinical data to date, we believe that AT-787, if approved, could offer the following potential benefits over currently available treatments:

- Shorten treatment duration to eight weeks in non-cirrhotic and compensated cirrhosis HCV in all genotypes. Current HCV therapies typically require longer dosing in cirrhotic patients to achieve a sustained virologic response, or SVR, that is close to, but often proportionally lower, than the SVR achieved with shorter treatment of non-cirrhotic patients.
- Equivalent antiviral potency across all genotypes, regardless of cirrhotic status, including the difficult to treat genotype-3 population.
- Obviate the need for extensive pretreatment assessments required by current treatment options, including genotyping, fibroscan (if cirrhosis is present), and liver function assessment.
- Eliminate the need for ribavirin in patients with decompensated cirrhosis. Ribavirin, an antiviral first approved in 1986, carries several FDA "black box" warnings, including the risk of hemolytic anemia and teratogenicity.
- Well tolerated, with low potential for drug-drug interactions. Mavyret, which carries an FDA warning for cirrhotic patient treatment, is not to be prescribed for patients on atazanavir or rifampin, while Epclusa could cause a slow heart rate when taken with amiodarone.

Clinical development

We have conducted two clinical trials of AT-527.

Phase 1 clinical trial of AT-527

We conducted a Phase 1 trial to evaluate single and multiple doses of AT-527 as a single agent in healthy and HCV-infected subjects for up to seven days. All HCV-infected subjects were treatment-naïve with HCV RNA ^{3} 5 $\log_{10}$ IU/mL. The objectives of the trial were to assess safety, tolerability, PK and antiviral activity.

The trial evaluated single oral doses of AT-527 up to 369 mg free base (400 mg salt form) in healthy subjects (Part A), single doses up to 600 mg salt form (553 mg free base) in non-cirrhotic HCV-infected subjects (Part B), and multiple doses up to 600 mg salt form (553 mg free base) once daily for seven days in non-cirrhotic genotype 1b, or GT1, HCV-infected subjects (Part C). Additional cohorts evaluated 600 mg salt form (553 mg free base) once daily for seven days in non-cirrhotic genotype 3, or GT3, (Part D) and Child-Pugh A cirrhotic genotype 1b/3, or GT1b/2, HCV-infected subjects (Part E). The tables below show the dosage and mean maximum HCV RNA reductions for each treatment cohort.

A total of 88 subjects were dosed across all parts of the trial, with 72 subjects who received active drug and 16 subjects who received placebo. In this trial, AT-527 showed equivalent pan-genotypic antiviral activity in both cirrhotic and non-cirrhotic HCV infected patients. The mean HCV reduction within 24 hours after a single dose was up to 2.4 $\log_{10}$ IU/mL, and the mean maximum HCV RNA reduction after seven days of dosing with AT-527 at 553 mg free base was 4.6 $\log_{10}$ IU/mL. Data also showed a mean maximum HCV RNA reduction of 4.4 $\log_{10}$ IU/mL after seven days of dosing of AT-527 at 553 mg free base in non-cirrhotic genotype 1b, or GT1b, HCV-infected subjects, and a mean reduction of 4.5 $\log_{10}$ IU/mL after seven days of dosing in non-cirrhotic GT3 HCV-infected subjects. The PK data in cirrhotic subjects was similar to non-cirrhotic subjects. E_{max} modeling predicted that a dose of 553 mg free base of AT-527 once daily would result in maximum viral load reduction.

TABLE 3

Maximum HCV RNA change in Part B (single dose in non-cirrhotic, GT1 HCV-infected subjects)

Maximum Reduction ($\log_{10}$ IU/mL) AT-527 dosage (free base equivalent)	100 mg (92 mg) N=3	300 mg (277 mg) N=3	400 mg (369 mg) N=3	600 mg (553 mg) N=3
Mean±SD*	0.8 ±0.153	1.7 ±0.564	2.2 ±0.391	2.3 ±0.255
Individual	0.6, 0.8, 0.9	1.1, 1.8, 2.2	1.8, 2.2, 2.5	2.1, 2.3, 2.6

Maximum HCV RNA change in Part C (multiple dose in non-cirrhotic, GT1 HCV-infected subjects)

Maximum Reduction ($\log_{10}$ IU/mL)	**Placebo QD** x 7 days (N=6)**	**150 mg (138 mg) QD x 7 days (N=6)**	**300 mg (277 mg) QD x 7 days (N=6)**	**600 mg (553 mg) QD x 7 days (N=6)**
Mean ±SD	0.4±0.109	2.6±1.073	4.0±0.415	4.4±0.712
Individual	0.3, 0.3, 0.4, 0.4, 0.5, 0.6	1.7, 1.8, 1.8, 2.7, 3.0, 4.5	3.4, 3.7, 3.9, 4.2, 4.2, 4.5	3.5, 4.0, 4.1, 4.3, 5.2, 5.3

Maximum HCV RNA change in Part D (multiple dose in non-cirrhotic, GT3 HCV-infected subjects) and Part E (multiple dose in cirrhotic HCV-infected subjects)

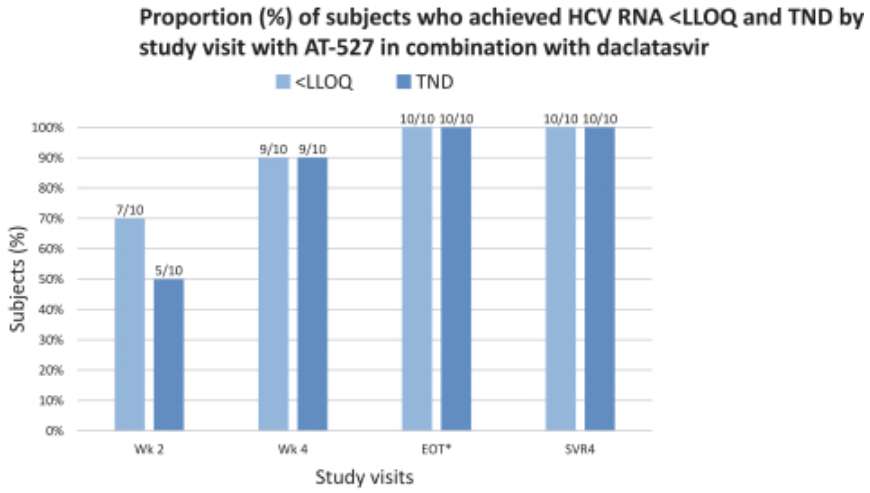
Maximum Reduction (log_{10} IU/mL)	**Part D – GT3** **600 mg (553 mg)** **QD x 7 days** **(N=6)**	**Part E – Cirrhotic** **600 mg (553 mg)** **QD x 7 days** **(N=6)**
Mean ±SD	4.5±0.262	4.6±0.485
Individual	4.2, 4,4, 4.4, 4.5, 4.5, 5.0	GT1b: 4.0, 4.0, 4.5 GT2: 5.0 GT3: 4.8, 5.2

* SD = standard deviation
** QD = twice daily

Phase 2 clinical trial of AT-527 in combination with an NS5A inhibitor

We conducted a Phase 2, open-label clinical trial to evaluate AT-527 in combination with daclatasvir, an approved commercially available HCV NS5A inhibitor, in HCV-infected subjects. Ten treatment-naïve, non-cirrhotic GT1 HCV-infected subjects received 553 mg free base AT-527 and 60 mg daclatasvir once daily for a period of eight or 12 weeks. The primary efficacy endpoint of the study was an SVR of 12, with secondary efficacy endpoints that included HCV RNA< Lower Limit Of Quantitation, or LLOQ, and Target Not Detected, or TND, by study visit, HCV RNA changes from baseline, alanine transaminase normalization in those who had elevated levels at baseline, virologic failure, and resistance-associated substitutions to either of the study drugs. All subjects completed the treatment period in the study, nine of whom received eight weeks of treatment and one of whom received 12 weeks of treatment. All subjects achieved an SVR of four, nine of whom received only eight weeks of treatment. As shown in the graph below, viral load decreased rapidly, with 70% of subjects achieving plasma HCV RNA < LLOQ by week 2 (and 50% achieving TND by week 2). We believe that the rapid early clearance of HCV RNA observed in this trial supports continued evaluation of AT-527 in shortened treatment regimens, ideally with a more potent, next-generation HCV NS5A inhibitor.

FIGURE 10



LLOQ: lower limit of quantification; TND: target not detected

*End of treatment (EOT) = 8 wks for 9 subjects and 12 wks for 1 subject

AT-527 Safety Results

There were no serious adverse events, dose-limiting toxicities or adverse events leading to trial discontinuation observed in our Phase 1 or our Phase 2 clinical trial of AT-527. The most common side effects observed were headache and small increases in blood lipid levels, with no consistent patterns in other reported effect. Most side effects were not severe and were not thought to be related to AT-527.

Planned clinical development

We have temporarily paused our development program for AT-787 in HCV infected patients, given industry-wide challenges in clinical studies during the COVID-19 pandemic. We expect to initiate this program once the planned clinical trial sites are able to re-open and resume patient enrollment, starting with our Phase 1/2A clinical trial which is designed to evaluate the safety and PK of different dosages of AT-777 in healthy adults and evaluate the combination of AT-527 and AT-777. We currently anticipate that this will occur in the first half of 2021. The Phase 1/2A clinical trial is comprised of two parts. Part A is a randomized, blinded, sequential-dose trial to evaluate the safety, tolerability and PK of AT-777 alone in up to 24 healthy volunteers. Part B is an open-label trial in up to 20 patients with HCV to evaluate AT-527 in combination with AT-777. The primary objective of Part B are safety, antiviral activity and PK. Following the completion of the Phase 1/2A clinical, we anticipate commencing a Phase 2b clinical trial to further evaluate the antiviral activity and safety of AT-787, the fixed dose combination of AT-777 and AT-527.

AT-752 for the treatment of dengue

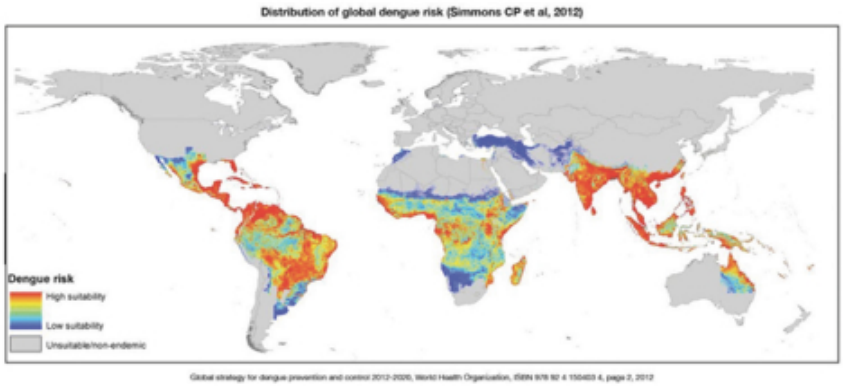
Dengue virus

Background

Dengue, which is caused by a positive sense ssRNA virus belonging to the *Flaviviridae* family, is a mosquito-borne viral infection. Dengue causes flu-like symptoms in both children and adults and is spread through the bite of an infected mosquito. There are five dengue viral serotypes, and infection with serotype does not produce immunity to another serotype. Thus, a person could be infected with dengue multiple times and reinfection typically results in a more severe disease. Symptoms include fever, eye pain, headache, swollen glands, rash, muscle pain, bone pain, nausea, vomiting, and joint pain, and last two to seven days post-infection.

Market opportunity

Globally, three billion people, or roughly 40% percent of the world's population, live in high-risk dengue areas, while up to 400 million are infected each year, resulting in 500,000 hospitalizations. The WHO has called dengue the most important mosquito-borne viral disease in the world. Although dengue rarely occurs in the continental United States, it is endemic in Puerto Rico, Southeast Asia, Latin America and the Pacific Islands, as shown in the map below.



According to the CDC, 5% of infected patients develop a life-threatening form of dengue called severe dengue. Those who develop severe dengue may have some or all of the following complications: severe abdominal pain, fatigue, severe bleeding, organ impairment, and plasma leakage. The mortality rate of severe dengue ranges between 12% and 44%, if left untreated. The global economic cost burden of dengue was estimated at $8.9 billion in 2013, with nearly 50% of the costs associated with hospitalizations. We estimate the commercial market for a treatment of dengue to be approximately $500 million.

Current treatment landscape

There are no FDA or EMA approved therapies indicated for the treatment of dengue. Current treatment protocols involve supportive care, including analgesics, judicious fluid replacement, and bed rest. In 2019, a vaccine, Dengvaxia developed by Sanofi Pasteur Inc., or Sanofi, was approved by the FDA for the prevention of disease caused by dengue virus serotypes 1, 2, 3 and 4 in children ages nine to 16 with laboratory-confirmed previous dengue infection and living in endemic areas.

Takeda Pharmaceuticals Co Ltd, or Takeda, is also advancing a dengue vaccine, TAK-003, which is in Phase 3 development. Primary endpoint analysis of its ongoing Phase 3 trial in children ages four to 16 years showed protection against virologically-confirmed dengue.

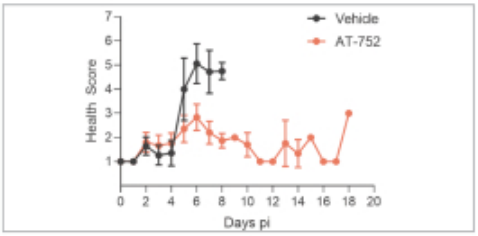
Our approach

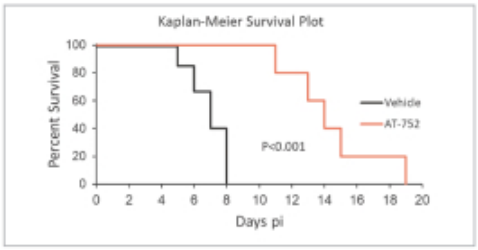
We are developing AT-752, an oral, purine nucleoside prodrug product candidate. AT-752 has shown potent activity against all serotypes tested in preclinical studies. AT-752 works by targeting the inhibition of the dengue viral polymerase. We intend to explore the potential development of AT-752 as a prophylactic treatment for dengue, which if approved, could be directed at the travelers' market.

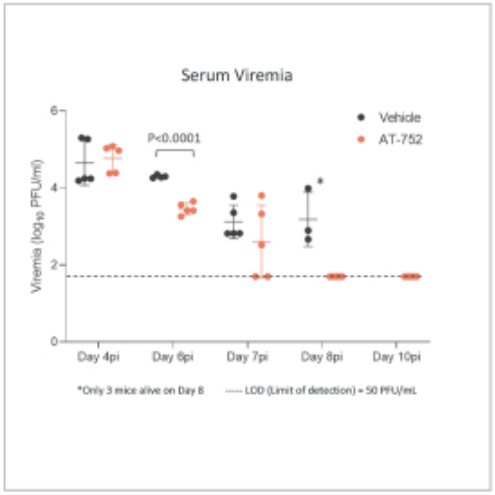
Preclinical development

We have conducted preclinical studies of AT-752 in which we pre-treated AG129 mice with AT-752 (1000 mg/kg, p.o.) for four hours before subcutaneous inoculation with D2Y98P dengue strain and subsequent dosing of

AT-752 twice daily (500 mg/kg, p.o.) for seven days, starting one hour post inoculation. This disease model, which ultimately resulted in fatal central nervous system sequelae, showed notable differences in overall health, survival, and viremia between AT-752-treated mice and mice that were treated with vehicle. As shown in the graphs below, viral RNA in serum was statistically significantly lower than control by day 6 and below the limit of detection, or LOD (LOD: 50 copies per m/L) on day 8, after seven days of drug treatment.







The antiviral activity of AT-281, the free base of AT-752, was evaluated under contract with the National Institutes of Health and Infectious Disease against a variety of flaviviruses. Huh-7 cells were infected with individual viral strains and exposed to serial dilutions of AT-281. A virally induced cytopathic effect, or CPE, assay using a neutral red dye uptake endpoint or a virus yield reduction measurement using a standard endpoint dilution $CCID_{50}$ assay was used to measure the antiviral EC_{50} or EC_{90} value, respectively. Uninfected cell controls concurrently exposed to drug were used to determine cytotoxicity (CC_{50}) using the CPE assay. AT-281 demonstrated sub-micromolar potencies against all flaviviruses tested (summarized in the table below), with an EC_{90} of 0.64 µM against Dengue type 2 and an EC_{50} of 0.77 µM against Dengue type 3. No toxicity was detected for AT-281 up to the highest concentration tested (172 µM).

Virus	Strain	EC_{90} (µM)	CC_{50} (µM)	SI[a]
Dengue type 2	New Guinea C	0.64	>172	>270
Dengue type 3	H87	0.77[b]	>172	>220
Japanese encephalitis	SA-14	0.21[b]	>172	>820
West Nile	Kern 515, WNo2	0.43	>172	>400
Yellow Fever	YFV 17D	0.26	>172	>660
Zika	MR766	0.64[b]	>172	>270

a Selectivity index (CC_{50}/EC_{90} or CC_{50}/EC_{50})
b EC_{50}

Planned clinical development

We plan to submit an IND to the FDA or Clinical Trial Application to one or more competent authorities in countries outside the United States prior to the end of 2020. Contingent upon receipt of FDA or other competent authority authorization, we expect to initiate a randomized, double-blind, placebo-controlled Phase 1 trial to analyze the safety and PK of several different dosages of AT-752 in healthy adult subjects in the first half of 2021. Following the completion of the Phase 1 trial, we expect to initiate in the first half of 2021 a Phase 2 trial of AT-752 in adult subjects with dengue, to evaluate antiviral activity, safety and PK. We intend to pursue FDA expedited development and review programs for AT-752. Dengue is also defined as a tropical disease under the Federal Food, Drug and Cosmetic Act, or FDCA, and therefore FDA approval of AT-752 for the treatment of Dengue may result in a priority review voucher.

AT-889, AT-934 and other candidates for the treatment of respiratory syncytial virus (RSV)

Respiratory syncytial virus

Background

RSV is a seasonal respiratory virus that can be serious for infants, older adults, and the immuno-compromised population. Although the virus is seasonal, the duration, peaks and severity of the virus vary each season. RSV, a negative ssRNA virus belonging to the *Pneumoviridae* subfamily of the *Paramyxoviridae* family, is the most common cause of bronchiolitis (inflammation of the small airways in the lung) and pneumonia (infection of the lungs) in children in the United States. Almost all children contract the RSV infection by their second birthday.

The primary symptoms of RSV infections include coughing, wheezing, fever, decreased appetite, and runny nose. In the United States, RSV infections generally occur during fall, winter and spring, but the timing and severity can vary from year to year and from region to region. Two different strains of the virus co-circulate each season, and RSV epidemics last from four to six months.

Market opportunity

Globally, RSV affects 64 million people, according to the National Institutes of Health, or the NIH, with annual mortality estimated at 160,000 deaths. The market for RSV treatment is estimated to exceed $5 billion by 2024.

We expect to target three distinct populations over time with our product candidates: the elderly, the immunocompromised and children, with an initial focus on the elderly.

- **Elderly**: Among the elderly, the CDC estimates that RSV is responsible for 177,000 hospitalizations in the United States. An estimated 14,000 annual deaths are caused by RSV in the United States in adults older than age 65.
- **Immunocompromised**: Globally, there are more than 50,000 hematopoietic stem cell transplants annually. Studies suggest that there is a significant risk of hospital mortality due to respiratory failure in immunocompromised patients with lower respiratory disease.
- **Children**: The NIH estimates that RSV results in 75,000 to 125,000 child hospitalizations in the United States. Globally, it is estimated that RSV results in 3.2 million hospital admissions in children younger than five years of age.

Current treatment landscape

Treatment for RSV typically focuses on supportive care, which can include nasal suction, fever management, hydration, and oxygen. The FDA approved aerosolized ribavirin in 1986 for the treatment of serious RSV

infections in hospitalized children. However, ribavirin, a nucleoside analog, carries a number of safety concerns, including potential toxicity for exposed persons. Aerosolized ribavirin has not been approved for use in the elderly or immunocompromised populations.

In addition, the FDA approved Synagis (palivizumab) in 1998 for the prevention of lower respiratory tract disease caused by RSV in children at high risk of RSV disease. Synagis is administered as an injection every month during RSV season. Synagis has not been approved for treatment of RSV, nor is it indicated for use in populations other than children under 24 months of age.

Our approach

We are evaluating two lead compounds, AT-889 and AT-934, second-generation nucleoside pyrimidine prodrugs, and other compounds. Our development efforts in RSV have focused on two strategies: fusion inhibitors and replication inhibitors (both nucleoside and non-nucleoside). We believe AT-889, AT-934 or one of our other product candidates for RSV has the potential to inhibit both the initiation of viral replication, as well as viral transcription. We plan to develop our product candidate in both oral and parenteral dosage formulations.

Development history

We have observed the antiviral potency and selectivity of AT-889 and AT-934 against RSV in *in vitro* cell-based assays. The EC_{50} to inhibit replication of the RSV (strain A Long) was 0.20 µM for AT-889 and 0.46 µM for AT-934. The concentrations of both compounds required to exhibit a CC_{50} of the host cells used in these assays were greater than 50 µM.

Development strategy

Currently, we are evaluating the antiviral activity of AT-889 and AT-934 and other compounds in *in vitro* studies to inform our selection of a lead candidate. Once chosen, we will assess the *in vivo* antiviral activity of such lead candidate in a small animal model, and conduct IND-enabling toxicology studies. Thereafter we intend to nominate a product candidate for clinical development. We anticipate nominating our product candidate and initiating a Phase 1 trial to evaluate safety and PK of this product candidate in healthy subjects in the second half of 2021. Following completion of the Phase 1 trial, we expect to initiate a Phase 2 trial in adult subjects with RSV to evaluate antiviral activity, safety and PK in the second half of 2021.

Manufacturing

We do not currently own or operate manufacturing facilities for the production of preclinical or clinical product candidates, nor do we have plans to develop or operate our own manufacturing operations in the future. We currently rely upon third-party contract manufacturing organizations, or CMOs, to produce our product candidates for both preclinical and clinical use. Although we rely on CMOs, we also have personnel with extensive manufacturing experience that can oversee the relationship with our manufacturing partners. We believe that any materials required for the manufacture of our product candidates could be obtained from more than one source.

Competition

As a clinical-stage biopharmaceutical company, we face competition from a wide array of companies in the pharmaceutical and biotechnology industries. These include both small companies and large companies with much greater financial and technical resources and far longer operating histories than our own. We may also compete with the intellectual property, technology, and product development efforts of academic, governmental, and private research institutions.

Our competitors may have significantly greater financial resources, established presence in the market, expertise in research and development, manufacturing, preclinical 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 scientific, sales, marketing, and management personnel, 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.

The key competitive factors affecting the success of any product candidates that we develop, if approved, are likely to be their efficacy, safety, convenience, price, and the availability of reimbursement from government and other third-party payors. Our commercial opportunity for any of our product candidates could be reduced or eliminated if our competitors develop and commercialize products that are more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, and may commercialize products more quickly than we are able to.

We are aware of the following competitors in the areas that we are initially targeting:

SARS-CoV-2

Many therapies and vaccines are being investigated for the treatment of COVID-19, including:

- Remdesivir (Gilead Sciences, Inc.), a purine nucleotide prodrug, initially investigated for the treatment of Ebola virus, which has been approved for emergency use in the United States and received full approval in Japan.
- Favipiravir (Fujifilm Pharma Co., Ltd.), a nucleoside analog, first approved in Japan in 2014 for the treatment of emerging influenza strains and approved in 20[19/20] in Japan for the treatment of COVID-19.
- EIDD-2801 (Ridgeback Biotherapeutics LP/Merck & Co., Inc.), a nucleoside analog in Phase 1/2 clinical trials.
- REGN-COV2 (Regeneron Pharmaceuticals, Inc.), an antibody cocktail in a Phase 1/2/3 clinical trial.
- LY-CoV555 and LY-CoV016 (Eli Lilly and Co), a neutralizing antibody program for which Eli Lilly recently submitted an emergency use authorization request to the FDA.
- Additional companies working on investigational vaccines or treatments include Moderna, Inc., Inovio Pharmaceuticals, Inc., Vir Biotechnology Inc., Biogen Inc., Johnson & Johnson, Pfizer Inc., BioNTech SE - ADR, CanSino Biologics Inc, AbbVie Inc., Sanofi Pasteur Inc., AstraZeneca, Merck & Co., Inc., Eli Lilly and Co and Translate Bio Inc.

The potential treatments or vaccines for COVID-19 continues to evolve. The list above addresses the product candidates as of the date of this prospectus that we believe could be the most competitive with AT-527, but is not a comprehensive list of every treatment or vaccine that is in development for COVID-19.

HCV

FDA-approved treatments for patients with chronic HCV include Epclusa marketed by Gilead Sciences, Inc. and Mavyret, marketed by AbbVie Inc. We are also aware of an investigational agent for HCV, currently in Phase 2 testing, being developed by Cocrystal Pharma Inc.

Dengue Virus

At this time, there are no FDA- or EMA-approved treatments for dengue, and we are not aware of any potential therapeutics in development for treatment of dengue. Dengvaxia, marketed by Sanofi Pasteur, was approved in

2019 by the FDA for prevention of dengue in individuals ages nine to 16 with a laboratory-confirmed previous dengue infection and living in endemic areas. Takeda is also advancing TAK-003, which is in Phase 3 development, as a vaccine for dengue.

RSV

Supportive care is the most common course of care for RSV and includes oxygen, fluid management, bronchodilators, and corticosteroids. Ribavirin, approved in 1986, is used to treat severe cases of RSV infection, but carries significant side effects and risks associated with its use, especially in infants. Synagis (palivizumab), marketed by Swedish Orphan Biovitrum AB in the United States and AstraZeneca plc outside of the United States, is an FDA-approved, seasonal monoclonal antibody injection given monthly to help protect high-risk infants from severe RSV. Synagis is not approved as a treatment for RSV.

At this time, we are aware of investigational agents for the treatment of RSV being developed by Enanta Pharmaceuticals Inc., ReViral Ltd, and Ark Biosciences Inc.

Commercialization

Given the stage of development of our lead asset, we have not yet invested in a commercial infrastructure or distribution capabilities. While we currently plan to establish our own commercial organization in the United States and potentially in other selected markets, we continue to consider and evaluate in each market the potential advantages and enhancements of our commercial capabilities that may be realized as a result of a collaboration between us and a pharmaceutical or other company.

Intellectual Property

Our commercial success depends in part on our ability to obtain and maintain proprietary protection for our nucleotide therapeutic products for viral diseases, including our purine nucleotide compounds for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), hepatitis C (HCV) and dengue fever. We seek to protect our proprietary compounds and methods of treatment for viral diseases using our nucleotide compounds, alone and in combination with other therapeutic agents, in addition to dosage forms, dosing regimens and formulations for their administration. We also seek protection on the manufacturing process for the production of our nucleotide compounds. Our success also depends on our ability to operate without infringing, misappropriating or otherwise violating on the proprietary rights of others and to prevent others from infringing, misappropriating or otherwise violating our proprietary rights.

Our policy is to seek to protect our proprietary position by filing U.S. and foreign patent applications covering our proprietary technologies, inventions, and improvements that are important to the development and implementation of our business. In addition, we currently plan to seek patent term adjustments, restorations, and/or patent term extensions where applicable in the United States, Europe and other jurisdictions. We also rely on trade secrets, know-how, continuing technological innovation and potential in-licensing opportunities to develop and maintain our proprietary position. Additionally, we expect to benefit, where appropriate, from statutory frameworks in the United States, Europe and other countries that provide a period of regulatory data exclusivity to compensate for the time required for regulatory approval of our drug products.

As of September 30, 2020, we are the sole owner of eight patent families covering our product candidates and proprietary nucleotide compounds, which include composition of matter, pharmaceutical compositions, methods of use, and processes of manufacture as described in more detail below. Our owned patent estate as of September 30, 2020, on a worldwide basis, includes 117 granted or pending patent applications with five issued U.S. patents, one allowed U.S. non-provisional application, ten pending U.S. non-provisional applications, 11

pending U.S. provisional applications, two pending international patent applications filed under the Patent Cooperation Treaty, or PCT, and 88 pending or granted patent applications that have entered the national phase of prosecution in countries outside the United States.

The exclusivity terms of our patents depend upon the laws of the countries in which they are obtained. In the countries in which we currently file, the patent term is 20 years from the earliest date of filing of a non-provisional patent application. The term of a U.S. patent may be extended to compensate for the time required to obtain regulatory approval to sell a drug (a patent term extension) or by delays encountered during patent prosecution that are caused by the USPTO (referred to as patent term adjustment). For example, the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Act, permits a patent term extension for FDA-approved new chemical entity drugs of up to five years beyond the expiration of the patent. The length of the patent term extension is related to the length of time the drug is under regulatory review and diligence during the review process. Patent term extensions in the United States cannot extend the term of a patent beyond a total of 14 years from the date of product approval, only one patent covering an approved drug or its method of use may be extended, and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. A similar kind of patent extension, referred to as a Supplementary Protection Certificate, is available in Europe. Legal frameworks are also available in certain other jurisdictions to extend the term of a patent. We currently intend to seek patent term extensions on any of our issued patents in any jurisdiction where we have a qualifying patent and the extension is available; however, there is no guarantee that the applicable regulatory authorities, including the FDA in the United States, will agree with our assessment of whether such extensions should be granted, and even if granted, the length of such extensions. Further, even if our patent is extended, the patent, including the extended portion of the patent, may be held invalid or unenforceable by a court of final jurisdiction in the United States or a foreign country.

Current issued patents and patent applications covering the composition of matter for our present clinical candidates AT-511, AT-527, AT-281 (the free base of AT-752), and AT-752 will expire on dates ranging from 2036 to 2038, if the applications are issued and held valid by a court of final jurisdiction if challenged. Current patent applications covering the use of AT-511 and AT-527 for the treatment of SARS-CoV-2 will expire on dates ranging from 2037 to 2041, if the applications (including non-provisional applications filed on the basis of provisional applications) are issued and held valid by a court of final jurisdiction if challenged. Current issued patents and patent applications covering the use of AT-511 and AT-527 for the treatment of HCV will expire on dates ranging from 2036 to 2039, if the applications are issued and held valid by a court of final jurisdiction if challenged. Current patent applications covering the use of AT-281 and AT-752 for the treatment of dengue fever will expire on a date in 2037, if the applications are issued and held valid by a court of final jurisdiction if challenged.

Current patent applications covering the composition of matter for our present HCV combination drug clinical candidate AT-787 will expire on a date in 2039, if the applications are issued and held valid by a court of final jurisdiction if challenged. Current patent applications covering the use of AT-787 for the treatment of HCV will expire on dates ranging from 2036 to 2039, if the applications are issued and held valid by a court of final jurisdiction if challenged.

However, any of our patents, including patents that we may rely on to protect our market for approved products, may be held invalid or unenforceable by a court of final jurisdiction. Alternatively, we may decide that it is in our interest to settle a litigation in a manner that affects the term or enforceability of our patent. Changes in either the patent laws or in interpretations of patent laws in the United States and other jurisdictions may diminish our ability to protect our inventions and enforce our intellectual property rights. Accordingly, we cannot predict the breadth or enforceability of claims that have been or may be granted on our patents or on third-party patents. The pharmaceutical and biotechnology industries are characterized by extensive litigation regarding patents and other intellectual property rights. Our ability to obtain and maintain

our proprietary position for our nucleotide compounds and the use of these compounds will depend on our success in enforcing patent claims that have been granted or may grant. We do not know whether any of the pending patent applications that we have filed or may file or license from third parties will result in the issuance of any additional patents. The issued patents that we own or may receive in the future may be challenged, invalidated, or circumvented, and the rights granted under any issued patents may not provide us with sufficient protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may be able to independently develop and commercialize drugs with similar mechanisms of action and/or duplicate our methods of treatments or strategies without infringing our patents. Because of the extensive time required for clinical development and regulatory review of a drug we may develop, it is possible that, before any of our drugs can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of any such patent. For more information regarding risks relating to intellectual property, see “Risk Factors—Risks Related to Intellectual Property.”

Our patent families, as of September 30, 2020, are further described below.

AT-511 and AT-527

We own a first patent family that describes AT-511 or a pharmaceutically acceptable salt thereof (for example, AT-527), pharmaceutical compositions of AT-511 or the pharmaceutical salts thereof, and methods to treat HCV using AT-511 or a salt thereof. This family consists of four issued U.S. patents (U.S. Pat. Nos. 9,828,410; 10,000,523; 10,005,811; and 10,239,911), on allowed U.S. application and four pending U.S. applications covering AT-511 or a pharmaceutically acceptable salt thereof and its pharmaceutical compositions. This patent family is now also in the national stage of prosecution in the African Regional Intellectual Property Organization, or ARIPO, Australia, Brazil, Canada, China, Colombia, the Eurasian Patent Office, or EAPO, Egypt, the European Patent Office, or EPO, Georgia, Hong Kong, Indonesia, Israel, India, Japan, Korea, Mexico, Malaysia, Nigeria, New Zealand, the Philippines, Russia, Saudi Arabia, Singapore, Thailand, Vietnam, Ukraine, South Africa, and the United Arab Emirates. The expected year of expiration for this patent family, where issued, valid and enforceable, is 2036, without regard to any extensions, adjustments, or restorations of term that may be available under national law.

We also own a second patent family that specifically covers AT-527, pharmaceutical compositions, and methods to treat HCV using AT-527. This family includes one issued U.S. patent (U.S. Pat. No. 10,519,186) and two pending U.S. applications covering AT-527, pharmaceutical compositions, and methods to treat HCV using AT-527. This family is currently in the national phase of prosecution in Argentina, ARIPO, Australia, Brazil, Canada, China, Colombia, the EAPO, the EPO, Georgia, Hong Kong, Indonesia, Israel, India, Japan, Korea, Mexico, Malaysia, Nigeria, New Zealand, the Philippines, Russia, Singapore, Taiwan, Thailand, Vietnam, Ukraine, Uzbekistan, and South Africa. The expected year of expiration for this patent family, if issued, valid and enforceable, is 2038, without regard to any extensions, adjustments, or restorations of term that may be available under U.S. or other national laws.

We own a third patent family that discloses methods for the treatment of SARS-CoV-2 using AT-511 or AT-527. This family includes seven provisional U.S. applications. The expected year of expiration for patents issued from non-provisional patent applications filed on the basis of these provisional patent applications, if valid and enforceable, is 2041, without regard to any extensions, adjustments, or restorations of term that may be available under U.S. or other national laws. We have recently filed a U.S. normal application with the U.S. PTO under its COVID-19 Prioritized Examination Pilot Program to advance out of turn patent applications covering methods to treat COVID-19 that are currently under review by the FDA. Our Petition was granted by the PTO on September 23, 2020.

We own a fourth patent family that discloses the use of AT-511 or a pharmaceutically acceptable salt thereof for the treatment or prevention of a positive-stranded RNA virus infection, including a *Coronaviridae* viral infection. This family consists of two pending U.S. applications and is currently in the national phase of prosecution in Australia, Brazil, Canada, China, the EAPO, the EPO, Hong Kong, Indonesia, Japan, Korea, Malaysia, Nigeria, Russia, Singapore, Thailand, Vietnam, and South Africa. The expected year of expiration for this patent family, if issued, valid and enforceable, is 2037, without regard to any extensions, adjustments, or restorations of term that may be available under U.S. or other national laws.

We own a fifth patent family that discloses the use of AT-511 and AT-527 for the treatment of HCV in patients with cirrhosis of the liver. This family includes one international application filed under the PCT (PCT/US19/26837), one patent application filed in Taiwan, and one application filed in Europe. The expected year of expiration for this patent family, if issued, valid and enforceable, is 2039, without regard to any extensions, adjustments, or restorations of term that may be available under U.S. or other national laws.

We also own a sixth patent family that discloses methods for manufacturing AT-511 and AT-527. This family consists of two provisional U.S. applications. The expected year of expiration for patents issued from non-provisional patent applications filed on the basis of these provisional patent applications, if valid and enforceable, is 2041, without regard to adjustments of term that may be available under U.S. or other national laws.

We also own a seventh patent family that discloses new commercial scale processes for the manufacture of AT-511 and AT-527. This family consists of two U.S. provisional applications. The expected year of expiration for patents issuing from these non-provisional patent applications, if valid and enforceable, is 2041, without regard to any adjustments of term that may be available under U.S. or other national law.

AT-787

We own an eighth patent family that discloses the combination of AT-511 or AT-527 and AT-777 (i.e., AT-787) for the treatment of HCV. This family includes one pending U.S. application, one international application filed under the PCT (PCT/US19/64522), one patent application in Taiwan, and one patent application in Argentina. The expected year of expiration for this patent family, if issued, valid and enforceable, is 2039, without regard to any extensions, adjustments, or restorations of term that may be available under U.S. or other national laws.

AT-281 and AT-752

The first patent family described above also describes AT-281, a pharmaceutically acceptable salt thereof (for example, AT-752) and pharmaceutical compositions of AT-281 or a pharmaceutical salt thereof and their use to treat HCV infection.

The second patent family described above also describes AT-752 and pharmaceutical compositions of AT-752. One of these pending U.S. application in this patent family covers AT-752 and pharmaceutical compositions of AT-752.

The fourth patent family described above also includes a disclosure of the use of AT-281 or a pharmaceutically acceptable salt thereof for the treatment or prevention of an RNA viral infection, including dengue fever, yellow fever, and Zika virus in addition to the treatment and prevention of a *Coronaviridae* viral infection. Therefore, we have three patent families that describe AT-281 or AT-752 and methods of treatment for viral infections using AT-281 or AT-752.

Government Regulation and Product Approval

Government authorities in the United States, at the federal, state and local level, and other countries extensively regulate, among other things, the research, development, testing, manufacture, quality control,

approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, marketing and export and import of products such as those we are developing. A new drug must be approved by the FDA through the new drug application, or NDA, process before it may be legally marketed in the United States.

U.S. drug development process

In the United States, the FDA regulates drugs under the FDCA and its implementing regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require 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 administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, warning 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. Any agency or judicial enforcement action could have a material adverse effect on us.

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 accordance with FDA's good laboratory practice requirements and other applicable regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, or ethics committee at each clinical site before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with good clinical practice requirements, or GCPs to establish the safety and efficacy of the proposed drug for its intended use;
- submission to the FDA of an NDA after completion of all pivotal trials;
- 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 drug is produced to assess compliance with current good manufacturing practice, or cGMP, requirements to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity, and of selected clinical investigation sites to assess compliance with GCPs; and
- FDA review and approval of the NDA to permit commercial marketing of the product for particular indications for use in the United States.

Prior to beginning the first clinical trial with a product candidate in the United States, we must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an IND product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for clinical studies. The IND also includes results of animal and *in vitro* studies assessing the toxicology, pharmacokinetics, pharmacology, and pharmacodynamic characteristics of the product; chemistry, manufacturing, and controls information; and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. Once submitted, the IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30- day time period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site and must monitor the study until completed. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

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

- *Phase 1:* The product candidate is initially introduced into healthy human subjects, in some cases, patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.
- *Phase 2:* The product candidate is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.
- *Phase 3:* The product candidate is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval.

Post-approval trials, sometimes referred to as Phase 4 studies, may be conducted after initial marketing approval. These trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval of an NDA.

The FDA or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical 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.

During the development of a new drug, sponsors are given opportunities to meet with the FDA at certain points. These points may be prior to submission of an IND, at the end of Phase 2, and before an NDA is submitted. Meetings at other times may be requested. These meetings can provide an opportunity for the sponsor to share information about the data gathered to date, for the FDA to provide advice, and for the sponsor and the FDA to reach agreement on the next phase of development. Sponsors typically use the meetings at the end of the

Phase 2 trial to discuss Phase 2 clinical results and present plans for the pivotal Phase 3 clinical trials that they believe will support approval of the new drug.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the drug 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 drug. In addition, 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.

While the IND is active and before approval, progress reports summarizing the results of the clinical trials and nonclinical studies performed since the last progress report must be submitted at least annually to the FDA, and written IND safety reports must be submitted to the FDA and investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the same or similar drugs, findings from animal or *in vitro* testing suggesting a significant risk to humans, and any clinically important increased incidence of a serious suspected adverse reaction compared to that listed in the protocol or investigator brochure.

U.S. review and approval process

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, preclinical and other non-clinical studies and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, proposed labeling and other relevant information are submitted to the FDA as part of an NDA requesting approval to market the product. The submission of an NDA is subject to the payment of substantial user fees; a waiver of such fees may be obtained under certain limited circumstances. Additionally, no user fees are assessed on NDAs for products designated as orphan drugs, unless the product also includes a non-orphan indication.

The FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is cGMP-compliant to assure and preserve the product's identity, strength, quality and purity. Under the Prescription Drug User Fee Act, or PDUFA, guidelines that are currently in effect, the FDA has a goal of ten months from the date of "filing" of a standard NDA for a new molecular entity to review and act on the submission. This review typically takes twelve months from the date the NDA is submitted to FDA because the FDA has approximately two months to make a "filing" decision after it the application is submitted. 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 NDA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing.

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 will typically 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 and adequate to assure consistent production of the product within required specifications. Additionally, before approving a NDA, the FDA will typically inspect one or more clinical sites to assure compliance with GCPs. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates an NDA, it will issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug with prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete, and the application will not be approved in its present form. A Complete Response Letter usually describes the specific deficiencies in the NDA identified by the FDA and may require additional clinical data, such as an additional clinical trials or other significant and time-consuming requirements related to clinical trials, nonclinical studies or manufacturing. If a Complete Response Letter is issued, the sponsor must resubmit the NDA or, addressing all of the deficiencies identified in the letter, or withdraw the application. Even if such data and information are submitted, the FDA may decide that the NDA does not satisfy the criteria for approval.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations or restrictions on the indicated uses for which such product may be marketed. For example, the FDA may approve the NDA with a Risk Evaluation and Mitigation Strategy, or REMS, to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a medicine and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries, and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may also require one or more Phase 4 post-market studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies. In addition, new government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could impact the timeline for regulatory approval or otherwise impact ongoing development programs.

In addition, the Pediatric Research Equity Act, or PREA, requires a sponsor to conduct pediatric clinical trials for most drugs, for a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration. Under PREA, original NDAs and supplements must contain a pediatric assessment unless the sponsor has received a deferral or waiver. The required assessment must evaluate the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The sponsor or FDA may request a deferral of pediatric clinical trials for some or all of the pediatric subpopulations. A deferral may be granted for several reasons, including a finding that the drug is ready for approval for use in adults before pediatric clinical trials are complete or that additional safety or effectiveness data needs to be collected before the pediatric clinical trials begin. The FDA must send a non-compliance letter to any sponsor that fails to submit the required assessment, keep a deferral current or fails to submit a request for approval of a pediatric formulation.

Expedited development and review programs

The FDA has a fast track designation program that is intended to expedite or facilitate the process for reviewing new drug products that meet certain criteria. Specifically, new drugs are eligible for Fast Track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. With regard to a fast track product, the FDA may consider for review sections of the NDA 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.

Any product submitted to the FDA for approval, including a product with a fast track designation, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. A drug is eligible for priority review if it is designed to treat a serious condition, and if approved, would provide a significant improvement in safety or effectiveness compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new drug designated for priority review in an effort to facilitate the review. The FDA endeavors to review applications with priority review designations within six months of the filing date as compared to ten months for review of new molecular entity NDAs under its current PDUFA review goals.

In addition, a product may be eligible for accelerated approval. Drug products intended to treat serious or life-threatening diseases or conditions may be eligible for accelerated approval upon a determination that the 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 that a sponsor of a drug receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials to verify the predicted clinical benefit. Products receiving accelerated approval may be subject to expedited withdrawal procedures if the sponsor fails to conduct the required clinical trials, or if such trials fail to verify the predicted clinical benefit. In addition, the FDA currently requires pre-approval of promotional materials as a condition for accelerated approval, which could adversely impact the timing of the commercial launch of the product.

The Food and Drug Administration Safety and Innovation Act established a category of drugs referred to as “breakthrough therapies” that may be eligible to receive breakthrough therapy designation. A sponsor may seek FDA designation of a product candidate as a “breakthrough therapy” if the product is intended, alone or in combination with one or more other products, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance. The breakthrough therapy designation is a distinct status from both accelerated approval and priority review, which can also be granted to the same drug if relevant criteria are met. If a product is designated as breakthrough therapy, the FDA will work to expedite the development and review of such drug.

Fast track designation, breakthrough therapy designation, priority review and accelerated approval do not change the standards for approval but may expedite the development or approval process. 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.

Tropical Disease Priority Review Voucher Program

In 2007, Congress authorized the FDA to award priority review vouchers, or PRVs, to sponsors of certain tropical disease product applications. The FDA's Tropical Disease Priority Review Voucher Program is designed to encourage development of new drug and biological products for the prevention and treatment of certain tropical diseases affecting millions of people throughout the world. Under this program, a sponsor who receives an approval for a drug or biologic for the prevention or treatment a tropical disease that meets certain criteria may qualify for a PRV that can be redeemed to receive priority review of a subsequent NDA or Biologics License Application, or BLA, for a different product. The sponsor of a topical disease drug product receiving a priority review voucher may transfer (including by sale) the voucher to another sponsor of an NDA or BLA. The FDCA does not limit the number of times a priority review voucher may be transferred before the voucher is used.

For a product to qualify for a PRV, (i) the sponsor must request approval of the product for the prevention or treatment of a "tropical disease" listed in Section 524 of the FDCA, (ii) the product must otherwise qualify for priority review, and (iii) the product must contain no active ingredient (including any salt or ester of an active ingredient) that has been approved by the FDA in any other NDA or BLA. The Food and Drug Administration Reauthorization Act of 2017 made further changes to the eligibility criteria for receipt of a tropical disease PRV under this program. Specifically, applications submitted after September 30, 2017 must also contain reports of one or more new clinical investigations (other than bioavailability studies) that were essential to the approval of the application and conducted or sponsored by the sponsor. We are currently developing AT-752 for the treatment of Dengue, which is listed in Section 524 of the FDCA as a disease qualifying for a tropical disease PRV. Accordingly, if AT-752 is approved by the FDA for the prevention or treatment of Dengue, we may receive a tropical disease PRV, provided that AT-752 otherwise meets the statutory criteria for receipt.

Post-approval requirements

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

Drug manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP, which impose certain procedural and documentation requirements upon drug manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

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

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters, or untitled letters;
- clinical holds on clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of drug products. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe, in their independent professional medical judgment, legally available products for uses that are not described in the product's labeling and that differ from those tested and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict marketers' communications on the subject of off-label use of their products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined companies from engaging in off-label promotion. The FDA and other regulatory agencies have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA-approved labelling.

Marketing exclusivity

Market exclusivity provisions authorized under the FDCA can delay the submission or the approval of certain marketing applications. The FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to obtain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the

FDA may not approve or even accept for review an abbreviated new drug application, or ANDA, or an NDA submitted under Section 505(b)(2), or 505(b)(2) NDA, submitted by another company for another drug based on the same active moiety, regardless of whether the drug is intended for the same indication as the original innovative drug or for another indication, where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed with the FDA by the innovator NDA holder.

The FDCA alternatively provides three years of marketing exclusivity for an NDA, or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the modification for which the drug received approval on the basis of the new clinical investigations and does not prohibit the FDA from approving ANDAs or 505(b)(2) NDAs for drugs containing the active agent for the original indication or condition of use. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to any preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

Pediatric exclusivity is another type of marketing exclusivity available in the United States. Pediatric exclusivity provides for an additional six months of marketing exclusivity attached to another period of exclusivity if a sponsor conducts clinical trials in children in response to a written request from the FDA. The issuance of a written request does not require the sponsor to undertake the described clinical trials. In addition, orphan drug exclusivity, as described above, may offer a seven-year period of marketing exclusivity, except in certain circumstances.

Other Healthcare Laws

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business. Such laws include, without limitation, U.S. federal and state anti-kickback, fraud and abuse, false claims, pricing reporting, data privacy and security, and physician payment transparency laws and regulations as well as similar foreign laws in the jurisdictions outside the United States. Violation of any of such laws or any other governmental regulations that apply may result in significant penalties, including, without limitation, administrative civil and criminal penalties, damages, disgorgement fines, additional reporting requirements and oversight obligations, contractual damages, the curtailment or restructuring of operations, exclusion from participation in governmental healthcare programs and/ or imprisonment.

Coverage and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidate for which we may seek regulatory approval. Sales in the United States will depend, in part, on the availability of sufficient coverage and adequate reimbursement from third-party payors, which include government health programs such as Medicare, Medicaid, TRICARE and the Veterans Administration, as well as managed care organizations and private health insurers. Prices at which we or our customers seek reimbursement for our product candidates can be subject to challenge, reduction or denial by third-party payors.

The process for determining whether a third-party payor will provide coverage for a product is typically separate from the process for setting the reimbursement rate that the payor will pay for the product. In the

United States, there is no uniform policy among payors for coverage or reimbursement. Decisions regarding whether to cover any of a product, the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies, but also have their own methods and approval processes. 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 can require manufacturers to provide scientific and clinical support for the use of a product to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

Third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to 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 that receives approval. Third-party payors may not consider our product candidates to be medically necessary or cost-effective compared to other available therapies, or the rebate percentages required to secure favorable coverage may not yield an adequate margin over cost or may not enable us to maintain price levels sufficient to realize an appropriate return on our investment in drug development. Additionally, 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.

U.S. Healthcare Reform

In the United States, there has been, and continues to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect the profitable sale of product candidates.

Among policy makers and payors in the United States, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively, the ACA) was passed, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly affected the pharmaceutical industry. 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; required manufacturers to participate in a 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; 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; created 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 the CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

There remain judicial and political challenges to certain aspects of the ACA. For example, the Tax Cuts and Jobs Act of 2017 (Tax Act) includes a provision repealing, effective January 1, 2019, 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 Act, the remaining provisions of the ACA are invalid as well. On December 18, 2019, the U.S. Court of Appeals for the 5th Circuit affirmed the District Court’s decision that the individual mandate was unconstitutional but remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. On March 2, 2020, the United States Supreme Court granted the petitions for writs of certiorari to review this case, although it remains unclear how and when the Court will make a decision. In addition, it is unclear how any other efforts to repeal, replace or challenge the ACA will impact the law.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. These changes included aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, including the Bipartisan Budget Act of 2018, will remain in effect through 2029 unless additional Congressional action is taken. The Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, was signed into law on March 27, 2020 and suspended these reductions from May 1, 2020 through December 31, 2020 due to the COVID-19 pandemic, and extended the sequester by one year, through 2030. In addition, on January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for pharmaceutical products. At the federal level, the current U.S. administration’s budget proposal for the fiscal year 2021 includes a $135 billion allowance to support legislative proposals seeking to reduce drug prices, increase competition, lower out-of-pocket drug costs for patients, and increase patient access to lower-cost generic and biosimilar drugs. On March 10, 2020, the Trump administration sent “principles” for drug pricing to Congress, calling for legislation that would, among other things, cap Medicare Part D beneficiary out-of-pocket pharmacy expenses, provide an option to cap Medicare Part D beneficiary monthly out-of-pocket expenses, and place limits on pharmaceutical price increases. The Trump Administration previously released a “Blueprint” to lower drug prices and reduce out of pocket costs of drugs that contained proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of pharmaceutical products paid by consumers. Although a number of these and other measures may require additional authorization to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs.

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, designed to encourage importation from other countries and bulk purchasing. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine which drugs and suppliers will be included in their healthcare programs 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 September 30, 2020, we had 19 full-time employees, including eight employees with M.D. or Ph.D. degrees. Of these full-time employees, 11 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 125 Summer Street, Boston, Massachusetts, where we lease 5,634 square feet of office space. We lease this space under a lease agreement, as amended, that terminates on July 31, 2022. We believe that our facilities are sufficient to meet our current needs and that suitable additional space will be available as and when needed.

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		
Jean-Pierre Sommadossi, Ph.D.	64	President and Chief Executive Officer and Chairman of the Board of Directors
Andrea Corcoran	58	Chief Financial Officer, Executive Vice President, Legal and Secretary
Janet Hammond, M.D., Ph.D.	60	Chief Development Officer
Maria Arantxa Horga, M.D.	51	Acting Chief Medical Officer
John Vavricka	56	Chief Commercial Officer
Wayne Foster	52	Senior Vice President, Finance and Administration
Directors		
Franklin Berger	70	Director
Grigory Borisenko, Ph.D. (4)	51	Director
Bihua Chen (4)	52	Director
Isaac Cheng, M.D.	45	Director
Andrew Hack, M.D., Ph.D.	47	Director
Bruno Lucidi	60	Director
Polly Murphy, D.V.M., Ph.D.	56	Director
Bruce Polsky, M.D.	66	Director

(1) Member of the audit committee.

(2) Member of the compensation committee.

(3) Member of the nominating and corporate governance committee.

(4) Dr. Borisenko and Ms. Chen will resign from our board of directors effective upon the effectiveness of the registration statement relating to this offering.

Executive Officers

Jean-Pierre Sommadossi, Ph.D., is the founder of our company and has served as our President and Chief Executive Officer and as Chairman of our Board since July 2012. Prior to that, he co-founded and held several roles at Idenix Pharmaceuticals, Inc., a biopharmaceutical company, from 1998 to 2010, including Principal Founder and Chief Executive Officer and Chairman. Dr. Sommadossi also co-founded Pharmasset, a biopharmaceutical company, in 1998. Dr. Sommadossi has also served as the Chairman of the board of directors of Kezar Life Sciences, Inc., a biopharmaceutical company, since June 2015, Vice Chair of the board of directors of Rafael Pharmaceuticals, Inc. a biopharmaceutical company, since 2016, Chairman of the board of directors of Panchrest, Inc., a marketing authorized representative in healthcare, since 2013, Chairman of the board of directors of PegaOne, a biopharmaceutical company since 2019, a member the board of directors of The

BioExec Institute and as member of the Harvard Medical School Discovery Council since 2010. Dr. Sommadossi received his Ph.D. and Pharm.D. degrees from the University of Marseilles in France. We believe that Dr. Sommadossi's extensive scientific, operational, strategic and management experience in the biotech industry qualifies him to serve on our Board.

Andrea Corcoran has served as our Chief Financial Officer since October 2020, our corporate Secretary since September 2014 and our Executive Vice President, Legal and Administration since December 2013. Prior to joining us, Ms. Corcoran served as Senior Vice President, Strategy and Finance at iBio, Inc., a biotechnology company, from 2011 to 2012, as General Counsel and Secretary at Tolerx, Inc., a biopharmaceutical company, from 2007 to 2011, and as Executive Vice President of Idenix Pharmaceuticals, Inc. from 1998 to 2007. Ms. Corcoran received her J.D. from Boston College Law School and her B.S. from Providence College.

Janet Hammond, M.D., Ph.D., has served as our Chief Development Officer since August 2020. Prior to joining us, Dr. Hammond served at AbbVie, Inc., a biopharmaceutical company, from November 2016 to August 2020 as Vice President and Therapeutic Area Head for General Medicine and Infectious Disease Development and at F. Hoffmann-La Roche from March 2011 to November 2016 as Senior Vice President, Global Head of Infectious Diseases and Head of Pharmaceutical Research and Early Development China. Dr. Hammond received her M.D. and Ph.D. from the University of Cape Town, South Africa, and her Sc.M. in Clinical Investigation from Johns Hopkins University School of Hygiene and Public Health.

Maria Arantxa Horga, M.D., has served as our Acting Chief Medical Officer since October 2020 and as Executive Vice President, Clinical Sciences since August 2020. Prior to joining us, Dr. Horga served as Vice President, Pharmacovigilance and Medical Affairs at Biohaven Pharmaceuticals from October 2019 to August 2020. Prior to that, Dr. Horga served as Vice President, Global Head of Clinical Program Execution, Site Head of the Roche NY Innovation Center from July 2017 to August 2019, and as Global Head of Translational Medicine, Infectious Diseases at F. Hoffmann-La Roche from 2012 to 2016. Dr. Horga received her M.D. from the Santander School of Medicine, and completed her residency in Pediatrics and a fellowship in Pediatric Infectious Diseases at the Mount Sinai School of Medicine.

John Vavricka has served as our Chief Commercial Officer since October 2018. Prior to joining us, Mr. Vavricka cofounded Biothea Pharma, Inc., a biotechnology company, in 2015, and was the Founder, Chief Executive Officer and President of Iroko Pharmaceuticals, Inc., a global pharmaceuticals company, from 2007 to 2015. Mr. Vavricka received his B.S. from Northwestern University.

Wayne Foster has served as our Senior Vice President, Finance and Administration since December 2019. Prior to joining us, Mr. Foster served as Vice President of Finance at Mersana Therapeutics, Inc., a biopharmaceutical company, from January 2012 to September 2019. Mr. Foster received his B.B.A. from the University of Massachusetts Amherst.

Directors

Franklin Berger has served as a member of our Board since September 2019. Mr. Berger is a consultant to biotechnology industry participants, including major biopharmaceutical firms, mid-capitalization biotechnology companies, specialist asset managers and venture capital companies, providing business development, strategic, financing, partnering, and royalty acquisition advice. Mr. Berger is also a biotechnology industry analyst with experience in capital markets and financial analysis and a Founder and Managing Director at FMB Research. Mr. Berger has also served on the board of directors of BELLUS Health, Inc. since May 2010, ESSA Pharma Inc. since March 2015, Proteostasis Therapeutics, Inc. since February 2016, Kezar Life Sciences, Inc. since January 2016, and Five Prime Therapeutics, Inc. since October 2014. Mr. Berger previously served on the board of directors of Tocagen, Inc. from October 2014 to June 2020. Mr. Berger received his B.A. and M.A. from Johns Hopkins University and his M.B.A. from Harvard Business School. We believe that Mr. Berger's financial

background and experience as an equity analyst in the biotechnology industry combined with his experience serving on the boards of directors of multiple public companies qualifies him to serve on our Board.

Grigory Borisenko, Ph.D., has served as a member of our Board since March 2019. Dr. Borisenko is the Investment Director of RUSNANO Management Company LLC, a venture capital and private equity management company in Russia, and has specialized in investment projects in the life sciences since 2012. Dr. Borisenko has also served on the board of directors of Xenetic Biosciences, Inc. since September 2019. Dr. Borisenko received his M.S. and Ph.D. from the Russian State Medical University. We believe Dr. Borisenko is qualified to serve on our Board due to his extensive financial and investment management experience. Dr. Borisenko will resign from our board of directors effective upon the effectiveness of the registration statement related to this offering.

Bihua Chen has served as a member of our Board since June 2018. Ms. Chen is the Founder of Cormorant Asset Management, LLC, or Cormorant, and has been its Chief Executive Officer and Portfolio Manager since Cormorant's inception in 2013. Ms. Chen received her M.B.A. from The Wharton School, University of Pennsylvania, her M.Sc. from the Graduate School of Biomedical Science at Cornell Medical College and her B.S. from Fudan University, Shanghai, China. We believe that Ms. Chen's financial and investment management expertise qualifies her to serve on our Board. Ms. Chen will resign from our board of directors effective upon the effectiveness of the registration statement relating to this offering.

Isaac Cheng, M.D., has served as a member of our Board since March 2019. Dr. Cheng is an investment professional at the Morningside Technology Advisory, LLC, a division of the Morningside Group, a group that invests in venture capital and private equity opportunities. Dr. Cheng served on the board of directors of NuCana PLC from May 2017 to March 2020 and Liquidia Technologies, Inc., from January 2010 to January 2018. Dr. Cheng received his M.D. and B.S. from the Tufts University School of Medicine. We believe Dr. Cheng is qualified to serve on our Board due to his financial expertise, experience as a venture capitalist, industry experience and his experience in serving on the board of directors of public and private life sciences companies.

A*ndrew Hack, M.D., Ph.D.*, has served on our Board since May 2020. Dr. Hack is a Partner and Managing Director of Bain Capital Life Sciences, a private equity fund that invests in biopharmaceutical, specialty pharmaceutical, medical device, diagnostics, and enabling life science technology companies globally. From July 2015 to March 2019, Dr. Hack served as Chief Financial Officer of Editas Medicine, Inc. From May 2011 to June 2015, Dr. Hack was a portfolio manager at Millennium Management LLC, an institutional asset manager, where he ran a healthcare fund focused on biotechnology, pharmaceutical, and medical device companies. From December 2008 to May 2011, Dr. Hack was a healthcare analyst at HealthCor Management, L.P., a registered investment advisor. Previously, Dr. Hack was Director of Life Sciences and co-founder of Reify Corporation, a life science tools and drug discovery company. Dr. Hack also serves as a director of Affinivax, Inc., Allena Pharmaceuticals, Inc., BCLS Acquisition Corp., Dynavax Technologies, Inc., Imperative Care, Inc., JenaValve Technology, Inc. and Mersana Therapeutics, Inc. Dr. Hack received his B.A. in biology with special honors from the University of Chicago, where he also received his M.D. and Ph.D. We believe Dr. Hack is qualified to serve on our Board due to his extensive financial and investment experience in the life sciences industry.

Bruno Lucidi has served as a member of our Board since September 2014. Mr. Lucidi is a Life Sciences Expert at Wallonia Trade and Foreign Investment Agency. From October 2017 to September 2019, Mr. Lucidi was Chief Executive Officer at AgenTus Therapeutics, a pre-clinical stage biopharmaceutical company. Mr. Lucidi was trained in Oncology at the Gustave Roussy Institute, Villejuif, France, in Marketing and Strategic Management of Companies at the Ecole Superieure de Commerce, Paris, France, and in Finance, Merger and Acquisitions at the Investment Banking Institute in New York. We believe Mr. Lucidi is qualified to serve on our Board due to his extensive experience in the life sciences industry.

Polly Murphy, D.V.M., Ph.D. has served as a member of our Board since August 2020. Dr. Murphy has served as Chief Business Officer at UroGen Pharma, Inc. since August 2020. Since September 2008, Dr. Murphy has served

at Pfizer, Inc., most recently as Vice President and Head of Commercial Development Pfizer Oncology Business Unit from January 2019 to August 2020, Vice President and Head of Global Marketing and Commercial Development Pfizer Oncology Business Unit from June 2017 to December 2018 and as Vice President and Head of Strategy and Business Development for Pfizer China from November 2013 to May 2018. Dr. Murphy received her D.V.M. and Ph.D. from Iowa State University. We believe Dr. Murphy is qualified to serve on our Board due to her experience in the pharmaceutical industry in business development and commercialization.

Bruce Polsky, M.D., has served as a member of our Board since November 2014. Dr. Polsky is the chair of the Department of Medicine at NYU Winthrop Hospital in Mineola, New York, where he has practiced since 2015. He also serves as professor and Chair of the Department of Medicine at NYU Long Island School of Medicine and as an Associate Dean at NYU Long Island School of Medicine. Dr. Polsky is a leading clinical virologist who played an active role in clinical investigations of HIV/AIDS, HBV, HCV and other viral infections. From 1998 to 2015, Dr. Polsky was at Mount Sinai St. Luke's and Mount Sinai Roosevelt Hospitals, where he served as Chair of the Department of Medicine and as Chief of the Division of Infectious Diseases, among other positions. Dr. Polsky received his M.D. from Wayne State University. We believe Dr. Polsky is qualified to serve on our Board due to his extensive clinical experience in the life sciences industry.

Board Composition and Election of Directors

Director Independence

Our board of directors currently consists of eight members. Our board will consist of eight members following the resignation of Dr. Borisenko and Ms. Chen, which will be effective upon the effectiveness of the registration statement relating to this offering. Our board of directors has determined that, of these eight 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 the Nasdaq Rules. The Nasdaq Rules' independence definition includes a series of objective tests, such as that the director is not, and has not been for at least three years, one of our employees and that neither the director nor any of his or her family members has engaged in various types of business dealings with us. In addition, as required by the Nasdaq Rules, our board of directors has made a subjective determination as to each independent director that no relationships exists that, in the opinion of our board of directors, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In making these determinations, our board of directors reviewed information provided by the directors and us with regard to each director's business and personal activities and relationships as they may relate to us and our management. 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.

Board Leadership Structure

Our board of directors is currently chaired by Dr. Jean-Pierre Sommadossi. 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 established three standing committees—audit, compensation and nominating and corporate governance—each of which operates 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.Ateapharma.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:

- 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 Nasdaq Rules. Our board of directors has determined that and meet the independence requirements of Rule 10A-3 under the Exchange Act and the applicable Nasdaq Rules. 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.

Compensation Committee

The compensation committee's responsibilities include:

- 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 . serves as the chairperson of the committee. Our board of directors has determined that each of 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.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee's responsibilities include:

- 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 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 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.Ateapharma.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:

- Jean-Pierre Sommadossi, Ph.D., Chairman and Chief Executive Officer;
- Andrea Corcoran, Chief Financial Officer and Executive Vice President, Legal; and
- Daniel Geffken, former Interim Chief Financial Officer.

Mr. Geffken resigned his position as our Interim Chief Financial Officer in October 2020, and was succeeded by Ms. Corcoran. 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 ($)	Bonus ($)(1)	Option Awards ($)(2)	Non-Equity Incentive Plan Compensation ($)	All Other Compensation ($)(3)	Total ($)
Jean-Pierre Sommadossi Founder, Chairman and Chief Executive Officer	2019	400,000	160,000	251,080	—	—	811,080
Andrea Corcoran Chief Financial Officer and Executive Vice President, Legal	2019	290,000	75,000	75,324	—	—	440,324
Daniel Geffken Former Interim Chief Financial Officer	2019	—		101,426	—	145,000	246,426

(1) Amounts represent the discretionary annual bonus paid in recognition of 2019 performance. Refer to "—2019 Bonuses" below for additional information.

(2) Amounts represent the aggregate grant date fair value of stock options issued 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 these options in Note 2 to the consolidated financial statements included in this prospectus.

(3) For Mr. Geffken, amount represents fees paid to Danforth for Mr. Geffken's services pursuant to a consulting agreement between the Company and Danforth. Mr. Geffken is a founder of Danforth. Mr. Geffken resigned his position as our Interim Chief Financial Officer in October 2020, and was succeeded by Ms. Corcoran. Refer to "—Executive Compensation Arrangements" below for additional information regarding the consulting agreement.

NARRATIVE TO SUMMARY COMPENSATION TABLE

2019 Salaries

Each of Dr. Sommadossi and Ms. Corcoran receives a base salary to provide a fixed component of compensation reflecting the executive's skill set, experience, role and responsibilities. Mr. Geffken was not an employee of the Company and therefore did not receive a base salary from the Company. Annual base salaries are reviewed periodically by the board of directors. Effective January 1, 2019, following its annual review, the board of directors increased the base salaries for the named executive officers as follows:

- Dr. Sommadossi's base salary was increased from $350,000 to $400,000 per year; and

- Ms. Corcoran's base salary was increased from $242,000 to $290,000 per year.

Effective January 1, 2020, following its annual review, the board of directors increased the base salaries for the named executive officers as follows:

- Dr. Sommadossi's base salary was increased from $400,000 to $412,000 per year; and
- Ms. Corcoran's base salary was increased from $290,000 to $298,700 per year.

2019 Bonuses

Our board of directors may elect to provide annual bonuses to each of Dr. Sommadossi and Ms. Corcoran based on the executive's or our annual performance. In December 2019, our board of directors evaluated the performance of Dr. Sommadossi and Ms. Corcoran for fiscal year 2019 and, in recognition of the Company's and each executive's performance, elected to pay each of them the respective discretionary cash bonus set forth above in the 2019 Summary Compensation Table.

Equity Compensation

In 2019, we granted stock options to our employees and certain other service providers, 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 per share equal to the fair market value of our common stock on the date of grant, as determined by the board of directors.

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

Named Executive Officer	2019 Stock Options Granted
Jean-Pierre Sommadossi	200,000
Andrea Corcoran	60,000
Daniel Geffken	116,891

These stock options were granted under our 2013 Equity Incentive Plan which we refer to as the Prior Plan, with exercise prices equal to $1.85 for Dr. Sommadossi and Ms. Corcoran and $1.43 for Mr. Geffken, which the board of directors determined to be the fair market value of our common stock on the date of grant. The option granted to each of Dr. Sommadossi and Ms. Corcoran vests in 48 equal monthly installments on the final day of each month following the date of grant, with the first installment vesting on December 31, 2019, subject to continued employment through each applicable vesting date. The option granted to Mr. Geffken vests in 24 monthly installments over the two years following the date of grant, subject to the consulting agreement between Danforth and the Company remaining in effect. Refer to "—Executive Compensation Arrangements" below for additional information regarding the consulting agreement.

In connection with this offering, we intend to adopt a 2020 Omnibus Incentive 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 the Company and certain of its affiliates and to enable the Company and certain of its affiliates to obtain and retain services of these individuals, which we consider to be essential to our long-term success. Following the effective date of the 2020 Plan, we will not make any further grants under the Prior Plan. However, the Prior Plan will continue to govern the terms and conditions of the outstanding awards previously granted under it. For additional information about the 2020 Plan, please see the section titled "Incentive Compensation Plans" below.

Other Elements of Compensation

During their employment, our named executive officers are eligible to participate in our employee benefit plans and programs, including medical and dental benefits, to the same extent and on the same terms as our other full-time employees generally. As a non-employee service provider of the Company, Mr. Geffken did not participate in our employee benefit plans and programs.

Outstanding Equity Awards at 2019 Fiscal Year-End

The following table summarizes the outstanding equity incentive plan awards for each named executive officer as of December 31, 2019.

		Option Awards			
Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date
Jean-Pierre Sommadossi	12/13/2019(1)	4,167	195,833	1.85	12/12/2029
	12/14/2018(1)	54,167	145,833	1.43	12/14/2028
	12/8/2017(2)	323,889	61,111	1.53	12/8/2027
	12/9/2016(3)	300,000		1.24	12/9/2026
Andrea Corcoran	12/13/2019(1)	1,250	58,750	1.85	12/12/2029
	12/4/2018(1)	16,250	43,750	1.43	12/14/2028
	12/8/2017(4)	41,667	18,333	1.53	12/8/2027
	12/9/2016(4)	60,000		1.24	12/9/2026
Daniel Geffken	7/31/2019(5)	24,352	92,539	1.43	7/30/2029

(1) The option vests in 48 equal monthly installments beginning December 31 of the year of grant, subject to continued employment through each applicable vesting date.

(2) The option was vested as to 185,000 shares on the date of grant and the remaining portion of the option vests in 36 equal monthly installments beginning December 31 of the year of grant, subject to continued employment through each applicable vesting date.

(3) The option was vested as to 75,000 shares on the date of grant and the remaining portion of the option vests in 36 equal monthly installments beginning December 31 of the year of grant, subject to continued employment through each applicable vesting date.

(4) The option vests in 36 equal monthly installments beginning December 31 of the year of grant, subject to continued employment through each applicable vesting date.

(5) The option vests in 24 equal monthly installments beginning at the end of each one-month period following the date of grant, subject to the consulting agreement between Danforth and the Company remaining in effect through each such vesting date. If the Company terminates the consulting agreement without cause prior to the first anniversary of the date of grant, the vesting of any unvested portion of the option will immediately accelerate, vest and become exercisable.

Executive Compensation Arrangements

During 2019, neither Dr. Sommadossi nor Ms. Corcoran was a party to an agreement providing for any severance, termination or change in control benefits or payments.

During 2019, we were party to a consulting agreement with Danforth, or the Danforth Agreement, pursuant to which we paid Danforth for services rendered by certain of its consultants, including Mr. Geffken. The Danforth Agreement is terminable by either party other than for cause upon 60 days' prior written notice to the other party. On October 1, 2020, we notified Danforth that the Danforth Agreement would terminate upon expiration of the 60 day notice period, and Mr. Geffken resigned his position as our Interim Chief Financial Officer with immediate effect.

Compensation Changes in Connection with Initial Public Offering

In connection with this offering, we may enter into new or additional compensation arrangements with our named executive officers. The terms of any such arrangements are not yet known.

Director Compensation

Historically, our non-employee directors have not received cash compensation for their services and have instead, from time to time, been compensated with stock option awards in amounts determined by our board of directors. In September 2019, at the time of his election to the board of directors, we granted Mr. Berger an option to purchase 50,000 shares of our common stock for an exercise price of $1.43 per share, which our board of directors determined to be the per share fair market value of our common stock on the date of grant. The option vests on the last day of each calendar month following September 20, 2019, subject to Mr. Berger's continued service on the applicable vesting date. None of our other non-employee directors received any compensation for serving on our board during 2019.

Dr. Sommadossi is a member of our board of directors but does not receive additional compensation for this service. Refer to "Executive Compensation" above for additional information regarding the compensation earned by Dr. Sommadossi in 2019.

2019 Director Compensation Table

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)(1)	Option Awards ($)(1)	Non-Equity Incentive Plan Compensation ($)	Nonqualified Deferred Compensation Earnings ($)	All Other Compensation ($)	Total ($)
Franklin Berger	—	—	33,015	—	—	—	33,015
Grigory Borisenko, Ph.D.	—	—	—	—	—	—	—
Bihua Chen	—	—	—	—	—	—	—
Isaac Cheng, M.D.	—	—	—	—	—	—	—
Bruno Lucidi	—	—	—	—	—	—	—
Polly Murphy, D.V.M.; Ph.D.	—	—	—	—	—	—	—
Bruce Polsky, M.D.	—	—	—	—	—	—	—
Frank Yu(2)	—	—	—	—	—	—	—
Evgeny Zaytsev(3)	—	—	—	—	—	—	—

(1) Amount reflects 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 Mr. Berger. We provide information regarding the assumptions used to calculate the value of the option awards in Note 2 to the consolidated financial statements included in this prospectus.

(2) Mr. Yu resigned from our board of directors on December 11, 2019.

(3) Mr. Zaytsev resigned from our board of directors on January 31, 2019.

The table below shows the aggregate numbers of option awards (exercisable and unexercisable) held as of December 31, 2019 by each non-employee director who was serving as of December 31, 2019. None of these individuals held unvested stock awards as of December 31, 2019.

Name	Options Outstanding at Fiscal Year End
Franklin Berger	50,000
Bruno Lucidi	125,000
Bruce Polsky	125,000
Grigory Borisenko	—
Bihua Chen	—
Isaac Cheng	—
Polly Murphy, D.V.M.; Ph.D.	—

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 and will become effective on the effectiveness of the registration statement for which this prospectus forms a part. The terms of this program have not yet been determined.

Incentive Compensation Plans

The following summarizes the material terms of the 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 Prior Plan, under which we have previously made periodic grants of equity and equity-based awards to our directors and named executive officers.

2020 Omnibus Incentive 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 the Company. The material terms of the 2020 Plan are summarized below.

Eligibility and Administration

Our employees, consultants and directors, and employees, directors 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. As of , 2020, approximately employees, six non-employee directors and consultants would have been eligible to participate in the 2020 Plan if it had been in effect.

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 on January 1 of each calendar year beginning in 2020 and ending in and including 2029, 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, or ISOs. 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 Prior 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 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, RSUs 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 bonuses); 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 but not limited to 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 may be based solely upon 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," 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 2020 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 of our board of directors 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 a purchase right under the 2020 ESPP 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. A participant's rights under the 2020 ESPP 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 the termination of outstanding rights in exchange for cash, (2) the assumption or substitution of outstanding rights by the successor or survivor corporation or the 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 the 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.

2013 Equity Incentive Plan

Our board of directors and stockholders have approved our Prior Plan, under which we may grant stock options and other stock-based awards to employees, directors and consultants of the Company. We have reserved a total of 10,979,971 shares of our common stock for issuance under the Prior Plan.

Following the effectiveness of the 2020 Plan, we will not make any further grants under the Prior Plan. However, the Prior Plan will continue to govern the terms and conditions of the outstanding awards granted under it. Shares of our common stock subject to awards granted under the Prior Plan that are forfeited, lapse unexercised or are settled in cash and which following the effective date of the 2020 Plan are not issued under the Prior Plan will be available for issuance under the 2020 Plan.

Eligibility and Administration

Our employees, officers, and directors, as well as consultants and advisors to the Company are eligible to receive awards under the Prior Plan. Our board of directors or a committee thereof administers the Prior Plan. Subject to the express terms and conditions of the Prior Plan, the plan administrator has the authority to make all determinations and interpretations under the Prior Plan, prescribe all forms for use with the Prior Plan and adopt, alter and/or rescind rules, guidance and practices for the administration of the Prior Plan. The plan administrator also sets the terms and conditions of all awards under the Prior Plan, including any vesting and vesting acceleration conditions.

Awards

The Prior Plan provides for the grant of stock options (including NSOs and ISOs), restricted stock, RSUs, and other equity-based awards. As of September 30, 2020, options to purchase 7,001,747 shares of our common stock and 200,000 shares of restricted stock were outstanding under the Prior Plan.

Certain Transactions

The plan administrator has broad discretion to adjust the provisions of the Prior Plan and the terms and conditions of awards, including with respect to aggregate number and kind of shares subject to the Prior Plan and awards granted pursuant to the Prior Plan and the purchase or exercise price of awards granted pursuant to the Prior Plan, to prevent substantial dilution or enlargement of the rights of participants under the Prior Plan in the event of certain transactions and events affecting our common stock, such as stock dividends, stock splits, recapitalizations, consolidations and other corporate transactions. The plan administrator may also provide for the acceleration, cash-out, assumption, substitution or conversion of awards in the event of a certain transactions, including a “change in control” (as such term is defined in the Prior Plan).

Amendment and Termination

The plan administrator may terminate, amend or modify the Prior Plan at any time and from time to time. The administrator may also amend, modify or terminate any outstanding award, including but not limited to, substituting therefor another award. No change to the Prior Plan or an award outstanding under the Prior Plan may materially and adversely affect outstanding awards without the holder’s consent. Furthermore, we must generally obtain stockholder approval to the extent required by applicable law, rule or regulation (including any applicable stock exchange rule).

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 the lesser of (i) $120,000 or (ii) one percent of the average of our total assets at fiscal yearend for our last two fiscal years, 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.

Preferred Stock Financings

Series C Preferred Stock Financing. From June 2018 to July 2018, we issued and sold to investors in private placements an aggregate of 6,052,617 shares of our Series C convertible preferred stock at a purchase price of $4.56 per share, for aggregate consideration of approximately $27.6 million.

Series D Preferred Stock Financing. In May 2020, we issued and sold to investors in a private placement an aggregate of 15,313,382 shares of our Series D convertible preferred stock at a purchase price of $7.02 per share, for aggregate consideration of approximately $107.5 million.

The following table sets forth the aggregate number of shares of our capital stock acquired by beneficial owners of more than 5% of our capital stock in the financing transactions described above. Each share of our Series C preferred stock identified in the following table will convert into one share of common stock immediately prior to the closing of this offering. Each share of our Series D 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 C Preferred Stock	Series D Preferred Stock
5% or Greater Stockholders(1)		
Bain Capital Life Sciences Fund II, L.P.	—	3,015,872
BCIP Life Sciences Associates, LP	—	367,318
Cormorant Private Healthcare Fund I, LP	1,951,053	—
Cormorant Private Healthcare Fund II L.P.	—	575,427
Cormorant Global Healthcare Master Fund, LP	587,632	136,823
Morningside Venture Investments Limited	800,438	1,068,376

(1) Additional details regarding these stockholders and their equity holdings are provided in this prospectus under the caption “Principal Stockholders.”

Some of our directors are associated with our principal stockholders as indicated in the table below:

Director	Principal Stockholder
Bihua Chen	Cormorant Private Healthcare Fund I, LP
	Cormorant Private Healthcare Fund II L.P.
	Cormorant Global Healthcare Master Fund, LP
Andrew Hack, M.D. Ph.D.	Bain Capital Life Sciences Fund II, L.P.
	BCIP Life Sciences Associates, LP
Isaac Cheng, M.D.	Morningside Venture Investments Limited

Stockholders Agreement

We entered into a Fourth Amended and Restated Stockholders Agreement on May 19, 2020, by and among us and certain of our stockholders, pursuant to which the following directors were designated to serve as members on our board of directors and, as of the date of this prospectus, so serve: Dr. Sommadossi, Mr. Berger, Mr. Borisenko, Ms. Chen, Dr. Cheng, Dr. Hack, Mr. Lucidi, Dr. Murphy and Dr. Polsky. Dr. Jean-Pierre Sommadossi, Mr. Franklin Berger, Dr. Bruce Polsky and Mr. Bruno Lucidi were selected to serve on our board of directors as a representatives of holders of our common stock. Dr. Cheng was selected to serve on our board of directors as a representative of holders of our Series A preferred stock. Mr. Borisenko was selected to serve on our board of directors as a representative of holders of our preferred stock, as designated by the entities affiliated with RMI Investments S.A.R.L. Ms. Chen was selected to serve on our board of directors as a representative of holders of our preferred stock, as designated by the entities affiliated with Cormorant Private Healthcare Fund I, LP. Dr. Hack was selected to serve on our board of directors as a representative of holders of our preferred stock, as designated by the entities affiliated with Bain Capital Life Sciences Investors, LLC.

The stockholders agreement will terminate upon the consummation of this offering. The composition of our board of directors after this offering is described in more detail under “Management—Board Composition and Election of Directors.”

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. For further information, see “Executive and Director Compensation—Limitations of Liability and Indemnification.”

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.”

Danforth Consulting Agreement

In August 2019, we engaged Danforth, a consulting firm specializing in providing financial and strategic support to life sciences companies and an affiliate of Daniel Geffken, who served as our interim Chief Financial Officer from August 2019 to October 2020. On October 1, 2020 we notified Danforth that we are terminating this agreement, which will terminate 60 days from the date of notification. Pursuant to this agreement, we paid professional fees to Danforth of $145,000 and granted stock options to purchase 116,891 shares of common stock at an exercise price of $1.43 per share to Mr. Geffken in 2019. See “Executive and Director Compensation—Executive Compensation Arrangements.”

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 September 30, 2020 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 10,309,847 shares of common stock outstanding as of September 30, 2020, 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 September 30, 2020 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 125 Summer Street, Boston, MA 02110. 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.

Name of Beneficial Owner	Number of Shares of Common Stock	Percentage Before this Offering	Percentage After this Offering
5% or Greater Stockholders			
JPM Partners LLC(1)		%	%
Morningside Investments Limited(2)			
Entities Affiliated with Cormorant Private Healthcare Fund I, LP(3)			
Entities Affiliated with Bain Capital Life Sciences Investors, LLC(4)			
Entities Affiliated with ABG-ATEAB LIMITED(5)			
Named Executive Officers and Directors			
Jean-Pierre Sommadossi, Ph.D.			
Andrea Corcoran			
Daniel Geffken			
Franklin Berger			
Grigory Borisenko, Ph.D.			
Bihua Chen			
Isaac Cheng, M.D.			
Andrew Hack, M.D., Ph.D.			
Bruno Lucidi			
Polly Murphy, D.V.M., Ph.D.			
Bruce Polsky, M.D.			

Name of Beneficial Owner	Number of Shares of Common Stock	Percentage Before this Offering	Percentage After this Offering
All executive officers and directors as a group (14 persons)		**%**	**%**

* Less than 1%.

(1)
(2)
(3)
(4)
(5)

DESCRIPTION OF CAPITAL STOCK

General

The following description summarizes some of the terms of our restated certificate of incorporation and amended and restated bylaws that will become effective upon the closing of this offering, the investors' 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 restated certificate of incorporation, amended and restated bylaws and investors' 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 , 2020, there were shares of our common stock outstanding held of record by stockholders, including shares of unvested restricted common stock subject to repurchase by us, shares of Series A Preferred Stock held of record by stockholders, shares of Series B Preferred Stock held of record by stockholders, shares of Series C Preferred Stock held of record by stockholders, shares of Series D Preferred Stock held of record by stockholders, and shares of Series D-1 Preferred Stock 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 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 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 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 September 30, 2020, options to purchase 7,001,747 shares of our common stock were outstanding under our Prior Plan, of which 2,857,918 were exercisable and of which 4,143,829 were unvested as of that 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 investors' rights agreement by and among us and certain of our stockholders, until the rights otherwise terminate pursuant to the terms of the investors' 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 beginning 180 days after the closing date of this offering the holders of a majority of registrable securities request in writing that we effect a registration with respect to all or part of such registrable securities then outstanding and having an anticipated gross aggregate offering price that would exceed $15,000,000, we may be required to register their shares; 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-1 for the holders of registrable securities. 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 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 at least 30% of the then outstanding registrable securities request in writing that we effect a registration with respect to registrable securities at an aggregate price to the public in the offering of at least $5,000,000, 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 and subject to certain exceptions, 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, not to exceed $20,000, of a counsel for the selling security holders 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 earliest to occur of three years after the effective date of the registration statement of which this prospectus is a part, the closing of a deemed liquidation event, or such time as an exemption under the Securities Act is available for the sale of all of the registrable securities..

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; provided that the exclusive forum provisions will not apply to suits brought to enforce any liability or duty created by the Securities Act or the Exchange Act, or to any claim for which the federal courts have exclusive 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 further provides that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America shall, to the fullest extent permitted by law, be the sole and exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. 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 American Stock Transfer & Trust Company, LLC.

Stock Exchange Listing

We intend to apply to have our common stock listed on The Nasdaq Global Market under the symbol “AVIR.”

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 September 30, 2020. 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 7,001,747 shares of our common stock that were subject to stock options outstanding as of September 30, 2020, options to purchase 2,857,918 shares of common stock were vested as of September 30, 2020 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 J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, Evercore Group L.L.C. and William Blair & Company, L.L.C., 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, 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 the shares of 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 foreign tax laws are not discussed. This discussion is based on the Internal Revenue Code of 1986, as amended, or the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the U.S. Internal Revenue Service, or IRS, in each case in effect as of the date of this offering. 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. 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 alternative minimum tax or the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to holders subject to particular rules, including, without limitation:

- U.S. expatriates and former citizens or long-term residents of the United States;
- 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;
- “qualified foreign pension funds” as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds;
- persons subject to special tax accounting rules as a result of any item of gross income with respect to the stock being taken into account in an applicable financial statement. and
- tax-qualified retirement plans.

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.

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:

- an individual who is a citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust 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 made a valid election under applicable Treasury Regulations to continue to be treated as a United States person for U.S. federal income tax purposes.

Distributions

As described in the section in this prospectus titled “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 of Common Stock.”

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 or fixed base 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 applicable to United States persons. 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 of Common Stock***

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 or fixed base 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 U.S. federal income tax rates. A non-U.S. holder that is a foreign 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.

A non-U.S. holder 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) on any gain derived from the disposition, which may be offset by certain 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 are not currently and do not anticipate becoming a USRPHC. Because the determination of whether we are a USRPHC depends on the fair market value of our USRPIs relative to the fair market value of our other business assets and our non-U.S. real property interests, if any, however, there can be no assurance we 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 of our common stock by a non-U.S. holder 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 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 distributions on our common stock paid to the non-U.S. holder, regardless of whether such distributions constitute dividends or whether any tax was actually withheld. Copies of these information returns may also be made available under the provisions of a specific treaty or agreement to the tax authorities of the country in which the non-U.S. holder resides or is established.

In addition, the proceeds of a 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 such 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.

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 paid 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, proposed Treasury Regulations eliminate FATCA withholding on payments of gross proceeds entirely. Taxpayers (and withholding agents) generally may rely on these proposed Treasury Regulations until final Treasury Regulations are issued. Prospective investors should consult their tax advisors regarding the potential application of withholding under FATCA to their investment in our common stock.

UNDERWRITING

We are offering the shares of common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, Evercore Group L.L.C. and William Blair & Company, L.L.C. are acting as joint book-running managers of the offering and as representatives of the underwriters. We have entered into an underwriting agreement with the representatives. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of common stock listed next to its name in the following table:

Name	Number of Shares
J.P. Morgan Securities LLC	
Morgan Stanley & Co. LLC	
Evercore Group L.L.C.	
William Blair & Company, L.L.C.	
Total	

The underwriters are committed to purchase all the common shares offered by us if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the common shares directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $ per share. Any such dealers may resell shares to certain other brokers or dealers at a discount of up to $ per share from the initial public offering price. After the initial offering of the shares to the public, if all of the common shares are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. Sales of any shares made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to additional shares of common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares. If any shares are purchased with this option to purchase additional shares, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Without option to purchase additional shares exercise	With full option to purchase additional shares exercise
Per Share	$	$
Total	$	$

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $. We have agreed to reimburse the underwriters for expenses of up to $ related to clearance of this offering with the Financial Industry Regulatory Authority, or FINRA.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in this offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not (i) 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, or submit to, or file with, the Securities and Exchange Commission a registration statement under the Securities Act relating to, any shares of our common stock or securities convertible into or exercisable or exchangeable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, loan, disposition or filing, or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of any shares of common stock or any such other securities (regardless of whether any of these transactions are to be settled by the delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, Evercore Group L.L.C. and William Blair & Company, L.L.C. for a period of 180 days after the date of this prospectus, other than the shares of our common stock to be sold in this offering.

The restrictions on our actions, as described above, do not apply to (i) the issuance of shares of common stock or securities convertible into or exercisable for shares of our common stock pursuant to the conversion or exchange of convertible or exchangeable securities or the exercise of warrants or options (including net exercise) or the settlement of restricted stock units (“RSU”) (including net settlement), in each case outstanding on the date of the underwriting agreement and described in this prospectus; (ii) grants of stock options, stock awards, restricted stock, RSUs, or other equity awards and the issuance of shares of our common stock or securities convertible into or exercisable or exchangeable for shares of our common stock (whether upon the exercise of stock options or otherwise) to our employees, officers, directors, advisors, or consultants pursuant to the terms of an equity compensation plan in effect as of the closing of this offering and described in this prospectus; (iii) the issuance of up to 5% of the outstanding shares of our common stock, or securities convertible into, exercisable for, or which are otherwise exchangeable for, our common stock, immediately following the closing of this offering, in acquisitions or other similar strategic transactions; or (iv) our filing of any registration statement on Form S-8 relating to securities granted or to be granted pursuant to any plan in effect on the date of the underwriting agreement and described in this prospectus or any assumed benefit plan pursuant to an acquisition or similar strategic transaction; provided that the recipient of any such shares or securities issued or granted pursuant to clauses (i), (ii) and (iii) during the 180-day restriction period described above shall enter into a “lock-up” agreement with the underwriters.

Our directors, executive officers and our shareholders (such persons, the “lock-up parties”) have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each lock-up party, with limited exceptions, for a period of 180 days after the date of this prospectus (such period, the “restricted period”), may not (and may not cause any of their direct or indirect affiliates to), without the prior written consent of J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, Evercore Group L.L.C. and William Blair & Company, L.L.C., (1) 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 our common stock (including, without limitation, common stock or such other securities which may be deemed to be beneficially owned by such lock-up parties in accordance with the rules and regulations of the Securities and Exchange Commission and securities which may be issued upon exercise of a stock option or warrant) (collectively with the common stock, the "lock-up securities"), (2) enter into any hedging, swap or other agreement or transaction that transfers, in whole or in part, any of the economic consequences of ownership of the lock-up securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of lock-up securities, in cash or otherwise, (3) make any demand for, or exercise any right with respect to, the registration of any lock-up securities, or (4) publicly disclose the intention to do any of the foregoing. Such persons or entities have further acknowledged and agreed that these undertakings preclude them from engaging in any hedging or other transactions or arrangements (including, without limitation, any short sale or the purchase or sale of, or entry into, any put or call option, or combination thereof, forward, swap or any other derivative transaction or instrument, however described or defined) designed or intended, or which could reasonably be expected to lead to or result in, a sale or disposition or transfer (by any person or entity, whether or not a signatory to such agreement) of any economic consequences of ownership, in whole or in part, directly or indirectly, of any lock-up securities, whether any such transaction or arrangement (or instrument provided for thereunder) would be settled by delivery of lock-up securities, in cash or otherwise.

The restrictions described in the immediately preceding paragraph and contained in the lock-up agreements between the underwriters and the lock-up parties do not apply, subject in certain cases to various conditions, to certain transactions, including (a) transfers of lock-up securities: (i) as bona fide gifts, or for bona fide estate planning purposes, (ii) by will or intestacy, (iii) to any trust for the direct or indirect benefit of the lock-up party or any immediate family member, or if the lock-up party is a trust, to a trustor or beneficiary of the trust or to the estate of a beneficiary of such trust, (iv) to a partnership, limited liability company or other entity of which are controlled or managed by the lock-up party or its immediate family members or under common control of the lock-up party, (v) to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (i) through (iv), (vi) in the case of a corporation, partnership, limited liability company, trust or other business entity, (A) to another corporation, partnership, limited liability company, trust or other business entity that is an affiliate of the lock-up party, or to any investment fund or other entity controlling, controlled by, managing or managed by or under common control with the lock-up party or its affiliates or (B) as part of a distribution to members or stockholders of the lock-up party; (vii) by operation of law, (viii) to us from an employee upon death, disability or termination of employment of such employee, (ix) as part of a sale of lock-up securities acquired in this offering or in open market transactions after the completion of this offering, (x) to us in connection with the vesting, settlement, or exercise of restricted stock units, options, warrants or other rights to purchase shares of our common stock (including "net" or "cashless" exercise), including for the payment of exercise price and tax and remittance payments, provided that any such shares of common stock received upon such exercise, vesting or settlement shall be subject to a similar lock-up agreement with the underwriters, and provided further that any such restricted stock units, options, warrants or rights are held by the lock-up parties pursuant to an agreement or equity awards granted under a stock incentive plan or other equity award plan, each such agreement or plan which is described herein, or (xi) pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction approved by our board of directors and made to all shareholders involving a change in control, provided that if such transaction is not completed, all such lock-up securities would remain subject to the restrictions in the immediately preceding paragraph; (b) exercise of the options, settlement of RSUs or other equity awards, or the exercise of warrants granted pursuant to plans described in this prospectus, provided that any lock-up securities received upon such exercise, vesting or settlement would be subject to a similar lock-up agreement with the underwriters; (c) the conversion of outstanding preferred stock, warrants to acquire preferred stock, or convertible securities into shares of our common stock or warrants to acquire shares of our common stock,

provided that any common stock or warrant received upon such conversion would be subject to a similar lock-up agreement with the underwriters; and (d) the establishment by lock-up parties of trading plans under Rule 10b5-1 under the Exchange Act, provided that (i) such plan does not provide for the transfer of lock-up securities during the restricted period and (ii) no filing by any party under the Exchange Act or other public announcement shall be required or made voluntarily in connection with such trading plan;

provided that (A) in the case of any transfer or distribution pursuant to clause (a)(i), (ii), (iii), (iv), (v), (vi) and (vii), such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall enter into a similar lock-up agreement with the underwriters and (B) in the case of any transfer or distribution pursuant to clause (a) (i), (ii), (iii), (iv), (v), (vi), (ix) and (x), no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period). J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, Evercore Group L.L.C. and William Blair & Company, L.L.C., in their sole discretion, may release the securities subject to any of the lock-up agreements with the underwriters described above, in whole or in part at any time.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

We have applied to have our common stock approved for listing/quotation on The Nasdaq Global Market under the symbol “AVIR.”

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the common stock while this offering is in progress. These stabilizing transactions may include making short sales of common stock, which involves the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this offering, and purchasing shares of common stock on the open market to cover positions created by short sales. Short sales may be “covered” shorts, which are short positions in an amount not greater than the underwriters’ option to purchase additional shares referred to above, or may be “naked” shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the option to purchase additional shares. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act of 1933, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the common stock or preventing or retarding a decline in the market price of the common stock, and, as a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on The Nasdaq Global Market, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined by negotiations between us and the representatives of the underwriters. In determining the initial public offering price, we and the representatives of the underwriters expect to consider a number of factors including:

the information set forth in this prospectus and otherwise available to the representatives;

our prospects and the history and prospects for the industry in which we compete;

an assessment of our management;

our prospects for future earnings;

the general condition of the securities markets at the time of this offering;

the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and other factors deemed relevant by the underwriters and us.

Neither we nor the underwriters can assure investors that an active trading market will develop for our common shares, or that the shares will trade in the public market at or above the initial public offering price.

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Other Activities and Relationships

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. William Blair & Company, L.L.C. provided certain financial advisory and investment banking services in connection with our Series D closings. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Selling Restrictions

Notice to prospective investors in European Economic Area and United Kingdom

In relation to each Member State of the European Economic Area and the United Kingdom (each a “Relevant State”), no shares have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation,

except that it may make an offer to the public in that Relevant State of any shares 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 representatives 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 the shares shall require the Issuer or any Manager to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an “offer to the public” in relation to the shares in any Relevant 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.

Notice to prospective investors in United Kingdom

In the United Kingdom, this prospectus supplement is only being distributed to, and is only directed at, and any investment or investment activity to which this prospectus supplement relates is available only to, and will be engaged in only with, persons who are “qualified investors” (as defined in the Prospectus Regulation) (i) having professional experience in matters relating to investments who fall within the definition of “investment professionals” in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the “Order”); or (ii) who are high net worth entities falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as “relevant persons”). Persons who are not relevant persons should not take any action on the basis of this prospectus supplement and should not act or rely on it.

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 of National Instrument 33-105 Underwriting Conflicts (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.

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 ("SIX") or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a prospectus within the meaning of, and 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 FINMA (FINMA), and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("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 United Arab Emirates

The shares have not been, and are not being, publicly offered, sold, promoted or advertised in the United Arab Emirates (including the Dubai International Financial Centre) other than in compliance with the laws of the United Arab Emirates (and the Dubai International Financial Centre) governing the issue, offering and sale of securities. Further, this prospectus does not constitute a public offer of securities in the United Arab Emirates (including the Dubai International Financial Centre) and is not intended to be a public offer. This prospectus has not been approved by or filed with the Central Bank of the United Arab Emirates, the Securities and Commodities Authority or the Dubai Financial Services Authority.

Notice to prospective investors in Australia

This prospectus:

- does not constitute a disclosure document or a prospectus under Chapter 6D.2 of the Corporations Act 2001 (Cth) (the "Corporations Act");
- has not been, and will not be, lodged with the Australian Securities and Investments Commission ("ASIC"), as a disclosure document for the purposes of the Corporations Act and does not purport to include the information required of a disclosure document for the purposes of the Corporations Act; and
- may only be provided in Australia to select investors who are able to demonstrate that they fall within one or more of the categories of investors, available under section 708 of the Corporations Act ("Exempt Investors").

The shares may not be directly or indirectly offered for subscription or purchased or sold, and no invitations to subscribe for or buy the shares may be issued, and no draft or definitive offering memorandum, advertisement or other offering material relating to any shares may be distributed in Australia, except where disclosure to investors is not required under Chapter 6D of the Corporations Act or is otherwise in compliance with all applicable Australian laws and regulations. By submitting an application for the shares, you represent and warrant to us that you are an Exempt Investor.

As any offer of shares under this document will be made without disclosure in Australia under Chapter 6D.2 of the Corporations Act, the offer of those securities for resale in Australia within 12 months may, under section 707 of the Corporations Act, require disclosure to investors under Chapter 6D.2 if none of the exemptions in

section 708 applies to that resale. By applying for the shares you undertake to us that you will not, for a period of 12 months from the date of issue of the shares, offer, transfer, assign or otherwise alienate those shares to investors in Australia except in circumstances where disclosure to investors is not required under Chapter 6D.2 of the Corporations Act or where a compliant disclosure document is prepared and lodged with ASIC.

Notice to prospective investors in Japan

The shares have not been and will not be registered pursuant to Article 4, Paragraph 1 of the Financial Instruments and Exchange Act. Accordingly, none of the shares nor any interest therein may be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any "resident" of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan in effect at the relevant time.

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 the Laws of Hong Kong) (the "SFO") of Hong Kong and any rules made thereunder; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) (the "CO") or which do not constitute an offer to the public within the meaning of the CO. 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 SFO and any rules made thereunder.

Notice to prospective investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, 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 corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contract (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:

- to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- where no consideration is or will be given for the transfer;
- where the transfer is by operation of law;
- as specified in Section 276(7) of the SFA; or
- as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore SFA Product Classification—Solely for the purposes of its obligations pursuant to sections 309B(1)(a) and 309B(1)(c) of the SFA, the Company has determined, and hereby notifies all relevant persons (as defined in Section 309A of the SFA) that the shares are "prescribed capital markets products" (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

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 Davis Polk & Wardwell LLP.

EXPERTS

The consolidated financial statements of Atea Pharmaceuticals, Inc. as of December 31, 2019 and 2018, and for the years then ended, have been included herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

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 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*.

ATEA PHARMACEUTICALS, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Atea Pharmaceuticals, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Atea Pharmaceuticals, Inc. and subsidiary (the Company) as of December 31, 2019 and 2018, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' deficit, and cash flows for the years then ended, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years then ended, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these 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 audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits 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 audits 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 audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2014.

Boston, Massachusetts

June 18, 2020

ATEA PHARMACEUTICALS, INC.
Consolidated Balance Sheets
(in thousands, except share and per share amounts)

	December 31,	
	2019	**2018**
Assets		
Current assets		
Cash and cash equivalents	$ 21,661	$ 34,492
Prepaid expenses and other current assets	249	206
Total current assets	21,910	34,698
Property and equipment, net	41	56
Other assets	122	107
Total assets	$ 22,073	$ 34,861
Liabilities, Convertible Preferred Stock and Stockholders' Deficit		
Current liabilities		
Accounts payable	$ 548	$ 391
Accrued expenses and other current liabilities	1,887	1,369
Total current liabilities	2,435	1,760
Other liabilities	95	148
Total liabilities	2,530	1,908
Commitments and contingencies (see Note 6)		
Convertible preferred stock, $0.001 par value; 33,645,447 shares authorized, issued and outstanding as of December 31, 2019 and 2018; liquidation preference of $70,606 as of December 31, 2019	69,114	69,114
Stockholders' deficit:		
Common stock, $0.001 par value; 53,070,161 shares authorized as of December 31, 2019 and 2018; 10,091,100 shares issued and outstanding as of December 31, 2019 and 2018	10	10
Additional paid-in capital	4,632	4,008
Accumulated deficit	(54,213)	(40,179)
Total stockholders' deficit	(49,571)	(36,161)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 22,073	$ 34,861

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Consolidated Statements of Operations and Comprehensive Loss
(in thousands, except share and per share amounts)

	Year Ended December 31,	
	2019	**2018**
Operating expenses		
Research and development	$ 10,170	$ 6,675
General and administrative	4,438	2,802
Total operating expenses	14,608	9,477
Loss from operations	(14,608)	(9,477)
Interest income and other, net	574	413
Net loss and comprehensive loss	$ (14,034)	$ (9,064)
Net loss per share attributable to common stockholders—basic and diluted	$ (1.39)	$ (0.90)
Weighted-average common shares outstanding—basic and diluted	10,091,100	10,039,392
Pro forma net loss per share attributable to common stockholders—basic and diluted (unaudited)	$ (0.32)	
Pro forma weighted-average common shares outstanding—basic and diluted (unaudited)	43,736,547	

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Consolidated Statements of Convertible Preferred Stock and Stockholders' Deficit
(in thousands, except share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balance—January 1, 2018	27,592,830	$ 41,755	9,987,767	$ 10	$ 3,594	$ (31,115)	$ (27,511)
Issuance of Series C convertible preferred stock, net of issuance costs of $241	6,052,617	27,359	—	—	—	—	—
Vesting of restricted common stock	—	—	103,333	—	—	—	—
Stock-based compensation expense	—	—	—	—	414	—	414
Net loss	—	—	—	—	—	(9,064)	(9,064)
Balance—December 31, 2018	33,645,447	69,114	10,091,100	10	4,008	(40,179)	(36,161)
Stock-based compensation expense	—	—	—	—	624	—	624
Net loss	—	—	—	—	—	(14,034)	(14,034)
Balance—December 31, 2019	33,645,447	$ 69,114	10,091,100	$ 10	$ 4,632	$ (54,213)	$ (49,571)

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Consolidated Statements of Cash Flows
(in thousands)

	Year Ended December 31,	
	2019	**2018**
Cash flows from operating activities		
Net loss	$ (14,034)	$ (9,064)
Adjustments to reconcile net loss to net cash used in operating activities		
Stock-based compensation expense	624	414
Depreciation and amortization expense	17	17
Changes in operating assets and liabilities		
Prepaid expenses and other current assets	(43)	86
Accounts payable	157	(90)
Accrued expenses and other liabilities	465	729
Net cash used in operating activities	(12,814)	(7,908)
Cash flows from investing activities		
Additions to property and equipment	(2)	(12)
Net cash used in investing activities	(2)	(12)
Cash flows from financing activities		
Proceeds from issuance of convertible preferred stock, net of issuance costs	—	27,359
Proceeds from grant of restricted common stock award	—	124
Payments made for initial public offering costs	(15)	—
Net cash provided by (used in) financing activities	(15)	27,483
Net increase (decrease) in cash, cash equivalents and restricted cash	(12,831)	19,563
Cash, cash equivalents and restricted cash at the beginning of period	34,599	15,036
Cash, cash equivalents and restricted cash at the end of period	$ 21,768	$34,599
Cash, cash equivalents and restricted cash at the end of period		
Cash and cash equivalents	$ 21,661	$34,492
Restricted cash	107	107
Total cash, cash equivalents and restricted cash	$ 21,768	$34,599

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Notes to Consolidated Financial Statements
(in thousands, except share and per share amounts.)

1. Nature of Organization

Organization

Atea Pharmaceuticals, Inc. (together with its subsidiary, “Atea” or “the Company”), is a biopharmaceutical company that was incorporated in July 2012 and began principal operations in March 2014. The Company is using a chemistry driven approach and its drug discovery and development capabilities to identify and develop novel antiviral therapeutics. The Company is located in Boston, Massachusetts. Atea Pharmaceuticals Securities Corporation, or Atea PSC, a Massachusetts corporation incorporated in 2016, is a wholly owned subsidiary of Atea.

Risks and Uncertainties

The Company is subject to risks and uncertainties common to clinical stage biopharmaceutical companies. These risks include, but are not limited to, potential failure of preclinical and clinical studies, uncertainties associated with research and development activities generally, competition from technical innovations of others, dependence upon key personnel, compliance with governmental regulations, the need to obtain marketing approval for any product candidate that the Company may discover and develop, the need to gain broad acceptance among patients, payers and health care providers to successfully commercialize any product for which marketing approval is obtained and the need to secure and maintain adequate intellectual property protection for the Company’s proprietary technology and products. Further, the Company is currently dependent on third-party service providers for much of its preclinical research, clinical development and manufacturing activities. Product candidates currently under development will require significant amounts of additional capital, additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval, prior to commercialization. Even if the Company is able to generate revenues from the sale of its product candidates, if approved, it may not become profitable. If the Company fails to become profitable or is unable to sustain profitability on a continuing basis, then it may be unable to continue its operations at planned levels and be forced to reduce its operations. The Company is also subject to risks associated with the COVID-19 global pandemic, including actual and potential delays associated with our ongoing and anticipated trials, and potential negative impacts on the Company’s business operations and its ability to raise additional capital to finance its operations.

The Company has financed its operations to date from the sale of convertible preferred stock. Since its inception, the Company has incurred recurring operating losses and negative cash flows from operations. As of December 31, 2019, the Company had an accumulated deficit of $54,213. The Company expects to continue to generate operating losses for the foreseeable future. As discussed in Note 13, in May 2020, the Company entered into a stock purchase agreement and issued 15,313,382 shares of Series D convertible preferred stock (“Series D Preferred”) for gross proceeds of $107,500. Management believes its existing cash resources, including $107,500 received in May 2020, will be sufficient to fund its operations as currently planned for at least twelve months following the issuance of these financial statements.

The Company is seeking to complete an initial public offering, or IPO, of its common stock. In the event that the Company does not complete an IPO, the Company may seek additional capital through one or more of a combination of private financing through the sale of additional equity securities, debt financing or funding in connection with any collaborative relationships it may enter into or other arrangements. There can be no assurance that the Company will be able to obtain such additional funding, on terms acceptable to the Company, on a timely basis or at all. The terms of any financing may adversely affect the holdings or the rights of the Company’s existing shareholders.

2. Summary of Significant Accounting Policies

Basis of Presentation and Use of Estimates

The accompanying consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America, or GAAP.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and in these accompanying notes. The Company bases its estimates on historical experience, known trends and other market-specific or other relevant factors and assumptions that it believes to be reasonable under the circumstances. On an ongoing basis, management evaluates its estimates, which include but are not limited to estimates of accrued research and development expenses and the valuation of common stock in connection with the issuance of stock-based awards. Changes in estimates are recorded in the period in which they become known.

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and Atea PSC. All intercompany amounts have been eliminated in consolidation.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with maturities of 90 days or less at acquisition to be cash equivalents. Cash and cash equivalents include bank demand deposits and money market funds that invest in U.S. government and U.S. government agency obligations. Cash equivalents are reported at fair value.

Concentrations of Credit Risk and Significant Suppliers

Financial instruments that potentially subject the Company to concentrations of credit risk are primarily cash and cash equivalents. The Company maintains its cash and cash equivalents with a financial institution that management believes is creditworthy. The Company's investment policy includes guidelines on the quality of the financial institutions and financial instruments and defines allowable investments that the Company believes minimizes the exposure to concentration of credit risk.

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 active pharmaceutical ingredients and formulated drugs related to these programs. These programs could be adversely affected by a significant interruption in the supply of active pharmaceutical ingredients and formulated drugs.

Fair Value Measurement

Assets and liabilities recorded at fair value on a recurring basis in the balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair values. Fair value is defined as the exchange price that would be received for an asset or an exit price that would be paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The authoritative guidance on fair value measurements establishes a three-tier fair value hierarchy for disclosure of fair value measurements as follows:

Level 1—Observable inputs such as unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

Level 2—Observable inputs (other than quoted prices included in Level 1) that are either directly or indirectly observable for the asset or liability. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to determination of fair value of the assets or liabilities.

Cash, cash equivalents and restricted cash are Level 1 assets which are comprised of funds held in checking and money market accounts. Cash, cash equivalents and restricted cash were recorded at fair value as disclosed in Note 3. The carrying amounts of accounts payable and accrued expenses approximate their fair values due to their short-term maturities.

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation and amortization. Property and equipment are depreciated using the straight-line method over the estimated useful lives of the asset. The Company estimates the useful life of its assets as follows:

Asset	Estimated useful life
Laboratory equipment	Five years
Office furniture and fixtures	Five years
Computer hardware	Two years
Leasehold improvements	Shorter of useful life or remaining lease term

Maintenance and repairs that do not improve or extend the life of the respective asset are expensed to operations as incurred. Upon disposal of an asset, the related cost and accumulated depreciation are removed from the accounts and any resulting gain or loss is included in the results of operations.

Other Assets

Other assets consists primarily of bank deposits of $107, classified as restricted cash, to collateralize a letter of credit.

Impairment of Long-lived Assets

The Company reviews long-lived assets when events or changes in circumstances indicate the carrying value of the assets may not be recoverable. Recoverability is measured by comparing the book value of the assets to the estimated undiscounted future net cash flows that the asset is expected to generate. If the estimated undiscounted future net cash flows are less than the book value, the asset is impaired, and the impairment loss to be recognized in income is measured as the amount by which the book value of the asset exceeds its fair value, which is measured based on the estimated discounted future net cash flows that the asset is expected to generate. No impairment losses were recorded during the years ended December 31, 2019 and 2018.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development expenses consist principally of costs associated with outsourced research and development activities, including preclinical and clinical development, manufacturing and research conducted by contract research organizations and academic institutions, employee compensation and consulting expenses together with related expenses, professional fees and facility and overhead costs. Facility and overhead costs primarily include the allocation of rent, utility and office-related expenses attributable to research and development personnel. In circumstances where amounts

have been paid in advance or in excess of costs incurred, the Company records a prepaid expense, which is expensed as services are performed or goods are delivered.

The Company has entered into various research and development contracts with third parties. 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, including the phase of 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.

Patent Costs

Costs to secure and maintain the Company's patents are expensed as incurred and are classified as general and administrative expenses in the Company's consolidated statements of operations.

Stock-based Compensation

Stock-based compensation expense is classified in the consolidated statement of operations in the same manner in which the award recipient's payroll costs are classified or in which the award recipients' service payments are classified. Stock-based awards granted to employees and non-employees are measured based on the estimated fair value of the awards using the Black-Scholes option pricing model, or Black-Scholes. Stock-based compensation expense with respect to awards with service conditions is recognized using the straight-line method over the service period. Stock-based compensation with respect to awards with performance conditions is recognized when satisfaction of the performance conditions is probable. Stock-based compensation is based on awards ultimately expected to vest and, as such, it is reduced by forfeitures. The Company accounts for forfeitures as they occur.

Black-Scholes requires the use of subjective assumptions which determine the fair value of stock-based awards. These assumptions include:

Fair value of common stock—Historically, because there has been no public market for the Company's common stock, the fair value of the Company's common stock underlying stock-based awards was estimated on each grant date by the board of directors.

Risk-free interest rate—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of a stock-based award.

Expected term—The expected term represents the period that stock-based awards are expected to be outstanding. Given the Company's lack of specific history, the expected term for option grants is determined using the simplified method. The simplified method deems the term to be the average of the time-to-vesting and the contractual life of the stock-based awards.

Expected volatility—Since the Company is privately held and does not have any trading history for its common stock, the expected volatility is estimated based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock-based awards. The comparable companies were chosen based on their similar size, stage in the life cycle or area of specialty. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available.

Expected dividend yield —The Company has never paid dividends on its common stock and has no plans to pay dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax base. Deferred tax assets, which relate primarily to the carrying amount of the Company's net operating loss carryforwards, are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Deferred tax expense or benefit is the result of changes in the deferred tax assets and liabilities. Valuation allowances are established to reduce deferred tax assets where, based upon the available evidence, the Company concludes that it is more-likely-than-not that the deferred tax assets will not be realized. In evaluating its ability to recover deferred tax assets, the Company considers all available positive and negative evidence, including its operating results, ongoing tax planning and forecasts of future taxable income.

Reserves are provided for tax benefits for which realization is uncertain. Such benefits are only recognized when the underlying tax position is considered more-likely-than-not to be sustained on examination by a taxing authority. Interest and penalties related to uncertain tax positions are recognized in the provision of income taxes.

Comprehensive Loss

Comprehensive income (loss) includes net income (loss) as well as other changes in stockholder equity (deficit) that result from transactions and economic events other than those with equity holders. The Company did not have any items of comprehensive income or loss other than net loss for the years ended December 31, 2019 and 2018.

Net Loss Per Share Attributable to Common Stockholders

The Company calculates basic and diluted net loss per share attributable to common stockholders in conformity with the two-class method required for participating securities. The Company considers its convertible preferred stock to be participating securities as, in the event a dividend is paid on common stock, the holders of convertible preferred stock would be entitled to receive dividends on a basis consistent with the common stockholders. Under the two-class method, the net loss attributable to common stockholders is not allocated to the convertible preferred stock as the holders of the convertible preferred stock do not have a contractual obligation to share in losses.

Since inception, the Company has incurred recurring operating losses and, as such, under the two-class method, basic net loss per share attributable to common stockholders is computed by dividing the net loss attributable to common stockholders by the weighted average number of shares of common stock. Under the two-class method, for periods with net income, basic net income per common share is computed by dividing the net income attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period. Net income attributable to common stockholders is computed by subtracting from net income the portion of current year earnings that the participating securities would have been entitled to receive pursuant to their dividend rights had all of the year's earnings been distributed. No such adjustment to earnings is made during periods with a net loss, as the holders of the participating securities have no obligation to fund losses. Diluted net loss per common share is computed by using the weighted-average number of shares of common stock outstanding. Due to net losses for the year ended December 31, 2019 and 2018, basic and diluted net loss per share attributable to common stockholders were the same, as the effect of all potentially dilutive securities would have been anti-dilutive.

Unaudited Pro Forma Information

Upon closing of a qualified public offering, all of the Company's outstanding shares of convertible preferred stock will automatically convert into shares of common stock. The unaudited pro forma basic and diluted net loss per share were computed using the weighted average number of common shares outstanding after giving effect to the conversion of all the convertible preferred stock into shares of common stock as if such conversion had occurred at the beginning of the period presented or the date of original issuance, if later.

Segments

Operating segments are defined as components of an entity for which separate financial information is available and that is regularly reviewed by the chief operating decision maker, or CODM, in deciding how to allocate resources to an individual segment and in assessing performance. The Company's CODM is its chief executive officer, who manages and allocates resources to the operations on a total company basis. Accordingly, there is a single operating segment and one reportable segment.

Emerging Growth Company Status

The Company is an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012, or JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act, until such time as those standards apply to private companies. The Company has elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that it (i) is no longer an emerging growth company or (ii) affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. As a result, these consolidated financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

Recently Issued Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board ("FASB") issued ASU No. 2016-02, *Leases*, which requires a lessee to record a right-of-use asset and a corresponding lease liability on the balance sheet for all leases with terms longer than 12 months. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. As the Company has elected to use the extended transition period for complying with new or revised accounting standards as available under the Jobs Act, the standard is effective for the Company beginning January 1, 2021, with early adoption permitted. The Company is currently evaluating the expected impact that the standard could have on its consolidated financial statements and related disclosures.

In July 2017, the FASB issued ASU No. 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), 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 2017-11").* Part I applies to entities that issue financial instruments such as warrants, convertible debt or convertible preferred stock that contain down-round features. Part II replaces the indefinite deferral for certain mandatorily redeemable noncontrolling interests and mandatorily redeemable financial instruments of nonpublic entities contained within ASC Topic 480 with a scope exception and does not impact the accounting for these mandatorily redeemable instruments. As the Company has elected to use the extended transition period for complying with new or revised accounting standards as available under the Jobs Act, the standard is effective for the Company beginning January 1, 2021, with early adoption permitted. The Company is currently evaluating the expected impact that the standard could have on its consolidated financial statements and related disclosures.

Recently Adopted Accounting Pronouncements

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Topic 606) ("ASU 2014-09"), which supersedes existing revenue recognition guidance under GAAP. The standard's core principle is that a company will recognize 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 defines 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 2014-09 also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts. In August 2015, the FASB issued ASU No. 2015-14, Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date, which delays the effective date of ASU 2014-09 such that the standard is effective for annual periods beginning after December 15, 2018. The FASB subsequently issued amendments to ASU 2014-09 that have the same effective date and transition date. The Company adopted ASU 2014-09 as of January 1, 2019 and the adoption did not have an impact on the Company's consolidated financial statements as the Company does not currently have any revenue-generating arrangements.

In August 2018, the FASB issued ASU 2018-13, *Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurements,* which changes the fair value measurement disclosure requirements of ASC 820. The goal of the ASU is to improve the effectiveness of ASC 820's disclosure requirements. The standard is applicable to the Company for fiscal years beginning January 1, 2020 and interim periods within those years. The Company elected to early adopt this guidance effective January 1, 2019. The adoption of this guidance did not have an effect the Company's consolidated financial statements.

3. Fair Value Measurements

The following tables present information about the Company's financial assets measured at fair value on a recurring basis and indicate the level of the fair value hierarchy utilized to determine such fair values:

	Fair Value Measurements as of December 31, 2019			
	Level 1	**Level 2**	**Level 3**	**Total**
Cash equivalents				
Money market funds	$21,038	$ —	$ —	$21,038
Total cash equivalents	$21,038	$ —	$ —	$21,038

	Fair Value Measurements as of December 31, 2018			
	Level 1	**Level 2**	**Level 3**	**Total**
Cash equivalents				
Money market funds	$33,398	$ —	$ —	$33,398
Total cash equivalents	$33,398	$ —	$ —	$33,398

The Company's assets with fair value categorized as Level 1 within the fair value hierarchy include money market funds. Money market funds are publicly traded mutual funds and are presented as cash equivalents on the consolidated balance sheets as of December 31, 2019 and 2018.

There were no transfers among Level 1, Level 2 or Level 3 categories in the years ended December 31, 2019 and 2018.

4. Property and Equipment, net

Property and equipment, net, consist of the following:

	December 31,	
	2019	2018
Laboratory equipment	$ 5	$ 5
Office furniture and fixtures	13	13
Computer hardware	11	9
Leasehold improvements	125	125
Total property and equipment, at cost	154	152
Less: accumulated depreciation and amortization	(113)	(96)
Property and equipment, net	$ 41	$ 56

Depreciation and amortization expense was $17 for each of the years ended December 31, 2019 and 2018.

5. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following:

	December 31,	
	2019	2018
Research and development	$1,326	$1,026
License fees (Note 6)	200	200
Professional fees and other	361	143
Total accrued expenses and other current liabilities	$1,887	$1,369

6. Commitments and Contingencies

Operating Lease Agreements

The Company leases an office facility under a non-cancelable operating lease that expires July 2022. The office lease includes commitments obligating the Company to pay a pro rata share of certain building operating costs and annual rent escalations which will result in higher lease payments in future years. Rent expense is recognized on a straight-line basis over the term of the lease with the difference between expense and the payments recorded as deferred rent, which is included in accrued expenses and other current liabilities and other liabilities.

As of December 31, 2019, future minimum payments for operating leases are as follows:

2020	$335
2021	340
2022	200
Total future minimum lease payments	$875

Rent expense recognized under all operating leases was $305 and $316 for the years ended December 31, 2019 and 2018, respectively.

The Company is required to maintain a letter of credit for the duration of the office lease. The Company maintains bank deposits of $107 to collateralize the letter of credit which are classified as restricted cash and a long-term asset in the consolidated balance sheet as of December 31, 2019.

License Agreement with NovaMedica LLC

In May 2014, the Company entered into an exclusive license agreement with NovaMedica LLC, an affiliated entity of a stockholder, pursuant to which the Company granted NovaMedica a license to certain intellectual property rights for commercialization of a potential product for the treatment of hepatitis C. In connection with the license, the Company received a license fee of $200 in partial consideration for the grant of the license. Recognition of the license fee has been deferred and recorded in other liabilities until both the Company and NovaMedica finalize certain other terms and conditions of the license agreement at which time the technology access fee will be evaluated, along with the license agreement broadly, for revenue recognition.

If the Company and NovaMedica failed to agree on the terms of an amendment to the license agreement covering certain payment terms, and the license agreement was thereafter terminated, such termination was to be subject to a payment by the Company of a termination fee of $400. As discussed in Note 13, this agreement was terminated in May 2020, and the Company paid a termination fee of $400.

Business Development Consulting Agreement

The Company is a party to a consulting agreement that provides for the payment by the Company of consideration, consisting of cash, up to a maximum of $1,750, and the vesting of equity awards, if a business development transaction that meets or exceeds certain thresholds is successfully concluded on or before December 31, 2020 (Note 9). As of December 31, 2019, the performance conditions were not yet probable of being met and, as a result, no expense has yet to be recognized in connection with the consulting agreement in the consolidated statement of operations.

Indemnification

The Company enters into certain types of contracts that contingently requires the Company to indemnify various parties against claims from third parties. These contracts primarily relate to (i) the Company's bylaws, under which the Company must indemnify directors and executive officers, and may indemnify other officers and employees, for liabilities arising out of their relationship, (ii) contracts under which the Company must indemnify directors and certain officers and consultants for liabilities arising out of their relationship, and (iii) procurement, service or license agreements under which the Company may be required to indemnify vendors, service providers or licensees for certain claims, including claims that may be brought against them arising from the Company's acts or omissions with respect to the Company's products, technology, intellectual property or services.

From time to time, the Company may receive indemnification claims under these contracts in the normal course of business. In the event that one or more of these matters were to result in a claim against the Company, an adverse outcome, including a judgment or settlement, may cause a material adverse effect on the Company's future business, operating results or financial condition. It is not possible to determine the maximum potential amount potentially payable under these contracts since the Company has no history of prior indemnification claims and the unique facts and circumstances involved in each particular claim will be determinative.

7. Convertible Preferred Stock

As of December 31, 2019, the Company had 33,645,447 shares of convertible preferred stock, or Convertible Preferred Stock, authorized, of which 20,000,000 shares are designated as Series A convertible preferred

stock, or Series A Preferred; 7,592,830 shares are designated as Series B convertible preferred stock, or Series B Preferred; and 6,052,617 shares are designated as Series C convertible preferred stock, or Series C Preferred. The Company's Series A Preferred, Series B Preferred and Series C Preferred were issued at $1.00, $3.03 and $4.56 per share, respectively. The following table summarizes the Company's outstanding Convertible Preferred Stock:

	December 31, 2019 and 2018				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred	20,000,000	20,000,000	$ 19,136	$ 20,000	20,000,000
Series B Preferred	7,592,830	7,592,830	22,619	23,006	7,592,830
Series C Preferred	6,052,617	6,052,617	27,359	27,600	6,052,617
	33,645,447	33,645,447	$ 69,114	$ 70,606	33,645,447

The Company classifies Convertible Preferred Stock outside of stockholders' deficit because the shares contain deemed liquidation rights in the event of a merger, consolidation, or reorganization involving the Company or a subsidiary or upon the sale, lease, transfer, exclusive license or other disposition by the Company or a subsidiary of all or substantially all assets of the Company that could trigger a distribution of cash or assets and therefore a contingent redemption feature not solely within the Company's control.

The rights and preferences of Convertible Preferred Stock are described below:

Voting

Holders of the Convertible Preferred Stock preferred stock are entitled to vote, together with the holders of common stock, on all matters as to which holders of common stock are entitled to vote, except with respect to matters which Delaware General Corporation Law, or DGCL, or the certificate of incorporation requires that a vote by separate class. Each holder of Convertible Preferred Stock is entitled to one vote for each share of common stock into which the Convertible Preferred Stock is convertible at the time of such vote.

Certain actions specified in the certificate of incorporation require the affirmative vote of Requisite Preferred Holders, which are the holders of a majority of the Series B Preferred and Series C Preferred voting together as a single class, while other actions require: (i) the affirmative vote of holders of least 57% of Series C Preferred voting as a separate class; (ii) the affirmative vote of holders of at least 67% of the Series B Preferred voting as a separate class; or (iii) the affirmative vote of holders of a majority of the outstanding Convertible Preferred Stock voting as a single class.

At any time when an aggregate of 6,000,000 shares of Series B Preferred and Series C Preferred are outstanding, the affirmative vote of the Requisite Preferred Holders is required to (i) purchase, redeem or pay or declare any dividend or make any distribution on any class of stock other than certain specified transactions; or (ii) create or authorize the creation of any class or series of capital stock unless the new class ranks junior to the Series C Preferred and Series B Preferred.

At any time when at least 3,800,000 shares of Series B Preferred are outstanding, the affirmative vote of the holders of at least 67% of the Series B Preferred is required to: (i) amend, alter or repeal the certificate of incorporation or bylaws in any way that adversely affects the powers, preferences or rights of the holders of Series B Preferred; (ii) increase or decrease the authorized number of shares of Series B Preferred; and (iii) approve any liquidation event in which a holder of Series B Preferred would receive less than $3.03 per share in connection with such event.

At any time when at least 2,200,000 shares of Series C Preferred are outstanding, the affirmative vote of the holders of at least 57% of the Series C Preferred is required to: (i) amend, alter or repeal the certificate of incorporation or bylaws in any way that adversely affects the powers, preferences or rights of the holders of Series C preferred; (ii) purchase, redeem or pay or declare any dividend or make any distribution on any class of stock other than certain specified transactions; (iii) increase or decrease the authorized number of shares of Series C Preferred; and (iv) approve any liquidation event in which a holder of Series C Preferred would receive less than $4.56 per share in connection with such event.

As long as at least 11,000,000 shares of Convertible Preferred Stock are outstanding, the affirmative vote of the holders of a majority of the outstanding Convertible Preferred Stock, voting as a single class, is required to affect any liquidation, dissolution, or winding up of the business and affairs of the Company.

The holders of Series A Preferred, Series B Preferred and the Series C Preferred, voting respectively as separate classes, each have the right to elect a director to the board of directors. The right to elect such a director shall continue for holders of Series A Preferred for so long as 5,000,000 shares of Series A Preferred are outstanding, for holders of Series B Preferred for so long as 5,000,000 shares of Series B Preferred are outstanding and for holders of Series C Preferred for so long as 2,741,228 shares of Series C Preferred are outstanding. The remainder of the board of directors, excluding one director that may be elected by holders of common stock voting as a separate class, is elected by the holders of the Convertible Preferred Stock voting together with holders of the common stock as a single class and otherwise in accordance with the stockholders' agreement.

Dividends

Holders of shares of Convertible Preferred Stock are entitled to dividends only if, when and as declared by the board of directors. The Company is prohibited from declaring, paying or setting aside any dividends unless the holders of the then outstanding Convertible Preferred Stock receive first, or simultaneously, in the case of a dividend on common stock, on a *pari passu* basis, a dividend in an amount that is at least equal to the amount that would have been received by the holders of the Convertible Preferred Stock had all the Convertible Preferred Stock been converted to common stock. As of December 31, 2019, no dividends have been declared or paid on the Convertible Preferred Stock.

Liquidation Preference

In the event of any liquidation, dissolution, winding up of the affairs or deemed liquidation event of the Company, the holders of Series C Preferred are entitled to receive in preference to the holders of Series A Preferred and Series B Preferred and the common stock, an amount equal to the greater of (1) the original purchase price of the Series C Preferred plus all declared but unpaid dividends, or (2) such amount per share of Series C Preferred payable as if converted into common stock. After the preferential payment to holders of the Series C Preferred, the holders of Series A Preferred and Series B Preferred, on a *pari passu* basis and prior and in preference to the holders of common stock, are entitled to receive an amount equal to the greater of (1) the original purchase price of the applicable series of preferred stock plus all declared but unpaid dividends, or (2) such amount per share of preferred stock payable as if converted into common stock. After the preferential distributions are made to the holders of Convertible Preferred Stock, any remaining assets of the Company will be distributed ratably among the holders of common stock. If the assets or surplus funds to be distributed to the holders of the Convertible Preferred are insufficient to permit the payment to such holders of their full preferential amount, the assets and surplus funds legally available for distribution will be distributed in preferential order, first to the holders of Series C Preferred and next to the holders of Series A Preferred and Series B Preferred, in each instance, ratably in proportion to the respective amount that would have been paid if all amounts payable on or with respect to such shares had been paid in full.

In the event of a deemed liquidation event, holders of Convertible Preferred Stock may require the Company to redeem their shares at a price equal to the liquidation amount.

Conversion

Each share of Convertible Preferred Stock is convertible into common stock on a one-for-one basis. Conversion is at the option of the holder of the Convertible Preferred Stock except upon either the closing of a firm commitment underwritten public offering in which shares of common stock are sold at a price of at least $5.48 per share (subject to appropriate adjustment for stock splits, stock dividends, combinations and other similar recapitalizations affecting the number of such shares issued and outstanding) resulting in gross proceeds of at least $50 million, or upon the written election of the Requisite Preferred Holders in which event conversion of Series A Preferred and Series B Preferred is automatic and Series C Preferred will convert provided that holders of at least 57% of then outstanding Series C Preferred consent to such conversion. The conversion price of each of the Series C Preferred, Series B Preferred and Series A Preferred at December 31, 2019 is equal to the respective original issue price of each series.

The conversion price is subject to adjustment in accordance with provisions in the certificate of incorporation. Specifically, the holders of Convertible Preferred Stock are entitled to weighted average anti-dilution protection in the event that the Company issues additional securities at a purchase price less than the then effective conversion price.

Registration Rights

The holders of the Convertible Preferred Stock may require the Company in certain circumstances to register for sale the shares of common stock issuable upon conversion of the Convertible Preferred Stock. Such registration would permit the sale of the underlying common stock under the Securities Act of 1933, as amended.

Participation Rights in Future Equity Issuances

All holders of Convertible Preferred Stock have a pro rata right, based on their percentage equity ownership in the Company, to participate, subject only to certain limited exceptions, in subsequent issuances of equity securities of the Company. In addition, should any such holder choose not to purchase its full pro rata share, the remaining holders of Convertible Preferred Stock have the right to purchase the remaining pro rata shares.

Redemption rights

Convertible Preferred Stock has no stated redemption features. However, the Convertible Preferred Stock does contain deemed liquidation rights in the event of a merger, consolidation, or reorganization involving the Company or a subsidiary or on the sale, lease, transfer, exclusive license or other disposition by the Company or a subsidiary of all or substantially all assets of the Company that could trigger a distribution of cash or assets not solely within the Company’s control.

8. Common Stock

At December 31, 2019, the authorized capital of the Company included 53,070,161 shares of common stock, of which 10,091,100 shares of common stock were considered issued and outstanding for accounting purposes. As discussed in Note 9, restricted stock awards for an aggregate 200,000 shares are excluded from issued and outstanding shares for accounting purposes. On all matters to be voted upon by the holders of common stock, holders of common stock are entitled to one vote per share. Subject to the rights and preferences applicable to the outstanding shares of Convertible Preferred Stock, the holders of common stock are entitled to receive dividends, when declared by the board, and to share ratably in the Company’s assets legally available for

distribution to the holders of the Company's stock in the event of liquidation. The holders of common stock have no preemptive, redemption or conversion rights.

The Company had the following reserved shares of common stock:

	December 31, 2019
Series A Preferred	20,000,000
Series B Preferred	7,592,830
Series C Preferred	6,052,617
Outstanding options	3,911,633
Options available for future grant	450,567
	38,007,647

9. Stock-based Compensation

As of December 31, 2019, the Atea Pharmaceuticals 2013 Equity Incentive Plan, as amended, or 2013 Plan, provides for the grant of incentive stock options, non-qualified stock options, restricted common stock awards and other awards for up to 7,807,200 shares of common stock to employees, officers, directors and consultants of the Company.

As of December 31, 2019, options to purchase 3,986,633 shares of common stock and 3,370,000 shares of restricted common stock have been granted under the 2013 Plan, and there were 450,567 shares of common stock remaining available for future issuance.

Restricted Common Stock

Restricted stock awards generally include vesting and risk of forfeiture provisions that lapse upon satisfaction of performance conditions or over time periods commencing on the grant date and concluding on the third or fourth anniversary of the grant date.

The Company has granted awards totaling 200,000 shares of restricted common stock to a consultant pursuant to the 2013 Plan for consulting and business development services. The consultant paid $1.21 per share and an aggregate of $121 for 100,000 of the shares of restricted common stock in 2016 and $1.24 per share and an aggregate of $124 for 100,000 of the shares of restricted common stock in 2018. These awards of restricted common stock will vest, and the risk of forfeiture will lapse upon satisfaction of performance conditions detailed in each award. As of December 31, 2019, the performance conditions were not yet probable of being met and, as a result, no compensation expense has yet been recognized for these performance-based awards. The unvested and forfeitable common stock as of December 31, 2019 and 2018, though legally issued, are excluded from issued and outstanding shares for accounting purposes. Amounts received for the unvested and forfeitable common stock totaling $245 are included in additional paid-in capital within stockholders' deficit in the consolidated balance sheets. At December 31, 2019, total unrecognized compensation expense related to unvested restricted common stock was $370.

Stock Options

The following summarizes stock option activity:

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding at January 1, 2019	2,820,000	$ 1.40	8.9	$ 2,059
Granted	1,091,633	$ 1.78		
Outstanding at December 31, 2019	3,911,633	$ 1.50	8.5	$ 3,915
Options exercisable at December 31, 2019	1,967,824	$ 1.37	7.7	$ 2,252
Vested or expected to vest at December 31, 2019	3,911,633	$ 1.50	8.5	$ 3,915

The aggregate intrinsic value of options granted is calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock for those options that had exercise prices lower than the fair value of the Company's common stock.

Option grants generally vest over a service period of three or four years and have a contractual term of ten years. There were no options exercised, forfeited or expired during the years ended December 31, 2019 and 2018. As of December 31, 2019, total unrecognized compensation expense related to stock option awards was $1,927, which amount is being recognized over a remaining weighted average period of 2.5 years.

The weighted average grant date fair value per option granted to employees during the years ended December 31, 2019 and 2018 was $1.19 and $0.774, respectively. The fair value of each award was estimated using Black-Scholes based on the following assumptions:

	For the Year Ended December 31,	
	2019	2018
Risk-free interest rate	1.61 - 2.02%	2.45 - 2.89%
Expected term	5.52 - 10.0 years	5.52 - 9.96 years
Expected volatility	49.2% - 78.0%	49.2%
Expected dividend yield	0%	0%

Stock-based Compensation Expense

Stock-based compensation expense is classified as follows:

	For the Year Ended December 31,	
	2019	2018
Research and development expense	$ 255	$ 192
General and administrative	369	222
Total stock-based compensation expense	$ 624	$ 414

The components of stock-based compensation expense were:

	For the Year Ended December 31,	
	2019	2018
Restricted common stock	$ —	$ 5
Stock options	624	409
Total stock-based compensation expense	$ 624	$ 414

10. Income Taxes

During the years ended December 31, 2019 and 2018, the Company did not record a current or deferred income tax expense or benefit.

The reconciliation of federal statutory income tax rate to the Company's effective income tax rate is as follows:

	For the Year Ended December 31,	
	2019	2018
Federal statutory income tax rate	21.0%	21.0%
State taxes	6.2	4.0
Research and development credits	0.9	1.1
Other	(0.5)	0.3
Change in valuation allowance	(27.6)	(26.4)
Total	0.0%	0.0%

Deferred income taxes reflect the net effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The principal components of the Company's deferred tax assets consisted of the following:

	December 31,	
	2019	2018
Deferred tax assets		
Net operating loss carryforwards	$ 13,466	$ 9,617
Stock-based compensation	1,024	918
Research and development credits	455	335
Other	152	352
Gross deferred tax assets	15,097	11,222
Less: valuation allowance	(15,097)	(11,222)
Net deferred tax assets	$ —	$ —

As of December 31, 2019, the Company had federal net operating losses of $49,309 and state net operating loss carryforwards of $49,219. The Company also has federal and state research and development tax credit carryforwards of $348 and $136, respectively, which may be used to offset future tax liabilities. Federal net operating losses generated prior to 2018 of $27,522 can be carried back two years and carried forward 20 years. Federal net operating losses and federal tax credit carryforwards generated prior to 2018 will begin to expire in 2033. Federal net operating losses generated post 2017 of $21,787 can be carried forward indefinitely but can only offset 80 percent of annual taxable income. State net operating losses will begin to expire in 2033 and state tax credit carryforwards will begin to expire in 2031.

Management has evaluated the positive and negative evidence bearing upon the realizability of the Company's deferred tax assets, which are comprised principally of net operating loss carryforwards. Based on the Company's cumulative net losses since inception and its lack of revenue generating commercial products, the Company determined that it is more likely than not that it will not recognize the benefits of the deferred tax assets. As a result, the Company has recorded a full valuation allowance of approximately $15,097 at December 31, 2019. The Company increased its valuation allowance by $3,875 for the year ended December 31, 2019 in order to maintain a full valuation allowance against its deferred tax assets.

Under the provisions of Sections 382 and 383 of the Internal Revenue Code, or IRC, net operating loss and credit carryforwards and other tax attributes may be subject to limitation if there has been a significant change in ownership of the Company, as defined by the IRC. Future owner or equity shifts, including an initial public offering, could result in limitations on net operating loss and credit carryforwards.

The Company performed an analysis through December 31, 2018 pursuant to Section 382 of the IRC to determine whether any limitations might exist on the utilization of net operating losses and other tax attributes. Based on this analysis, the Company has determined that ownership changes occurred in 2014, resulting in an annual limitation of $169 on the use of its net operating losses and other tax attributes generated prior to the ownership change. To the extent that the Company raises additional equity financing or other changes in the ownership interest of significant stockholders occurs, additional tax attributes may become subject to an annual limitation. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities.

The Company files federal and Commonwealth of Massachusetts state income tax returns. The statute of limitations for assessment by the Internal Revenue Service, or IRS, and state tax authorities remains open for all tax years ended since the inception of the Company. To the extent the Company has tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the IRS or state tax authorities to the extent utilized in a future period. No federal or state tax audits are currently in process.

The Company evaluates tax positions for recognition using a more-likely-than-not recognition threshold, and those tax positions eligible for recognition are measured as the largest amount of tax benefit that is greater than 50% likely of being realized upon the effective settlement with a taxing authority that has full knowledge of all relevant information. The Company has not recorded any amounts for unrecognized tax benefits as of December 31, 2019 nor has it recorded any penalties or interest.

11. Net Loss Per Share Attributable to Common Stockholders and Unaudited Pro Forma Information

Net Loss Per Share Attributable to Common Stockholders

The following outstanding potentially dilutive shares have been excluded from the calculation of diluted net loss per share, as their effect is anti-dilutive:

	For the Year Ended December 31,	
	2019	**2018**
Convertible Preferred Stock	33,645,447	33,645,447
Stock options to purchase common stock	3,911,633	2,820,000
Non-vested restricted stock	200,000	200,000

Unaudited Pro Forma Information

The calculation of weighted average shares outstanding for purposes of calculating pro forma net loss per share attributable to common stockholders for the year ended December 31, 2019 assumes the conversion of 33,645,447 into common shares effective January 1, 2019.

12. Related Party Transactions

For the year ended December 31, 2019, the Company recorded expense of $145 for consulting services provided by an entity affiliated with its interim Chief Financial Officer, of which $20 is included in accrued expenses and other current liabilities as of December 31, 2019.

Except as disclosed in Note 6 in the notes to the accompanying consolidated financial statements, there were no other material transactions with related parties.

13. Subsequent Events

In February 2020, the Company entered into an agreement with a consultant that requires payment of a success fee calculated as a percentage of certain product sales, subject to a cumulative maximum payout of $5.0 million.

In May 2020, the Company filed an amendment to its certificate of incorporation to increase the authorized common stock to 80,529,575 shares and authorize 15,313,382 shares of Series D Preferred and 8,973,261 shares of Series D-1 convertible preferred stock (“Series D-1 Preferred”). The Company entered into a stock purchase agreement with certain investors and issued 15,313,382 shares of Series D Preferred for gross proceeds of $107,500. Upon the achievement of a clinical trial milestone, as defined in the stock purchase agreement, the investors will be obligated to purchase 2,991,087 shares of Series D-1 Preferred for gross proceeds of $35,833. In addition, the investors will have the right to purchase up to 5,982,174 shares of Series D-1 Preferred (“Additional Series D-1 Preferred”) at a price of $11.98 per share following achievement of the clinical development milestone discussed above and the receipt of certain preclinical data as defined in the stock purchase agreement. Unless previously exercised, the option to purchase the Additional Series D-1 Preferred will terminate eight days after the filing of a registration statement for an initial public offering of the Company’s common stock.

In May 2020, the Company and Novamedica terminated the license agreement discussed in Note 6. The Company paid a termination fee of $400 in connection with the termination.

ATEA PHARMACEUTICALS, INC.
Consolidated Balance Sheets
(in thousands, except share and per share amounts)
(Unaudited)

	June 30, 2020	December 31, 2019	Pro Forma June 30, 2020
Assets			
Current assets			
Cash and cash equivalents	$115,792	$ 21,661	$ 115,792
Prepaid expenses and other current assets	2,658	249	2,658
Total current assets	118,450	21,910	118,450
Property and equipment, net	39	41	39
Other assets	1,256	122	1,256
Total assets	$119,745	$ 22,073	$ 119,745
Liabilities, Convertible Preferred Stock and Stockholders' Equity (Deficit)			
Current liabilities			
Accounts payable	$ 3,860	$ 548	$ 3,860
Accrued expenses and other current liabilities	3,198	1,887	3,198
Total current liabilities	7,058	2,435	7,058
Other liabilities	69	95	69
Total liabilities	7,127	2,530	7,127
Commitments and contingencies (see Note 6)			
Convertible preferred stock, $0.001 par value; 57,932,090 and 33,645,447 shares authorized as of June 30, 2020 and December 31, 2020, respectively; 48,958,829 and 33,645,447 shares issued and outstanding as of June 30, 2020 and December 31, 2019, respectively; liquidation preference of $178,106 and $70,606 as of June 30, 2020 and December 31, 2019, respectively; no shares authorized, issued or outstanding pro forma as of June 30, 2020	175,745	69,114	—
Stockholders' equity (deficit):			
Common stock, $0.001 par value; 80,529,575 and 53,070,161 shares authorized as of June 30, 2020 and December 31, 2019, respectively; 10,109,847 and 10,091,100 shares issued and outstanding as of June 30, 2020 and December 31, 2019, respectively; 59,068,676 shares issued and outstanding pro forma as of June 30, 2020	10	10	59
Additional paid-in capital	5,057	4,632	180,753
Accumulated deficit	(68,194)	(54,213)	(68,194)
Total stockholders' equity (deficit)	(63,127)	(49,571)	112,618
Total liabilities, convertible preferred stock and stockholders' deficit	$119,745	$ 22,073	$ 119,745

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Consolidated Statements of Operations and Comprehensive Loss
(in thousands, except share and per share amounts)
(Unaudited)

	Six Months Ended June 30,	
	2020	**2019**
Operating expenses		
Research and development	$ 10,576	$ 4,270
General and administrative	3,472	1,820
Total operating expenses	14,048	6,090
Loss from operations	(14,048)	(6,090)
Interest income and other, net	67	343
Net loss and comprehensive loss	$ (13,981)	$ (5,747)
Net loss per share attributable to common stockholders—basic and diluted	$ (1.39)	$ (0.57)
Weighted-average common shares outstanding—basic and diluted	10,093,689	10,091,100
Pro forma net loss per share attributable to common stockholders—basic and diluted	$ (0.30)	
Pro forma weighted-average common shares outstanding—basic and diluted	47,292,517	

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Consolidated Statements of Convertible Preferred Stock and Stockholders' Deficit

(in thousands, except share amounts)
(Unaudited)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balance—December 31, 2018	33,645,447	$ 69,114	10,091,100	$ 10	$ 4,008	$ (40,179)	$ (36,161)
Stock-based compensation expense	—	—	—	—	293	—	293
Net loss	—	—	—	—	—	(5,747)	(5,747)
Balance—June 30, 2019	33,645,447	$ 69,114	10,091,100	$ 10	$ 4,301	$ (45,926)	$ (41,615)
Balance—December 31, 2019	33,645,447	$ 69,114	10,091,100	$ 10	$ 4,632	$ (54,213)	$ (49,571)
Issuance of Series D convertible preferred stock, net of issuance costs of $869	15,313,382	106,631	—	—	—	—	—
Issuance of common stock for exercise of stock options	—	—	18,747	—	27	—	27
Stock-based compensation expense	—	—	—	—	398	—	398
Net loss	—	—	—	—	—	(13,981)	(13,981)
Balance—June 30, 2020	48,958,829	$175,745	10,109,847	$ 10	$ 5,057	$ (68,194)	$ (63,127)

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Consolidated Statements of Cash Flows
(in thousands)
(Unaudited)

	Six Months Ended June 30,	
	2020	**2019**
Cash flows from operating activities		
Net loss	$ (13,981)	$ (5,747)
Adjustments to reconcile net loss to net cash used in operating activities		
Stock-based compensation expense	398	293
Depreciation and amortization expense	8	9
Changes in operating assets and liabilities		
Prepaid expenses and other current assets	(2,409)	17
Accounts payable	2,643	327
Accrued expenses and other liabilities	1,035	(106)
Net cash used in operating activities	(12,306)	(5,207)
Cash flows from investing activities		
Additions to property and equipment	(6)	—
Net cash used in investing activities	(6)	—
Cash flows from financing activities		
Proceeds from issuance of convertible preferred stock, net of issuance costs	106,631	—
Proceeds from issuance of common stock for exercise of stock options	27	—
Payments of deferred offering costs	(215)	—
Net cash used in financing activities	106,443	—
Net increase (decrease) in cash, cash equivalents and restricted cash	94,131	(5,207)
Cash, cash equivalents and restricted cash at the beginning of period	21,768	34,599
Cash, cash equivalents and restricted cash at the end of period	$ 115,899	$ 29,392
Cash, cash equivalents and restricted cash at the end of period		
Cash and cash equivalents	$ 115,792	$ 29,285
Restricted cash	107	107
Total cash, cash equivalents and restricted cash	$ 115,899	$ 29,392
Supplemental disclosure of noncash financing activities		
Equity issuance costs included in accounts payable and accrued expenses	$ 919	$ —

The accompanying notes are an integral part of these consolidated financial statements.

ATEA PHARMACEUTICALS, INC.
Notes to Consolidated Financial Statements
(in thousands, except share and per share amounts.)
(Unaudited)

1. Nature of Organization

Organization

Atea Pharmaceuticals, Inc. (together with its subsidiary, “Atea” or “the Company”), is a biopharmaceutical company that was incorporated in July 2012 and began principal operations in March 2014. The Company is using a chemistry driven approach and its drug discovery and development capabilities to identify and develop novel antiviral therapeutics. The Company is located in Boston, Massachusetts. Atea Pharmaceuticals Securities Corporation, or Atea PSC, a Massachusetts corporation incorporated in 2016, is a wholly owned subsidiary of Atea.

Risks and Uncertainties

The Company is subject to risks and uncertainties common to clinical stage biopharmaceutical companies. These risks include, but are not limited to, potential failure of preclinical and clinical studies, uncertainties associated with research and development activities generally, competition from technical innovations of others, dependence upon key personnel, compliance with governmental regulations, the need to obtain marketing approval for any product candidate that the Company may discover and develop, the need to gain broad acceptance among patients, payers and health care providers to successfully commercialize any product for which marketing approval is obtained and the need to secure and maintain adequate intellectual property protection for the Company’s proprietary technology and products. Further, the Company is currently dependent on third-party service providers for much of its preclinical research, clinical development and manufacturing activities. Product candidates currently under development will require significant amounts of additional capital, additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval, prior to commercialization. Even if the Company is able to generate revenues from the sale of its product candidates, if approved, it may not become profitable. If the Company fails to become profitable or is unable to sustain profitability on a continuing basis, then it may be unable to continue its operations at planned levels and be forced to reduce its operations. The Company is also subject to risks associated with the COVID-19 global pandemic, including actual and potential delays associated with our ongoing and anticipated trials, and potential negative impacts on the Company’s business operations and its ability to raise additional capital to finance its operations.

The Company has financed its operations to date primarily from the sale of convertible preferred stock. Since its inception, the Company has incurred recurring operating losses and negative cash flows from operations. As of June 30, 2020, the Company had an accumulated deficit of $68,194. The Company expects to continue to generate operating losses for the foreseeable future. Management believes its existing cash resources will be sufficient to fund its operations as currently planned for at least twelve months following the issuance of these financial statements.

The Company is seeking to complete an initial public offering, or IPO, of its common stock. In the event that the Company does not complete an IPO, the Company may seek additional capital through one or more of a combination of private financing through the sale of additional equity securities, debt financing or funding in connection with any collaborative relationships it may enter into or other arrangements. There can be no assurance that the Company will be able to obtain such additional funding, on terms acceptable to the Company, on a timely basis or at all. The terms of any financing may adversely affect the holdings or the rights of the Company’s existing shareholders.

2. Summary of Significant Accounting Policies

Basis of Presentation and Use of Estimates

The accompanying unaudited consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America, or GAAP.

The preparation of unaudited financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and in these accompanying notes. The Company bases its estimates on historical experience, known trends and other market-specific or other relevant factors and assumptions that it believes to be reasonable under the circumstances. On an ongoing basis, management evaluates its estimates, which include but are not limited to estimates of accrued research and development expenses and the valuation of common stock in connection with the issuance of stock-based awards. Changes in estimates are recorded in the period in which they become known.

Principles of Consolidation

The unaudited consolidated financial statements include the accounts of the Company and Atea PSC. All intercompany amounts have been eliminated in consolidation.

Unaudited Interim Financial Information

The accompanying balance sheet as of June 30, 2020 and the statements of operations and comprehensive loss and of cash flows for the six months ended June 30, 2020 and 2019 are unaudited. The unaudited interim financial statements have been prepared on the same basis as the audited annual financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary for the fair statement of the Company's financial position as of June 30, 2020 and the results of its operations and its cash flows for the six months ended June 30, 2020 and 2019. The results for the six months ended June 30, 2020 are not necessarily indicative of results to be expected for the year ending December 31, 2020, any other interim periods, or any future year or period.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with maturities of 90 days or less at acquisition to be cash equivalents. Cash and cash equivalents include bank demand deposits and money market funds that invest in U.S. government and U.S. government agency obligations. Cash equivalents are reported at fair value.

Concentrations of Credit Risk and Significant Suppliers

Financial instruments that potentially subject the Company to concentrations of credit risk are primarily cash and cash equivalents. The Company maintains its cash and cash equivalents with a financial institution that management believes is creditworthy. The Company's investment policy includes guidelines on the quality of the financial institutions and financial instruments and defines allowable investments that the Company believes minimizes the exposure to concentration of credit risk.

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 active pharmaceutical ingredients and formulated drugs related to these programs. These programs could be adversely affected by a significant interruption in the supply of active pharmaceutical ingredients and formulated drugs.

Fair Value Measurements

Assets and liabilities recorded at fair value on a recurring basis in the balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair values. Fair value is defined as the exchange price that would be received for an asset or an exit price that would be paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The authoritative guidance on fair value measurements establishes a three-tier fair value hierarchy for disclosure of fair value measurements as follows:

Level 1—Observable inputs such as unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

Level 2—Observable inputs (other than quoted prices included in Level 1) that are either directly or indirectly observable for the asset or liability. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to determination of fair value of the assets or liabilities.

Cash, cash equivalents and restricted cash are Level 1 assets which are comprised of funds held in checking and money market accounts. Cash, cash equivalents and restricted cash were recorded at fair value as disclosed in Note 3. The carrying amounts of accounts payable and accrued expenses approximate their fair values due to their short-term maturities.

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation and amortization. Property and equipment are depreciated using the straight-line method over the estimated useful lives of the asset. The Company estimates the useful life of its assets as follows:

Asset	Estimated useful life
Laboratory equipment	Five years
Office furniture and fixtures	Five years
Computer hardware	Two years
Leasehold improvements	Shorter of useful life or remaining lease term

Maintenance and repairs that do not improve or extend the life of the respective asset are expensed to operations as incurred. Upon disposal of an asset, the related cost and accumulated depreciation are removed from the accounts and any resulting gain or loss is included in the results of operations.

Other Assets

The Company capitalizes incremental legal, professional, accounting and other third-party fees that are directly associated with the planned IPO as other non-current assets until the IPO is consummated. After consummation of the IPO, these costs will be recorded in stockholders' equity as a reduction of additional paid-in-capital generated as a result of the offering. If the Company terminates its plan for an IPO, any costs deferred will be expensed immediately. As of June 30, 2020, equity issuance costs of $1,149 were included in Other assets in the accompanying consolidated balance sheet. Also included in Other assets is restricted cash of $107, to collateralize a letter of credit.

Impairment of Long-lived Assets

The Company reviews long-lived assets when events or changes in circumstances indicate the carrying value of the assets may not be recoverable. Recoverability is measured by comparing the book value of the assets to the estimated undiscounted future net cash flows that the asset is expected to generate. If the estimated undiscounted future net cash flows are less than the book value, the asset is impaired, and the impairment loss to be recognized in income is measured as the amount by which the book value of the asset exceeds its fair value, which is measured based on the estimated discounted future net cash flows that the asset is expected to generate. No impairment losses were recorded during the six months ended June 30, 2020 and 2019.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development expenses consist principally of costs associated with outsourced research and development activities, including preclinical and clinical development, manufacturing and research conducted by contract research organizations and academic institutions, employee compensation and consulting expenses together with related expenses, professional fees and facility and overhead costs. Facility and overhead costs primarily include the allocation of rent, utility and office-related expenses attributable to research and development personnel. In circumstances where amounts have been paid in advance or in excess of costs incurred, the Company records a prepaid expense, which is expensed as services are performed or goods are delivered.

The Company has entered into various research and development contracts with third parties. 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, including the phase of 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.

Patent Costs

Costs to secure and maintain the Company's patents are expensed as incurred and are classified as general and administrative expenses in the Company's consolidated statements of operations.

Stock-based Compensation

Stock-based compensation expense is classified in the consolidated statement of operations in the same manner in which the award recipient's payroll costs are classified or in which the award recipients' service payments are classified. Stock-based awards granted to employees and non-employees are measured based on the estimated fair value of the awards using the Black-Scholes option pricing model, or Black-Scholes. Stock-based compensation expense with respect to awards with service conditions is recognized using the straight-line method over the service period. Stock-based compensation with respect to awards with performance conditions is recognized when satisfaction of the performance conditions is probable. Stock-based compensation is based on awards ultimately expected to vest and, as such, it is reduced by forfeitures. The Company accounts for forfeitures as they occur.

Black-Scholes requires the use of subjective assumptions which determine the fair value of stock-based awards. These assumptions include:

Fair value of common stock—Historically, because there has been no public market for the Company's common stock, the fair value of the Company's common stock underlying stock-based awards was estimated on each grant date by the board of directors.

Risk-free interest rate—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of a stock-based award.

Expected term—The expected term represents the period that stock-based awards are expected to be outstanding. Given the Company's lack of specific history, the expected term for option grants is determined using the simplified method. The simplified method deems the term to be the average of the time-to-vesting and the contractual life of the stock-based awards.

Expected volatility—Since the Company is privately held and does not have any trading history for its common stock, the expected volatility is estimated based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock-based awards. The comparable companies were chosen based on their similar size, stage in the life cycle or area of specialty. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available.

Expected dividend yield —The Company has never paid dividends on its common stock and has no plans to pay dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax base. Deferred tax assets, which relate primarily to the carrying amount of the Company's net operating loss carryforwards, are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Deferred tax expense or benefit is the result of changes in the deferred tax assets and liabilities. Valuation allowances are established to reduce deferred tax assets where, based upon the available evidence, the Company concludes that it is more-likely-than-not that the deferred tax assets will not be realized. In evaluating its ability to recover deferred tax assets, the Company considers all available positive and negative evidence, including its operating results, ongoing tax planning and forecasts of future taxable income.

Reserves are provided for tax benefits for which realization is uncertain. Such benefits are only recognized when the underlying tax position is considered more-likely-than-not to be sustained on examination by a taxing authority. Interest and penalties related to uncertain tax positions are recognized in the provision of income taxes.

Comprehensive Loss

Comprehensive income (loss) includes net income (loss) as well as other changes in stockholder equity (deficit) that result from transactions and economic events other than those with equity holders. The Company did not have any items of comprehensive income or loss other than net loss for the six months ended June 30, 2020 and 2019.

Net Loss Per Share Attributable to Common Stockholders

The Company calculates basic and diluted net loss per share attributable to common stockholders in conformity with the two-class method required for participating securities. The Company considers its convertible preferred stock to be participating securities as, in the event a dividend is paid on common stock, the holders of convertible preferred stock would be entitled to receive dividends on a basis consistent with the common stockholders. Under the two-class method, the net loss attributable to common stockholders is not allocated to the convertible preferred stock as the holders of the convertible preferred stock do not have a contractual obligation to share in losses.

Since inception, the Company has incurred recurring operating losses and, as such, under the two-class method, basic net loss per share attributable to common stockholders is computed by dividing the net loss attributable to common stockholders by the weighted average number of shares of common stock. Under the two-class method, for periods with net income, basic net income per common share is computed by dividing the net income attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period. Net income attributable to common stockholders is computed by subtracting from net income the portion of current year earnings that the participating securities would have been entitled to receive pursuant to their dividend rights had all of the year's earnings been distributed. No such adjustment to earnings is made during periods with a net loss, as the holders of the participating securities have no obligation to fund losses. Diluted net loss per common share is computed by using the weighted-average number of shares of common stock outstanding. Due to net losses for the six months ended June 30, 2020 and 2019, basic and diluted net loss per share attributable to common stockholders were the same, as the effect of all potentially dilutive securities would have been anti-dilutive.

Pro Forma Information

Upon closing of a qualified public offering, all of the Company's outstanding shares of convertible preferred stock will automatically convert into shares of common stock. The accompanying unaudited pro forma condensed consolidated balance sheet as of June 30, 2020 has been prepared to give effect to the conversion of all outstanding shares of the Company's preferred stock into an aggregate of 48,958,829 shares of common stock as if the conversion had occurred on June 30, 2020. The unaudited pro forma basic and diluted net loss per share were computed using the weighted average number of common shares outstanding after giving effect to the conversion of all the convertible preferred stock into shares of common stock as if such conversion had occurred at the beginning of the period presented or the date of original issuance, if later.

Segments

Operating segments are defined as components of an entity for which separate financial information is available and that is regularly reviewed by the chief operating decision maker, or CODM, in deciding how to allocate resources to an individual segment and in assessing performance. The Company's CODM is its chief executive officer, who manages and allocates resources to the operations on a total company basis. Accordingly, there is a single operating segment and one reportable segment.

Emerging Growth Company Status

The Company is an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012, or JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act, until such time as those standards apply to private companies. The Company has elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that it (i) is no longer an emerging growth company or (ii) affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. As a result, these consolidated financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

Recently Issued Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board ("FASB") issued ASU No. 2016-02, *Leases*, which requires a lessee to record a right-of-use asset and a corresponding lease liability on the balance sheet for all leases with terms longer than 12 months. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative

period presented in the financial statements, with certain practical expedients available. As the Company has elected to use the extended transition period for complying with new or revised accounting standards as available under the Jobs Act, the standard is effective for the Company beginning January 1, 2021, with early adoption permitted. The Company is currently evaluating the expected impact that the standard could have on its consolidated financial statements and related disclosures.

In July 2017, the FASB issued ASU No. 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), 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 2017-11").* Part I applies to entities that issue financial instruments such as warrants, convertible debt or convertible preferred stock that contain down-round features. Part II replaces the indefinite deferral for certain mandatorily redeemable noncontrolling interests and mandatorily redeemable financial instruments of nonpublic entities contained within ASC Topic 480 with a scope exception and does not impact the accounting for these mandatorily redeemable instruments. As the Company has elected to use the extended transition period for complying with new or revised accounting standards as available under the Jobs Act, the standard is effective for the Company beginning January 1, 2021, with early adoption permitted. The Company is currently evaluating the expected impact that the standard could have on its consolidated financial statements and related disclosures.

Recently Adopted Accounting Pronouncements

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Topic 606) ("ASU 2014-09"), which supersedes existing revenue recognition guidance under GAAP. The standard's core principle is that a company will recognize 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 defines 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 2014-09 also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts. In August 2015, the FASB issued ASU No. 2015-14, Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date, which delays the effective date of ASU 2014-09 such that the standard is effective for annual periods beginning after December 15, 2018. The FASB subsequently issued amendments to ASU 2014-09 that have the same effective date and transition date. The Company adopted ASU 2014-09 as of January 1, 2019 and the adoption did not have an impact on the Company's consolidated financial statements as the Company does not currently have any revenue-generating arrangements.

In August 2018, the FASB issued ASU 2018-13, *Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurements,* which changes the fair value measurement disclosure requirements of ASC 820. The goal of the ASU is to improve the effectiveness of ASC 820's disclosure requirements. The standard is applicable to the Company for fiscal years beginning January 1, 2020, and interim periods within those years. The Company elected to early adopt this guidance effective January 1, 2019. The adoption of this guidance did not have an effect the Company's consolidated financial statements.

3. Fair Value Measurements

The following tables present information about the Company's financial assets measured at fair value on a recurring basis and indicate the level of the fair value hierarchy utilized to determine such fair values:

	Fair Value Measurements as of June 30, 2020			
	Level 1	Level 2	Level 3	Total
Cash equivalents				
Money market funds	$106,603	$ —	$ —	$106,603
Total cash equivalents	$106,603	$ —	$ —	$106,603

	Fair Value Measurements as of December 31, 2019			
	Level 1	Level 2	Level 3	Total
Cash equivalents				
Money market funds	$21,038	$ —	$ —	$21,038
Total cash equivalents	$21,038	$ —	$ —	$21,038

The Company's assets with fair value categorized as Level 1 within the fair value hierarchy include money market funds. Money market funds are publicly traded mutual funds and are presented as cash equivalents on the consolidated balance sheets as of June 30, 2020 and December 31, 2019.

There were no transfers among Level 1, Level 2 or Level 3 categories in the six months ended June 30, 2020 and 2019.

4. Property and Equipment, net

Property and equipment, net, consist of the following:

	June 30, 2020	December 31, 2019
Laboratory equipment	$ 5	$ 5
Office furniture and fixtures	13	13
Computer hardware	17	11
Leasehold improvements	125	125
Total property and equipment, at cost	160	154
Less: accumulated depreciation and amortization	(121)	(113)
Property and equipment, net	$ 39	$ 41

Depreciation and amortization expense was $8 and $9 for the six months ended June 30, 2020 and 2019, respectively.

5. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following:

	June 30, 2020	December 31, 2019
Research and development	$ 2,169	$ 1,326
License fees (Note 6)	—	200
Professional fees and other	631	361
Payroll and payroll related	398	—
Total accrued expenses and other current liabilities	$ 3,198	$ 1,887

6. Commitments and Contingencies

Operating Lease Agreements

The Company leases an office facility under a non-cancelable operating lease that expires July 2022. The office lease includes commitments obligating the Company to pay a pro rata share of certain building operating costs and annual rent escalations which will result in higher lease payments in future years. Rent expense is recognized on a straight-line basis over the term of the lease with the difference between expense and the payments recorded as deferred rent, which is included in accrued expenses and other current liabilities and other liabilities.

As of June 30, 2020, future minimum payments for operating leases are as follows:

2020	$169
2021	340
2022	200
Total future minimum lease payments	$709

Rent expense recognized under all operating leases was $141 and $141 for six months ended June 30, 2020 and 2019, respectively.

The Company is required to maintain a letter of credit for the duration of the office lease. The Company maintains bank deposits of $107 to collateralize the letter of credit which are classified as restricted cash and a long-term asset in the consolidated balance sheet as of June 30, 2020.

License Agreement with NovaMedica LLC

In May 2014, the Company entered into an exclusive license agreement with NovaMedica LLC, an affiliated entity of a stockholder, pursuant to which the Company granted NovaMedica a license to certain intellectual property rights for commercialization of a potential product for the treatment of hepatitis C. In connection with the license, the Company received a license fee of $200 in partial consideration for the grant of the license. Recognition of the license fee has been deferred and recorded in other liabilities until both the Company and NovaMedica finalize certain other terms and conditions of the license agreement at which time the technology access fee will be evaluated, along with the license agreement broadly, for revenue recognition.

If the Company and NovaMedica failed to agree on the terms of an amendment to the license agreement covering certain payment terms, and the license agreement was thereafter terminated, such termination was to be subject to a payment by the Company of a termination fee of $400. This agreement was terminated in May 2020, and the Company paid a termination fee of $400.

Business Development Consulting Agreements

The Company is a party to a consulting agreement that provides for the payment by the Company of consideration, consisting of cash, up to a maximum of $1,750, and the vesting of equity awards, if a business development transaction that meets or exceeds certain thresholds is successfully concluded on or before December 31, 2020 (Note 9). As of June 30, 2020, the performance conditions were not yet probable of being met and, as a result, no expense has yet to be recognized in connection with the consulting agreement in the consolidated statement of operations.

In February 2020, the Company entered into an agreement with a consultant that requires payment of a success fee calculated as a percentage of certain product sales, subject to a cumulative maximum payout of $5,000.

Indemnification

The Company enters into certain types of contracts that contingently requires the Company to indemnify various parties against claims from third parties. These contracts primarily relate to (i) the Company's bylaws, under which the Company must indemnify directors and executive officers, and may indemnify other officers and employees, for liabilities arising out of their relationship, (ii) contracts under which the Company must indemnify directors and certain officers and consultants for liabilities arising out of their relationship, and (iii) procurement, service or license agreements under which the Company may be required to indemnify vendors, service providers or licensees for certain claims, including claims that may be brought against them arising from the Company's acts or omissions with respect to the Company's products, technology, intellectual property or services.

From time to time, the Company may receive indemnification claims under these contracts in the normal course of business. In the event that one or more of these matters were to result in a claim against the Company, an adverse outcome, including a judgment or settlement, may cause a material adverse effect on the Company's future business, operating results or financial condition. It is not possible to determine the maximum potential amount potentially payable under these contracts since the Company has no history of prior indemnification claims and the unique facts and circumstances involved in each particular claim will be determinative.

7. Convertible Preferred Stock

In May 2020, the Company filed an amendment to its certificate of incorporation to authorize 15,313,382 shares of Series D Preferred and 8,973,261 shares of Series D-1 convertible preferred stock ("Series D-1 Preferred"). The Company entered into a stock purchase agreement with certain investors and issued 15,313,382 shares of Series D Preferred for gross proceeds of approximately $107,500. Upon the achievement of a clinical trial milestone, as defined in the stock purchase agreement, the Series D investors will be obligated to purchase 2,991,087 shares of Series D-1 Preferred for gross proceeds of approximately $35,833. In addition, the Series D investors will have the right to purchase up to 5,982,174 shares of Series D-1 Preferred ("Additional Series D-1 Preferred") at a price of $11.98 per share following achievement of the clinical development milestone discussed above and the receipt of certain preclinical data as defined in the stock purchase agreement. Unless previously exercised, the option to purchase the Additional Series D-1 Preferred will terminate (i) eight days after the filing of a registration statement on Form S-1 for the IPO or (ii) in the event that the clinical development milestone discussed above occurs after the filing of a registration statement on a Form S-1 for the IPO and prior to the consummation of the Company's IPO, upon the consummation of the Company's IPO. The Company concluded that the tranche features are not freestanding financing instruments as the right to purchase the future tranches are not legally detachable from the shares of Series D Preferred Stock. Additionally, the Company concluded that no beneficial conversion features were present at initial issuance.

As of June 30, 2020, the Company had 57,932,090 shares of convertible preferred stock, or Convertible Preferred Stock, authorized, of which 20,000,000 shares are designated as Series A convertible preferred stock, or Series A Preferred; 7,592,830 shares are designated as Series B convertible preferred stock, or Series B Preferred; 6,052,617 shares are designated as Series C convertible preferred stock, or Series C Preferred; 15,313,382 shares are designated as Series D convertible preferred stock, or Series D Preferred; and 8,973,261 shares are designated as Series D-1 convertible preferred stock, or Series D-1 Preferred. The Company's Series A Preferred, Series B Preferred, Series C Preferred and Series D Preferred were issued at $1.00, $3.03, $4.56 and $7.02 per share, respectively.

The following table summarizes the Company's outstanding Convertible Preferred Stock:

				June 30, 2020	
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred	20,000,000	20,000,000	$ 19,136	$ 20,000	20,000,000
Series B Preferred	7,592,830	7,592,830	22,619	23,006	7,592,830
Series C Preferred	6,052,617	6,052,617	27,359	27,600	6,052,617
Series D Preferred	15,313,382	15,313,382	106,631	107,500	15,313,382
Series D-1 Preferred	8,973,261	—	—	—	—
	57,932,090	48,958,829	$175,745	$ 178,106	48,958,829

The Company classifies Convertible Preferred Stock outside of stockholders' deficit because the shares contain deemed liquidation rights in the event of a merger, consolidation, or reorganization involving the Company or a subsidiary or upon the sale, lease, transfer, exclusive license or other disposition by the Company or a subsidiary of all or substantially all assets of the Company that could trigger a distribution of cash or assets and therefore a contingent redemption feature not solely within the Company's control.

The rights and preferences of Convertible Preferred Stock are described below:

Voting

Holders of the preferred stock are entitled to vote, together with the holders of common stock, on all matters as to which holders of common stock are entitled to vote, except with respect to matters which Delaware General Corporation Law, or DGCL, or the certificate of incorporation requires a vote by a separate class. Each holder of Convertible Preferred Stock is entitled to one vote for each share of common stock into which the Convertible Preferred Stock is convertible at the time of such vote.

Certain actions specified in the certificate of incorporation require the affirmative vote of Requisite Preferred Holders, which are the holders of a majority of the Series B Preferred, Series C Preferred and Series D Preferred voting together as a single class, while other actions require: (i) the affirmative vote of holders of greater than 50% of Series D Preferred voting as a separate class; (ii) the affirmative vote of holders of at least 57% of Series C Preferred voting as a separate class; (iii) the affirmative vote of holders of at least 67% of the Series B Preferred voting as a separate class; or (iv) the affirmative vote of holders of a majority of the outstanding Convertible Preferred Stock voting as a single class.

At any time when an aggregate of 15,000,000 shares of Convertible Preferred Stock are outstanding, the affirmative vote of the Requisite Preferred Holders is required to (i) purchase, redeem or pay or declare any dividend or make any distribution on any class of stock other than certain specified transactions; or (ii) create or authorize the creation of any class or series of capital stock unless the new class ranks junior to the Convertible Preferred Stock.

At any time when at least 3,800,000 shares of Series B Preferred are outstanding, the affirmative vote of the holders of at least 67% of the Series B Preferred is required to: (i) amend, alter or repeal the certificate of incorporation or bylaws in any way that adversely affects the powers, preferences or rights of the holders of Series B Preferred; or (ii) increase or decrease the authorized number of shares of Series B Preferred.

At any time when at least 2,200,000 shares of Series C Preferred are outstanding, the affirmative vote of the holders of at least 57% of the Series C Preferred is required to: (i) amend, alter or repeal the certificate of incorporation or bylaws in any way that adversely affects the powers, preferences or rights of the holders of Series C preferred; or (ii) increase or decrease the authorized number of shares of Series C Preferred.

At any time when at least 6,500,000 shares of Series D Preferred are outstanding, the affirmative vote of the holders of at least 50% of the Series D Preferred is required to: (i) amend, alter or repeal the certificate of incorporation or bylaws in any way that adversely affects the powers, preferences or rights of the holders of Series D preferred; (ii) purchase, redeem or pay or declare any dividend or make any distribution on any class of stock other than certain specified transactions; (iii) increase or decrease the authorized number of shares of Series D Preferred; or (iv) approve any liquidation event in which a holder of Series D Preferred would receive less than $14.04 per share in connection with such event.

As long as at least 15,000,000 shares of Convertible Preferred Stock are outstanding, the affirmative vote of the Requisite Preferred Holders, which are the holders of a majority of the outstanding Convertible Preferred Stock, voting as a single class, is required to affect any liquidation, dissolution, or winding up of the business and affairs of the Company.

The holders of Series A Preferred, Series B Preferred, Series C Preferred and Series D Preferred, voting respectively as separate classes, each have the right to elect a director to the board of directors. The right to elect such a director shall continue for holders of Series A Preferred for so long as 5,000,000 shares of Series A Preferred are outstanding, for holders of Series B Preferred for so long as 5,000,000 shares of Series B Preferred are outstanding, for holders of Series C Preferred for so long as 2,741,228 shares of Series C Preferred are outstanding and for holders of Series D Preferred for so long as 7,000,000 shares of Series D Preferred are outstanding. The remainder of the board of directors, excluding one director that may be elected by holders of common stock voting as a separate class, is elected by the holders of the Convertible Preferred Stock voting together with holders of the common stock as a single class and otherwise in accordance with the stockholders' agreement.

Dividends

Holders of shares of Convertible Preferred Stock are entitled to dividends only if, when and as declared by the board of directors. The Company is prohibited from declaring, paying or setting aside any dividends unless the holders of the then outstanding Convertible Preferred Stock receive first, or simultaneously, in the case of a dividend on common stock, on a *pari passu* basis, a dividend in an amount that is at least equal to the amount that would have been received by the holders of the Convertible Preferred Stock had all the Convertible Preferred Stock been converted to common stock. As of June 30, 2020, no dividends have been declared or paid on the Convertible Preferred Stock.

Liquidation Preference

In the event of any liquidation, dissolution, winding up of the affairs or deemed liquidation event of the Company, the holders of Series D Preferred are entitled to receive in preference to the holders of Series C Preferred, an amount equal to the greater of (1) the original purchase price of the Series D Preferred plus all declared but unpaid dividends, or (2) such amount per share of Series D Preferred payable as if converted into common stock. After the preferential payment to the Series D Preferred, the holders of Series C Preferred are entitled to receive in preference to the holders of Series A Preferred and Series B Preferred and the common

stock, an amount equal to the greater of (1) the original purchase price of the Series C Preferred plus all declared but unpaid dividends, or (2) such amount per share of Series C Preferred payable as if converted into common stock. After the preferential payment to holders of the Series C Preferred, the holders of Series A Preferred and Series B Preferred, on a *pari passu* basis and prior and in preference to the holders of common stock, are entitled to receive an amount equal to the greater of (1) the original purchase price of the applicable series of preferred stock plus all declared but unpaid dividends, or (2) such amount per share of preferred stock payable as if converted into common stock. After the preferential distributions are made to the holders of Convertible Preferred Stock, any remaining assets of the Company will be distributed ratably among the holders of common stock. If the assets or surplus funds to be distributed to the holders of the Convertible Preferred are insufficient to permit the payment to such holders of their full preferential amount, the assets and surplus funds legally available for distribution will be distributed in preferential order, first to the holders of Series D Preferred and next to the holders of Series C Preferred and next to the holders of Series A Preferred and Series B Preferred, in each instance, ratably in proportion to the respective amount that would have been paid if all amounts payable on or with respect to such shares had been paid in full.

In the event of a deemed liquidation event, holders of Convertible Preferred Stock may require the Company to redeem their shares at a price equal to the liquidation amount.

Conversion

Each share of Convertible Preferred Stock is convertible into common stock on a one-for-one basis. Conversion is at the option of the holder of the Convertible Preferred Stock except upon either the closing of a firm commitment underwritten public offering with an equity valuation of at least $800,000, or upon the written election of the majority of the holders of the Series D Preferred. The conversion price of each of the Series D Preferred, Series C Preferred, Series B Preferred and Series A Preferred at June 30, 2020 is equal to the respective original issue price of each series.

The conversion price is subject to adjustment in accordance with provisions in the certificate of incorporation. Specifically, the holders of Convertible Preferred Stock are entitled to weighted average anti-dilution protection in the event that the Company issues additional securities at a purchase price less than the then effective conversion price.

Registration Rights

The holders of the Convertible Preferred Stock may require the Company in certain circumstances to register for sale the shares of common stock issuable upon conversion of the Convertible Preferred Stock. Such registration would permit the sale of the underlying common stock under the Securities Act of 1933, as amended.

Participation Rights in Future Equity Issuances

All holders of Convertible Preferred Stock have a pro rata right, based on their percentage equity ownership in the Company, to participate, subject only to certain limited exceptions, in subsequent issuances of equity securities of the Company. In addition, should any such holder choose not to purchase its full pro rata share, the remaining holders of Convertible Preferred Stock have the right to purchase the remaining pro rata shares.

Redemption rights

Convertible Preferred Stock has no stated redemption features. However, the Convertible Preferred Stock does contain deemed liquidation rights in the event of a merger, consolidation, or reorganization involving the Company or a subsidiary or on the sale, lease, transfer, exclusive license or other disposition by the Company or

a subsidiary of all or substantially all assets of the Company that could trigger a distribution of cash or assets not solely within the Company's control.

8. Common Stock

At June 30, 2020, the authorized capital of the Company included 80,529,575 shares of common stock, of which 10,109,847 shares of common stock were considered issued and outstanding for accounting purposes. As discussed in Note 9, restricted stock awards for an aggregate 200,000 shares are excluded from issued and outstanding shares for accounting purposes. On all matters to be voted upon by the holders of common stock, holders of common stock are entitled to one vote per share. Subject to the rights and preferences applicable to the outstanding shares of Convertible Preferred Stock, the holders of common stock are entitled to receive dividends, when declared by the board, and to share ratably in the Company's assets legally available for distribution to the holders of the Company's stock in the event of liquidation. The holders of common stock have no preemptive, redemption or conversion rights.

The Company had the following reserved shares of common stock:

	June 30, 2020
Series A Preferred	20,000,000
Series B Preferred	7,592,830
Series C Preferred	6,052,617
Series D Preferred	15,313,382
Outstanding options	4,186,747
Options available for future grant	3,349,277
	56,494,853

9. Stock-based Compensation

As of June 30, 2020, the Atea Pharmaceuticals 2013 Equity Incentive Plan, as amended, or 2013 Plan, provides for the grant of incentive stock options, non-qualified stock options, restricted common stock awards and other awards for up to 10,979,971 shares of common stock to employees, officers, directors and consultants of the Company.

As of June 30, 2020, options to purchase 4,280,494 shares of common stock and 3,370,000 shares of restricted common stock have been granted under the 2013 Plan, and there were 3,329,477 shares of common stock remaining available for future issuance.

Restricted Common Stock

Restricted stock awards generally include vesting and risk of forfeiture provisions that lapse upon satisfaction of performance conditions or over time periods commencing on the grant date and concluding on the third or fourth anniversary of the grant date. The Company has granted awards totaling 200,000 shares of restricted common stock to a consultant pursuant to the 2013 Plan for consulting and business development services. The consultant paid $1.21 per share and an aggregate of $121 for 100,000 of the shares of restricted common stock in 2016 and $1.24 per share and an aggregate of $124 for 100,000 of the shares of restricted common stock in 2018. These awards of restricted common stock will vest, and the risk of forfeiture will lapse upon satisfaction of performance conditions detailed in each award. As of June 30, 2020, the performance conditions were not yet probable of being met and, as a result, no compensation expense has yet been recognized for these performance-based awards. The unvested and forfeitable common stock as of June 30, 2020, though legally

issued, are excluded from issued and outstanding shares for accounting purposes. Amounts received for the unvested and forfeitable common stock totaling $245 are included in additional paid-in capital within stockholders' deficit in the consolidated balance sheets. At June 30, 2020, total unrecognized compensation expense related to unvested restricted common stock was $370.

Stock Options

The following summarizes stock option activity:

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding at January 1, 2020	3,911,633	$ 1.50	8.5	$ 3,915
Granted	293,861	$ 1.57		
Exercised	(18,747)	$ 1.43		
Outstanding at June 30, 2020	4,186,747	$ 1.51	8.1	$ 10,984
Options exercisable at June 30, 2020	2,361,875	$ 1.40	7.4	$ 6,440
Vested or expected to vest at June 30, 2020	4,186,747	$ 1.51	8.1	$ 10,984

The aggregate intrinsic value of options granted is calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock for those options that had exercise prices lower than the fair value of the Company's common stock.

Option grants generally vest over a service period of three or four years and have a contractual term of ten years. There were no options, forfeited or expired during the six months ended June 30, 2020. As of June 30, 2020, total unrecognized compensation expense related to stock option awards was $1,845, which amount is being recognized over a remaining weighted average period of 3 years.

Stock-based Compensation Expense

Stock-based compensation expense is classified as follows:

	Six Months Ended June 30,	
	2020	2019
Research and development expense	$ 157	$ 125
General and administrative	241	168
Total stock-based compensation expense	$ 398	$ 293

10. Net Loss Per Share Attributable to Common Stockholders and Pro Forma Information

Net Loss Per Share Attributable to Common Stockholders

The following outstanding potentially dilutive shares have been excluded from the calculation of diluted net loss per share, as their effect is anti-dilutive:

	Six Months Ended June 30,	
	2020	**2019**
Convertible Preferred Stock	48,958,829	33,645,447
Stock options to purchase common stock	4,186,747	2,820,000
Non-vested restricted stock	200,000	200,000

Pro Forma Information

The calculation of weighted average shares outstanding for purposes of calculating pro forma net loss per share attributable to common stockholders for the six months ended June 30, 2020 assumes the conversion of 33,645,447 shares of convertible preferred stock into common shares effective January 1, 2020 and 15,313,382 shares of Series D convertible preferred stock into common shares effective May 19, 2020.

11. Income Taxes

The Company incurred net operating losses and recorded a full valuation allowance against net deferred tax assets for all periods presented. Accordingly, the Company has not recorded a provision for federal or state income taxes.

12. Related Party Transactions

For the six months ended June 30, 2020, the Company recorded expense of $40 for consulting services provided by an entity affiliated with its interim Chief Financial Officer, of which $19 is included in accounts payable as of June 30, 2020.

Except as disclosed in Note 6 in the notes to the accompanying consolidated financial statements, there were no other material transactions with related parties.

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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

ATEA PHARMACEUTICALS, INC.

Common Stock

PRELIMINARY PROSPECTUS

J.P. Morgan

Morgan Stanley

Evercore ISI

William Blair

, 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	$ 10,910
FINRA filing fee	15,500
Nasdaq 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 intend to enter 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 us within the past three 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.

From June 2018 through July 2018, the registrant issued an aggregate of 6,052,617 shares of Series C Preferred Stock for aggregate consideration of approximately $27.6 million to accredited investors, pursuant to Rule 506 as a transaction not involving a public offering.

In May 2020, the registrant issued an aggregate of 15,313,382 shares of Series D Preferred Stock for aggregate consideration of approximately $107.5 million to accredited investors, pursuant to Rule 506 as a transaction not involving a public offering.

(b) Equity Grants.

From January 1, 2017 through October 9, the registrant granted stock options to purchase an aggregate of 6,615,494 shares of its common stock, with exercise prices ranging from $1.24 to $8.02 per share to employees, directors and consultants in connection with services provided to the registrant by such parties.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

Exhibit Number	Description of Exhibit
1.1*	Form of Underwriting Agreement
3.1	Certificate of Incorporation of the Registrant, as amended (currently in effect)
3.2	Bylaws of the Registrant, as amended (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 Amended and Restated Bylaws of the Registrant (to be effective upon the closing of this offering)
4.1	Fourth Amended and Restated Stockholders Agreement
4.2	Specimen Stock Certificate evidencing the shares of common stock
5.1*	Opinion of Latham & Watkins LLP
10.1	2013 Stock Incentive Plan, as amended, and form of agreements thereunder
10.2*	2020 Incentive Award Plan and form of agreements thereunder
10.3*	2020 Employee Stock Purchase Plan
10.4*	Non-Employee Director Compensation Program
10.5*	Form of Indemnification Agreement for Directors and Officers
10.6	Lease Agreement between the Registrant and OPG 125 SUMMER OWNER (DE) LLC
10.7	Consulting Agreement between the Registrant and Danforth Advisors, LLC
21.1	Subsidiaries of the Registrant
23.1	Consent of KPMG 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.

(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 audited consolidated 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 Boston, Commonwealth of Massachusetts, on this 9 day of October, 2020.

ATEA PHARMACEUTICALS, INC.

By: /s/ Jean-Pierre Sommadossi, Ph.D.
Jean-Pierre Sommadossi, Ph.D.
President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of Atea Pharmaceuticals, Inc., hereby severally constitute and appoint Jean-Pierre Sommadossi, Ph.D. and Andrea Corcoran, 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 and in his 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 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 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
/s/Jean-Pierre Sommadossi, Ph.D. Jean-Pierre Sommadossi, Ph.D.	President, Chief Executive Officer and Chairman of the Board of Directors (principal executive officer)	October 9, 2020
/s/ Andrea Corcoran Andrea Corcoran	Chief Financial Officer and Executive Vice President, Legal and Secretary (principal financial officer)	October 9, 2020
/s/ Wayne Foster Wayne Foster	Senior Vice President, Finance and Administration (principal accounting officer)	October 9, 2020
/s/ Franklin Berger Franklin Berger	Director	October 9, 2020
/s/ Grigory Borisenko, Ph.D. Grigory Borisenko, Ph.D.	Director	October 9, 2020
/s/ Bihua Chen Bihua Chen	Director	October 9, 2020
/s/ Isaac Cheng, M.D. Isaac Cheng, M.D.	Director	October 9, 2020
/s/ Andrew Hack, M.D., Ph.D. Andrew Hack, M.D., Ph.D.	Director	October 9, 2020
/s/ Bruno Lucidi Bruno Lucidi	Director	October 9, 2020
/s/ Polly A. Murphy, D.V.M., Ph.D. Polly A. Murphy, D.V.M., Ph.D.	Director	October 9, 2020
/s/ Bruce Polsky, M.D. Bruce Polsky, M.D.	Director	October 9, 2020

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
ATEA PHARMACEUTICALS, INC.

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Atea Pharmaceuticals, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "**General Corporation Law**"),

DOES HEREBY CERTIFY:

1. That the name of this corporation is Atea Pharmaceuticals, Inc., and that this corporation was originally incorporated pursuant to the General Corporation Law on July 12, 2012.

2. That the Board of Directors duly adopted resolutions proposing to amend and restate the Fifth Amended and Restated Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Fifth Amended and Restated Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Atea Pharmaceuticals, Inc. (the "**Corporation**").

SECOND: The address of the registered office of the Corporation in the State of Delaware is 1209 Orange Street, Wilmington, New Castle County, Delaware 19801. The name of its registered agent at such address is National Registered Agents, Inc.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is 138,461,665, consisting of (i) 80,529,575 shares of Common Stock, $0.001 par value per share ("**Common Stock**") and (ii) 57,932,090 shares of Preferred Stock, $0.001 par value per share ("**Preferred Stock**"), of which (A) 20,000,000 are designated Series A Preferred Stock (the "**Series A Preferred Stock**"), (B) 7,592,830 shares are designated Series B Preferred Stock (the "**Series B Preferred Stock**"), (C) 6,052,617 shares are hereby designated Series C Preferred Stock (the "**Series C Preferred Stock**"), (D) 15,313,382 shares are hereby designated Series D Preferred Stock (the "**Series D Preferred Stock**") and (E) 8,973,261 shares are hereby designated Series D-1 Preferred Stock (the "**Series D-1 Preferred Stock**").

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Amended and Restated Certificate of Incorporation (the "**Certificate of Incorporation**") that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation or pursuant to the General Corporation Law. There shall be no cumulative voting. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of the Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

The Preferred Stock of the Corporation shall have the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "sections" or "subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends. The holders of Preferred Stock shall be entitled to receive, when and if declared by the Board of Directors of the Corporation out of the assets of the Corporation which are by law available therefor, dividends, payable either in cash, property or in shares of capital stock. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in the Certificate of Incorporation) the holders of the Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Preferred Stock in an amount at least equal to (i) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of the applicable series of Preferred Stock as would equal the product of (A) the dividend payable on each share of

such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (B) the number of shares of Common Stock issuable upon conversion of a share of the applicable series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend, or (ii) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of the applicable series of Preferred Stock determined by (A) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series) and (B) multiplying such fraction by an amount equal to the Series A Original Issue Price (as defined below), Series B Original Issue Price (as defined below), Series C Original Issue Price (as defined below), Series D Original Issue Price (as defined below) or Series D-1 Original Issue Price (as defined below), as applicable; provided that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Preferred Stock pursuant to this Section 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Preferred Stock dividend. The "**Series A Original Issue Price**" shall mean $1.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock. The "**Series B Original Issue Price**" shall mean $3.03 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock. The "**Series C Original Issue Price**" shall mean $4.56 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series C Preferred Stock. The "**Series D Original Issue Price**" shall mean $7.02 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series D Preferred Stock. The "**Series D-1 Original Issue Price**" shall mean $11.98 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series D-1 Preferred Stock.

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferential Payments to Holders of Series D Preferred Stock and Series D-1 Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, each holder of shares of Series D Preferred Stock and/or Series D-1 Preferred Stock shall be entitled to be paid, on a *pari passu* basis, out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Series C Preferred Stock, Series B Preferred Stock, Series A Preferred Stock or Common Stock by reason of their ownership thereof, an amount per share equal to the greater of (i) (A) in the case of the Series D Preferred Stock, the Series D Original Issue Price, plus any dividends declared but unpaid thereon, and (B) in the case of the Series D-1 Preferred Stock, the Series D-1 Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share of Series D Preferred Stock or Series D-1 Preferred Stock, as applicable, as would have been payable in respect of each share of Series D Preferred Stock or Series D-1 Preferred Stock, as applicable, had all shares of each series of Preferred Stock that would receive a greater amount upon conversion into Common Stock than pursuant to clause (i)

above or clause (i) of each of Subsections 2.2 and 2.3, as applicable, converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event. The amount payable with respect to each share of the Series D Preferred Stock pursuant to the foregoing sentence is hereinafter referred to as the "**Series D Liquidation Amount**" and the amount payable with respect to each share of the Series D-1 Preferred Stock pursuant to the foregoing sentence is hereinafter referred to as the "**Series D-1 Liquidation Amount**". If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series D Preferred Stock and Series D-1 Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Series D Preferred Stock and Series D-1 Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Preferential Payments to Holders of Series C Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after payment in full has been made to the holders of Series D-1 Preferred Stock and Series D Preferred Stock of the full amounts to which they shall be entitled as provided in Subsection 2.1, each holder of shares of Series C Preferred Stock shall be entitled to be paid on a pro rata basis determined by the number of shares of Series C Preferred Stock outstanding, out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Series B Preferred Stock, Series A Preferred Stock or Common Stock by reason of their ownership thereof, an amount per share equal to the greater of (i) the Series C Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share of Series C Preferred Stock as would have been payable in respect of each share of Series C Preferred Stock had all shares of each series of Preferred Stock that would receive a greater amount upon conversion into Common Stock than pursuant to clause (i) above or clause (i) of each of Subsections 2.1 and 2.3, as applicable, converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event. The amount payable with respect to each share of the Series C Preferred Stock pursuant to the foregoing sentence is hereinafter referred to as the "**Series C Liquidation Amount**". If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of the Series D-1 Liquidation Amount and the Series D Liquidation Amount, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series C Preferred Stock the full amount to which they shall be entitled under this Subsection 2.2, the holders of shares of Series C Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares of Series C Preferred Stock held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.3 Preferential Payments to Holders of Series A Preferred Stock and Series B Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after payment in full has been made to the holders of Series D-1 Preferred Stock, Series D Preferred Stock and Series C Preferred Stock of the full amounts to which they shall be entitled as provided in Subsection 2.1, each holder of

shares of Series A Preferred Stock and/or Series B Preferred Stock shall be entitled to be paid, on a *pari passu* basis, out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the greater of (i) (A) in the case of the Series A Preferred Stock, the Series A Original Issue Price, plus any dividends declared but unpaid thereon, and (B) in the case of the Series B Preferred Stock, the Series B Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share of Series A Preferred Stock or Series B Preferred Stock, as applicable, as would have been payable in respect of each share of Series A Preferred Stock or Series B Preferred Stock, as applicable, had all shares of each series of Preferred Stock that would receive a greater amount upon conversion into Common Stock than pursuant to clause (i) above or clause (i) of each of Subsections 2.1 and 2.2, as applicable, converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event. The amount payable with respect to each share of the Series A Preferred Stock pursuant to the foregoing sentence is hereinafter referred to as the "**Series A Liquidation Amoun**t" and the amount payable with respect to each share of the Series B Preferred Stock pursuant to the foregoing sentence is hereinafter referred to as the "**Series B Liquidation Amount**". The Series A Liquidation Amount, the Series B Liquidation Amount, the Series C Liquidation Amount, the Series D Liquidation Amount and the Series D-1 Liquidation Amount are each referred to as a "**Liquidation Amount**". If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of the Series D-1 Liquidation Amount, the Series D Liquidation Amount and the Series C Liquidation Amount, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series A Preferred Stock and Series B Preferred Stock the full amount to which they shall be entitled under this Subsection 2.3, the holders of shares of Series A Preferred Stock and Series B Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.4 Payments to Holders of Common Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of shares of Common Stock, pro rata based on the number of shares held by each such holder.

2.5 Deemed Liquidation Events.

2.5.1 Definition. Each of the following events shall be considered a "**Deemed Liquidation Event**" unless (i) the holders of a majority in voting power of the outstanding shares of Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and Series D-1 Preferred Stock, voting together as a single class (the "**Requisite Holders**") and (ii) the holders of a majority in voting power of the outstanding shares of Series D Preferred Stock and Series D-1 Preferred Stock, voting together as a single class, elect otherwise by written notice sent to the Corporation prior to the effective date of any such event:

(a) a merger or consolidation in which

(i) the Corporation is a constituent party or

(ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation; or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

(b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole, or the sale or disposition (whether by merger, consolidation or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation.

2.5.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.5.1(a)(i) unless the agreement or plan of merger or consolidation for such transaction (the "**Merger Agreement**") provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1, 2.2, 2.3, 2.4 and 2.5.4 (if applicable).

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.5.1(a)(ii) or 2.5.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within ninety (90) days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Preferred Stock no later than the ninetieth (90th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause (ii) to require the redemption of such shares of Preferred Stock, and (ii) if the Requisite Holders so request in a written instrument delivered to the Corporation not later than one hundred and twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation in connection with such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or licensed, as determined in good faith by the Board of Directors of the Corporation), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by the General Corporation Law governing distributions to stockholders (the "**Available Proceeds**"), on the one hundred and fiftieth (150th) day after such Deemed Liquidation Event (the "**Redemption Date**"),

to redeem all outstanding shares of Preferred Stock at a price per share equal to the Series A Liquidation Amount, Series B Liquidation Amount, Series C Liquidation Amount, Series D Liquidation Amount or Series D-1 Liquidation Amount, as applicable, allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1, 2.2, 2.3 and 2.4. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall (1) first, redeem a pro rata portion of each holder's shares of Series D-1 Preferred Stock and Series D Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares of Series D-1 Preferred Stock and Series D Preferred Stock to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares of Series D-1 Preferred Stock and Series D Preferred Stock as soon as it may lawfully do so under the General Corporation Law governing distributions to the stockholders, (2) second, redeem a pro rata portion of each holder's shares of Series C Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares of Series C Preferred Stock to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares of Series C Preferred Stock as soon as it may lawfully do so under the General Corporation Law governing distributions to the stockholders, and (3) third, redeem a pro rata portion of each holder's shares of Series B Preferred Stock and Series A Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares of Series B Preferred Stock and Series A Preferred Stock to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares of Series B Preferred Stock and Series A Preferred Stock as soon as it may lawfully do so under the General Corporation Law governing distributions to the stockholders. The Corporation shall send written notice (the "**Redemption Notice**") to each holder of record of Preferred Stock not less than twenty (20) days prior to the Redemption Date, which shall state (1) the number of shares of Preferred Stock held by the holder that the Corporation shall redeem on the Redemption Date specified in the Redemption Notice (if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock); (2) the Redemption Date and the then-applicable Series A Liquidation Amount, Series B Liquidation Amount, Series C Liquidation Amount, Series D Liquidation Amount or Series D-1 Liquidation Amount, as applicable; (3) the date upon which the holder's right to convert such shares of Preferred Stock terminates (as determined in accordance with Subsection 4.1); and (4) that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Preferred Stock to be redeemed. On or before the Redemption Date, each holder of shares of Preferred Stock to be redeemed on the Redemption Date, unless such holder has exercised his, her or its right to convert such shares as provided in Section 4, shall surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon an amount per redeemed share of Preferred Stock equal to the Series A Liquidation Amount, Series B Liquidation Amount, Series C Liquidation Amount, Series D Liquidation Amount or Series D-1 Liquidation Amount, as applicable, shall be payable to the order of the person whose name appears on such certificate or certificates as the owner

thereof. In the event less than all of the shares of Preferred Stock represented by a certificate are redeemed, a new certificate representing the unredeemed shares of Preferred Stock shall promptly be issued to such holder. If the Redemption Notice shall have been duly given, and if on the Redemption Date an amount per share equal to the then-applicable Series A Liquidation Amount, Series B Liquidation Amount, Series C Liquidation Amount, Series D Liquidation Amount or Series D-1 Liquidation Amount, as applicable, is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that the certificates evidencing any of the shares of Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive, per redeemed share, an amount equal to the then-applicable Series A Liquidation Amount, Series B Liquidation Amount, Series C Liquidation Amount, Series D Liquidation Amount or Series D-1 Liquidation Amount, as applicable, without interest upon surrender of their certificate or certificates therefor. Prior to the distribution or redemption provided for in this Subsection 2.5.2(b), the Corporation shall not expend or dissipate the consideration received in connection with such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event or in the ordinary course of business.

2.5.3 Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities paid or distributed to such holders by the Corporation or the acquiring person, firm or other entity. The value of such property, rights or securities shall be determined in good faith by the Board of Directors of the Corporation.

2.5.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Subsection 2.5.1(a)(i), if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the "**Additional Consideration**"), the Merger Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the "**Initial Consideration**") shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1, 2.2, 2.3 and 2.4 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1, 2.2, 2.3 and 2.4 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.5.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration. The entitlement of Preferred Stock holders to their preferential payments shall not be abrogated or diminished in the event part of the consideration is subject to escrow in connection with a Deemed Liquidation Event.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the effective date of such written consent or the record date fixed for determining stockholders entitled to vote at a meeting of stockholders at which such matter will be acted upon. Except as provided by law or by the other provisions of the Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class.

3.2 Election of Directors. The holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "**Series A Director**"), the holders of record of the shares of Series B Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "**Series B Director**"), the holders of record of the shares of Series C Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "**Series C Director**"), the holders of record of the shares of Series D Preferred Stock and Series D-1 Preferred Stock, voting together as a single class, shall be entitled to elect one (1) director of the Corporation (the "**Series D Director**" and collectively with the Series A Director, the Series B Director and the Series C Director, the "**Preferred Directors**") and the holders of record of the shares of Common Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation. Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series D-1 Preferred Stock or Common Stock, as the case may be, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series D-1 Preferred Stock or Common Stock, as the case may be, elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the balance of the total number of directors of the Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2. The rights of the holders of the Series A Preferred Stock

under the first sentence of this Subsection 3.2 shall terminate on the first date following the Series D Original Issue Date (as defined below) on which there are issued and outstanding less than 5,000,000 shares of Series A Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination, or other similar recapitalization with respect to the Series A Preferred Stock). The rights of the holders of the Series B Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date following the Series D Original Issue Date on which there are issued and outstanding less than 5,000,000 shares of Series B Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock). The rights of the holders of the Series C Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date following the Series D Original Issue Date on which there are issued and outstanding less than 2,741,228 shares of Series C Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series C Preferred Stock). The rights of the holders of the Series D Preferred Stock and Series D-1 Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date following the Series D Original Issue Date on which there are issued and outstanding less than 7,000,000 shares of Series D Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series D Preferred Stock).

3.3 Preferred Stock Protective Provisions. At any time when at least 15,000,000 shares of Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the Requisite Holders, given in writing or by vote at a meeting, consenting or voting (as the case may be) as a single class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.3.1 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event, or consent to any of the foregoing;

3.3.2 purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than (i) redemptions of or dividends or distributions on the Preferred Stock as expressly authorized in Section 2, (ii) dividends or other distributions payable on the Common Stock solely in the form of additional shares of Common Stock and (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of such employment or service at the original purchase price of such stock; and

3.3.3 create, or authorize the creation (by reclassification or otherwise) of, any additional class or series of capital stock unless the same ranks junior to the Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption, or increase the

authorized number of shares of any additional class or series of capital stock unless the same ranks junior to the Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption.

3.4 Series B Preferred Stock Protective Provisions. At any time when at least 3,800,000 shares of Series B Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the holders of at least two-thirds of the outstanding shares of Series B Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.4.1 amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series B Preferred Stock; or

3.4.2 increase or decrease the authorized number of shares of Series B Preferred Stock.

3.5 Series C Preferred Stock Protective Provisions. At any time when at least 2,200,000 shares of Series C Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series C Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the holders of at least fifty-seven percent (57%) of the outstanding shares of Series C Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.5.1 amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series C Preferred Stock; or

3.5.2 increase or decrease the authorized number of shares of Series C Preferred Stock.

3.6 Series D Preferred Stock Protective Provisions. At any time when at least 6,500,000 shares of Series D Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series D Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the holders of a majority of the outstanding shares of Series D Preferred

Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.6.1 amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series D Preferred Stock;

3.6.2 (i) reclassify, alter or amend any existing security of the Corporation that is pari passu with the Series D Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Series D Preferred Stock in respect of any such right, preference, or privilege or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Series D Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Series D Preferred Stock in respect of any such right, preference or privilege;

3.6.3 increase or decrease the authorized number of shares of Series D Preferred Stock; or

3.6.4 liquidate, dissolve or wind up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event in which a share of Series D Preferred Stock would receive proceeds less than twice the Series D Original Issue Price.

3.7 Series D-1 Preferred Stock Protective Provisions. At any time when at least 1,500,000 shares of Series D-1 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series D-1 Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the holders of a majority of the outstanding shares of Series D-1 Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.7.1 amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series D-1 Preferred Stock;

3.7.2 (i) reclassify, alter or amend any existing security of the Corporation that is pari passu with the Series D-1 Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Series D-1 Preferred Stock in respect of any such right, preference, or

privilege or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Series D-1 Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Series D-1 Preferred Stock in respect of any such right, preference or privilege;

3.7.3 increase or decrease the authorized number of shares of Series D-1 Preferred Stock; or

3.7.4 liquidate, dissolve or wind up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event in which a share of Series D-1 Preferred Stock would receive proceeds less than twice the Series D-1 Original Issue Price.

4. Optional Conversion.

The holders of the Preferred Stock shall have conversion rights as follows (the "**Conversion Rights**"):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Series A Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Series A Original Issue Price by the Series A Conversion Price (as defined below) in effect at the time of conversion. Each share of Series B Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Series B Original Issue Price by the Series B Conversion Price (as defined below) in effect at the time of conversion. Each share of Series C Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Series C Original Issue Price by the Series C Conversion Price (as defined below) in effect at the time of conversion. Each share of Series D Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Series D Original Issue Price by the Series D Conversion Price (as defined below) in effect at the time of conversion. Each share of Series D-1 Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Series D-1 Original Issue Price by the Series D-1 Conversion Price (as defined below) in effect at the time of conversion. The "**Series A Conversion Price**" is equal to $1.00 as of the Series D Original Issue Date. The "**Series B Conversion Price**" is equal to $3.03 as of the Series D Original Issue Date. The "**Series C Conversion Price**" is equal to $4.56 as of the Series D Original Issue Date. The "**Series D**

Conversion Price" shall initially be equal to $7.02. The "**Series D-1 Conversion Price**" shall initially be equal to $11.98. The Series A Conversion Price, Series B Conversion Price, Series C Conversion Price, Series D Conversion Price and Series D-1 Conversion Price are each referred to as a "**Conversion Price**". Such initial Series A Conversion Price, Series B Conversion Price, Series C Conversion Price, Series D Conversion Price and Series D-1 Conversion Price, and the rate at which shares of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors of the Corporation. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent) that such holder elects to convert all or any number of such holder's shares of Preferred Stock and, if applicable, any event on which such conversion is contingent and (b) if such holder's shares are certificated, surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion unless such notice provides for a later time, subject to Subsection 4.1.2 (such time, the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such

date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (iii) pay all declared but unpaid dividends on the shares of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Series A Conversion Price, the Series B Conversion Price, Series C Conversion Price, Series D Conversion Price or Series D-1 Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such adjusted Conversion Price.

4.3.3 Effect of Conversion. All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Series A Conversion Price, Series B Conversion Price, Series C Conversion Price, Series D Conversion Price or Series D-1 Conversion Price shall be made for any declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Conversion Prices for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

(a) "**Option**" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) "**Series D Original Issue Date**" shall mean the date on which the first share of Series D Preferred Stock was issued.

(c) "**Convertible Securities**" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(d) "**Additional Shares of Common Stock**" shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series D Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (the securities described in clauses (1) and (2), collectively, "**Exempted Securities**"):

(i) shares of Common Stock, Options or Convertible Securities issued upon conversion of or as a dividend or distribution on Preferred Stock;

(ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;

(iii) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors of the Corporation, including at least two of the Preferred Directors (the "**Special Board Approval**");

(iv) shares of Common Stock or Convertible Securities issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case, provided such issuance is pursuant to the terms of such Option or Convertible Security;

(v) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, pursuant to a debt financing or equipment leasing transaction approved by the Board of Directors of the Corporation, including the Special Board Approval;

(vi) shares of Common Stock, Options or Convertible Securities issued to suppliers or third party service providers in connection with the provision of goods or services pursuant to transactions approved by the Board of Directors of the Corporation, including the Special Board Approval;

(vii) shares of Common Stock, Options or Convertible Securities issued pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided that such issuances are approved by the Board of Directors of the Corporation, including the Special Board Approval;

(viii) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved by the Board of Directors of the Corporation, including the Special Board Approval;

(ix) shares of Common Stock issued in connection the Corporation's first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended; or

(x) shares of Series D-1 Preferred Stock issued pursuant to that certain Preferred Stock Purchase Agreement, dated on or about the Series D Original Issue Date, by and among the Corporation and the investors party thereto.

4.4.2 No Adjustment of Conversion Prices. Any provision herein to the contrary notwithstanding, no adjustment in the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, Series D Conversion Price or Series D-1 Conversion Price shall be made in respect of the issuance of Additional Shares of Common Stock unless the consideration per share (determined pursuant to Section 4.4.4 hereof) for an Additional Shares of Common Stock issued or deemed to be issued by the Corporation is less than the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, in effect on the date of, and immediately prior to, such issue. No adjustment in the Series A Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of a majority of the then outstanding shares of Series A Preferred Stock, given prior to or after the issuance or deemed issuance of such Additional Shares of Common Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series B Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least two-thirds of the then outstanding shares of Series B Preferred Stock, given prior to or after the issuance or deemed issuance of such Additional Shares of Common Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series C Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least fifty-seven percent (57%) of the then outstanding shares of Series C Preferred Stock, given prior to or after the issuance or deemed issuance of such Additional Shares of Common Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series D Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of a majority of the then outstanding shares of Series D Preferred Stock, given prior to or after the issuance or deemed issuance of such Additional Shares of Common Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series D-1 Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of a majority of the then outstanding shares of Series D-1 Preferred Stock, given prior to or after the issuance or deemed issuance of such Additional Shares of Common Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series D Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, Series D Conversion Price or Series D-1 Conversion Price pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, Series D Conversion Price and/or Series D-1 Conversion Price, as applicable, computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Series A Conversion Price, Series B Conversion Price, the Series C Conversion Price, Series D Conversion Price or Series D-1 Conversion Price, as applicable, as would have been obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, Series D Conversion Price or Series D-1 Conversion Price to an amount which exceeds the lower of (i) the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, then in effect, or because such Option or Convertible Security was issued before the Series D Original Issue Date), are revised after the Series D Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a)) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price pursuant to the terms of Subsection 4.4.4, the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price, as applicable, shall be readjusted to such applicable Conversion Price as would have been obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price, as applicable, provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price, as applicable, that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price, as applicable, that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Conversion Prices Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time or from time to time after the Series D Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price in effect immediately prior to such issue, then and in each such case the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price, as applicable, shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C).$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "CP_2" shall mean the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, in effect immediately after such issue of Additional Shares of Common Stock;

(b) "CP_1" shall mean the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, in effect immediately prior to such issuance or deemed issuance of Additional Shares of Common Stock;

(c) "A" shall mean the number of shares of Common Stock outstanding immediately prior to such issuance or deemed issuance of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issuance or deemed issuance or upon conversion or exchange of Convertible Securities (including the Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issuance or deemed issuance);

(d) "B" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued or deemed issued at a price per share equal to CP_1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP_1); and

(e) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issuance or deemed issuance of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors of the Corporation, including the Special Board Approval; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors of the Corporation, including the Special Board Approval.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

(i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price pursuant to the terms of Subsection 4.4.4, and such issuance dates occur within a period of no more than ninety (90) days from the first such issuance to the final such issuance, then, upon the final such issuance, the Series A Conversion Price, the

Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and/or the Series D-1 Conversion Price, as applicable, shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series D Original Issue Date effect a subdivision of the outstanding Common Stock, the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and the Series D-1 Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of the applicable series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series D Original Issue Date combine the outstanding shares of Common Stock, the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and the Series D-1 Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of the applicable series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series D Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and the Series D-1 Conversion Price in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and the Series D-1 Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series A Conversion Price, the Series B

Conversion Price, the Series C Conversion Price, the Series D Conversion Price and the Series D-1 Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment shall be made if the holders of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and Series D-1 Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and Series D-1 Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series D Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and Series D-1 Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and Series D-1 Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.5, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.5, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of each series of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of the applicable series of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors of the Corporation) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price and the Series D-1 Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Preferred Stock.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of such affected series of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which such series of Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Preferred Stock (but in any event not later than twenty (20) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Series A Conversion Price, the Series B Conversion Price, the Series C Conversion Price, the Series D Conversion Price or the Series D-1 Conversion Price, as applicable, then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of such Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any Deemed Liquidation Event; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Preferred Stock and the Common Stock. Such notice shall be sent at least twenty (20) days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon either (a) the closing of the sale of shares of Common Stock to the public at a price per share that represents an Equity Valuation (as defined below) of at least $800 million in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended (the "**Registration**

Statement"), in connection with which the Common Stock is listed for trading on the Nasdaq Stock Market's National Market, the New York Stock Exchange or another exchange or marketplace approved the Board of Directors or (b) the date and time, or the occurrence of an event, specified by vote or written consent of the holders of a majority in voting power of the outstanding shares of Series D Preferred Stock and Series D-1 Preferred Stock, voting together as a single class, and the Requisite Holders (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the "**Mandatory Conversion Time**"), then (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1, and (ii) such shares may not be reissued by the Corporation. For purposes of this Subsection 5.1, "**Equity Valuation**" shall mean the product of (x) the number of shares of Common Stock outstanding immediately prior to the effectiveness of the Registration Statement (assuming full conversion and/or exercise, as applicable, of all Options and Convertible Securities then outstanding) and (y) the price per share of the Common Stock offered to the public as set forth in the final prospectus filed with the Securities and Exchange Commission with respect to the Registration Statement.

5.2 Procedural Requirements. All holders of record of shares of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and (b) pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6. Special Mandatory Conversion.

6.1 Trigger Event. In the event that (A) the Milestone Closing (as defined in the Stock Purchase Agreement entered into on or about the Series D Original Issue Date by and among the Corporation and the parties listed as "Investors" therein, as may be amended from time to time (the ***"Stock Purchase Agreement***")) is consummated on and subject to the terms of the Stock Purchase Agreement and (B) at the Milestone Closing, an Investor (as defined in the Stock Purchase Agreement) does not acquire at least the number of shares of Series D-1 Preferred Stock to be purchased by such Investor at the Milestone Closing, as set forth on Exhibit A of the Stock Purchase Agreement (except in the event that the condition to the Milestone Closing set forth in Section 1(j)(i) of the Stock Purchase Agreement is waived and such Investor has not consented to such waiver), *less* any shares of Series D-1 Preferred Stock purchased by such Investor prior to the Milestone Closing (a "***Defaulting Purchaser***"), then each share of Series D Preferred Stock and each share of Series D-1 Preferred Stock (and each share of Common Stock issued upon conversion of the Series D Preferred Stock or Series D-1 Preferred Stock prior to any Special Mandatory Conversion (as defined below)) held by such Defaulting Purchaser (or any transferee thereof, whether voluntarily or by operation of law) shall automatically, and without any further action on the part of such Defaulting Purchaser (or any such transferee), be converted into 0.1 shares of Common Stock, effective upon, subject to, and concurrently with, the consummation of the Milestone Closing, except if and only to the extent that an Investor's obligations to participate in the Milestone Closing have been tolled pursuant to Section 1(c)(iii) of the Stock Purchase Agreement. For purposes of determining the number of shares of Series D-1 Preferred Stock an Investor has acquired at the Milestone Closing or purchased prior to the Milestone Closing, all shares of Series D-1 Preferred Stock purchased by Affiliates (as defined in the Stock Purchase Agreement) of such Investor shall be aggregated with the shares of Series D-1 Preferred Stock purchased by such Investor (provided that no shares shall be attributed to more than one entity or person within any such group of affiliated entities or persons). Such conversion is referred to as a "***Special Mandatory Conversion***."

6.2 Procedural Requirements. Upon a Special Mandatory Conversion, each holder of shares of Series D Preferred Stock or Series D-1 Preferred Stock (or shares of Common Stock issued upon conversion of the Series D Preferred Stock or Series D-1 Preferred Stock prior to any Special Mandatory Conversion) converted pursuant to Subsection 6.1 shall be sent written notice of such Special Mandatory Conversion and the place designated for mandatory conversion of all such shares pursuant to this Section 6. Upon receipt of such notice, each holder of such shares of Series D Preferred Stock or Series D-1 Preferred Stock (or shares of Common Stock issued upon conversion of the Series D Preferred Stock or Series D-1 Preferred Stock prior to any Special Mandatory Conversion) in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that any such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Series D Preferred Stock and Series D-1 Preferred Stock converted pursuant to Section 6, including the

rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the time of the Special Mandatory Conversion (notwithstanding the failure of the holder or holders thereof to surrender any certificates for such shares at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders therefor (or lost certificate affidavit and agreement), to receive the items provided for in the next sentence of this Subsection 6.2. As soon as practicable after the Special Mandatory Conversion and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Series D Preferred Stock, Series D-1 Preferred Stock or Common Stock so converted, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and (b) pay cash as provided in Section 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Series D Preferred Stock or Series D-1 Preferred Stock converted. Such converted Series D Preferred Stock or Series D-1 Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Series D Preferred Stock or Series D-1 Preferred Stock accordingly.

7. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

8. Waiver. Except where a different vote is specified in the Certificate of Incorporation: (a) any of the rights, powers, preferences and other terms of the Series A Preferred Stock set forth herein may be waived on behalf of all holders of Series A Preferred Stock by the affirmative written consent or vote of the holders of a majority of the shares of Series A Preferred Stock then outstanding; (b) any of the rights, powers, preferences and other terms of the Series B Preferred Stock set forth herein may be waived on behalf of all holders of Series B Preferred Stock by the affirmative written consent or vote of the holders of at least two-thirds of the shares of Series B Preferred Stock then outstanding; (c) any of the rights, powers, preferences and other terms of the Series C Preferred Stock set forth herein may be waived on behalf of all holders of Series C Preferred Stock by the affirmative written consent or vote of the holders of fifty-seven percent (57%) of the shares of Series C Preferred Stock then outstanding; (d) any of the rights, powers, preferences and other terms of the Series D Preferred Stock set forth herein may be waived on behalf of all holders of Series D Preferred Stock by the affirmative written consent or vote of the holders of a majority of the shares of Series D Preferred Stock then outstanding; (e) any of the rights, powers, preferences and other terms of the Series D-1 Preferred Stock set forth herein may be waived on behalf of all holders of Series D-1 Preferred Stock by the affirmative written consent or vote of the holders of a majority of the shares of Series D-1 Preferred Stock then outstanding; and (f) any of the rights, powers, preferences and other terms of the Preferred Stock as a class set forth herein may be waived on behalf of all holders of Preferred Stock by the affirmative written consent or vote of the holders of a majority of the voting power of the shares of Preferred Stock then outstanding. For purposes of clarity, for any matter with respect to which the vote in clause (f) of the preceding sentence applies, no additional vote pursuant to clauses (a), (b), (c), (d) or (e) of the preceding sentence shall apply to such matter.

9. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by the Certificate of Incorporation or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by the Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended. Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law. Any amendment, repeal, or modification of the foregoing provisions of this Article Tenth shall not adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of such amendment, repeal or modification.

ELEVENTH: The Corporation renounces any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "**Excluded Opportunity**" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of, (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee, affiliate or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, the persons referred to in clauses (i) and (ii) are "**Covered Persons**"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person in such Covered Person's capacity as a director of the Corporation while such Covered Person is performing services in such capacity. Any repeal or modification of this Article Eleventh will only be prospective and will not affect the rights under this Article Eleventh in effect at the time of the occurrence of any actions or omissions to act giving rise to liability. Notwithstanding anything to the contrary contained elsewhere in this Amended and Restated Certificate of Incorporation, the affirmative vote of the holders of a majority in voting power of the outstanding shares of Series D Preferred Stock and Series D-1 Preferred Stock, voting together as a single class, will be required to amend or repeal, or to adopt any provisions inconsistent with this Article Eleventh.

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this Corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

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IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 18th day of May, 2020.

By: /s/ Jean-Pierre Sommadossi
Name: Jean-Pierre Sommadossi
Title: Chief Executive Officer and President

AMENDMENT NO. 1 TO BYLAWS OF

ATEA PHARMACEUTICALS, INC.
(a Delaware corporation)

Adopted as of June 29, 2018

This Amendment No. 1 (this "Amendment") to the Bylaws of Atea Pharmaceuticals, Inc. (the "Corporation") is made as of June 29, 2018 and adopted by the stockholders of the Corporation. Any term used herein that is not otherwise defined shall have the meaning ascribed to such term as provided in the Bylaws.

WHEREAS, pursuant to Section 6.2 of the Bylaws, the Bylaws may be amended by the affirmative vote of the holders of a majority of the shares of the capital stock of the Corporation issued and outstanding and entitled to vote at any annual meeting of stockholders, or at any special meeting of stockholders (the "Required Stockholders"); and

WHEREAS, the Required Stockholders have approved this Amendment pursuant to resolutions adopted on June 29, 2018.

1. SECTION 2.5 shall be amended and restated in its entirety to read as follows:

> "SECTION 2.5. Quorum. The greater of (a) a majority of the directors at any time in office and (b) one-third of the number of directors fixed pursuant to Section 2.2 of these By-laws shall constitute a quorum of the Board of Directors; provided that in each case if at least one director elected by the holders of a majority of the corporation's common stock is then a member of the Board of Directors (a "Common Director"), a Common Director must be present to constitute a quorum. Notwithstanding the foregoing, if a quorum is not present solely due to the absence of a Common Director in accordance with the foregoing for three consecutive duly called meetings of the Board of Directors, the requirement for the Common Director to be present at a meeting of the Board of Directors to constitute a quorum shall not be applicable with respect to the next duly called meeting of the Board of Directors. If at any meeting of the Board of Directors there shall be less than such a quorum, a majority of the directors present may adjourn the meeting from time to time without further notice other than announcement at the meeting, until a quorum shall be present."

2. Except as aforesaid, the Bylaws shall remain in full force and effect.

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BY-LAWS

OF

ATEA PHARMACEUTICALS, INC.

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ARTICLE I

STOCKHOLDERS

1.1 Place of Meetings. All meetings of stockholders shall be held at such place as may be designated from time to time by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President or, if not so designated, at the principal office of the corporation. The Board of Directors may, in its sole discretion, determine that a meeting shall not be held at any place, but may instead be held solely by means of remote communication in a manner consistent with the General Corporation Law of the State of Delaware.

1.2 Annual Meeting. The annual meeting of stockholders for the election of directors and for the transaction of such other business as may properly be brought before the meeting shall be held on a date and at a time designated by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President (which date shall not be a legal holiday in the place where the meeting is to be held).

1.3 Special Meetings. Special meetings of stockholders for any purpose or purposes may be called at any time by only the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President, and may not be called by any other person or persons. The Board of Directors may postpone or reschedule any previously scheduled special meeting of stockholders. Business transacted at any special meeting of stockholders shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

1.4 Notice of Meetings. Except as otherwise provided by law, notice of each meeting of stockholders, whether annual or special, shall be given not less than 10 nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting. Without limiting the manner by which notice otherwise may be given to stockholders, any notice shall be effective if given by a form of electronic transmission consented to (in a manner consistent with the General Corporation Law of the State of Delaware) by the stockholder to whom the notice is given. The notices of all meetings shall state the place, if any, date and time of the meeting and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting. The notice of a special meeting shall state, in addition, the purpose or purposes for which the meeting is called. If notice is given by mail, such notice shall be deemed given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder’s address as it appears on the records of the corporation. If notice is given by electronic transmission, such notice shall be deemed given at the time specified in Section 232 of the General Corporation Law of the State of Delaware.

1.5 Voting List. The Secretary shall prepare, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, for a period of at least 10 days prior to the meeting: (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (b) during

ordinary business hours, at the principal place of business of the corporation. If the meeting is to be held at a physical location (and not solely by means of remote communication), then the list shall be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present. If the meeting is to be held solely by means of remote communication, then the list shall also be open to the examination of any stockholder during the whole time of the meeting on a reasonably accessible electronic network, and the information required to access such list shall be provided with the notice of the meeting. The list shall presumptively determine the identity of the stockholders entitled to vote at the meeting and the number of shares held by each of them.

1.6 Quorum. Except as otherwise provided by law, the Certificate of Incorporation or these By-laws, the holders of a majority in voting power of the shares of the capital stock of the corporation issued and outstanding and entitled to vote at the meeting, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy, shall constitute a quorum for the transaction of business; provided, however, that where a separate vote by a class or classes or series of capital stock is required by law or the Certificate of Incorporation, the holders of a majority in voting power of the shares of such class or classes or series of the capital stock of the corporation issued and outstanding and entitled to vote on such matter, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy, shall constitute a quorum entitled to take action with respect to the vote on such matter. A quorum, once established at a meeting, shall not be broken by the withdrawal of enough votes to leave less than a quorum.

1.7 Adjournments. Any meeting of stockholders may be adjourned from time to time to any other time and to any other place at which a meeting of stockholders may be held under these By-laws by the chairman of the meeting or by the stockholders present or represented at the meeting and entitled to vote, although less than a quorum. It shall not be necessary to notify any stockholder of any adjournment of less than 30 days if the time and place, if any, of the adjourned meeting, and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting, are announced at the meeting at which adjournment is taken, unless after the adjournment a new record date is fixed for the adjourned meeting. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting.

1.8 Voting and Proxies. Each stockholder shall have one vote for each share of stock entitled to vote held of record by such stockholder and a proportionate vote for each fractional share so held, unless otherwise provided by law or the Certificate of Incorporation. Each stockholder of record entitled to vote at a meeting of stockholders, or to express consent or dissent to corporate action without a meeting, may vote or express such consent or dissent in person (including by means of remote communications, if any, by which stockholders may be deemed to be present in person and vote at such meeting) or may authorize another person or persons to vote or act for such stockholder by a proxy executed or transmitted in a manner permitted by the General Corporation Law of the State of Delaware by the stockholder or such stockholder's authorized agent and delivered (including by electronic transmission) to the Secretary of the corporation. No such proxy shall be voted or acted upon after three years from the date of its execution, unless the proxy expressly provides for a longer period.

1.9 Action at Meeting. When a quorum is present at any meeting, any matter other than the election of directors to be voted upon by the stockholders at such meeting shall be decided by the vote of the holders of shares of stock having a majority in voting power of the votes cast by the holders of all of the shares of stock present or represented at the meeting and voting affirmatively or negatively on such matter (or if there are two or more classes or series of stock entitled to vote as separate classes, then in the case of each such class or series, the holders of a majority in voting power of the shares of stock of that class or series present or represented at the meeting and voting affirmatively or negatively on such matter), except when a different vote is required by law, the Certificate of Incorporation or these By-laws. When a quorum is present at any meeting, any election by stockholders of directors shall be determined by a plurality of the votes cast by the stockholders entitled to vote on the election.

1.10 Conduct of Meetings.

(a) Chairman of Meeting. Meetings of stockholders shall be presided over by the Chairman of the Board, if any, or in the Chairman's absence by the Vice Chairman of the Board, if any, or in the Vice Chairman's absence by the Chief Executive Officer, or in the Chief Executive Officer's absence, by the President, or in the President's absence by a Vice President, or in the absence of all of the foregoing persons by a chairman designated by the Board of Directors, or in the absence of such designation by a chairman chosen by vote of the stockholders at the meeting. The Secretary shall act as secretary of the meeting, but in the Secretary's absence the chairman of the meeting may appoint any person to act as secretary of the meeting.

(b) Rules, Regulations and Procedures. The Board of Directors may adopt by resolution such rules, regulations and procedures for the conduct of any meeting of stockholders of the corporation as it shall deem appropriate including, without limitation, such guidelines and procedures as it may deem appropriate regarding the participation by means of remote communication of stockholders and proxyholders not physically present at a meeting. Except to the extent inconsistent with such rules, regulations and procedures as adopted by the Board of Directors, the chairman of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for maintaining order at the meeting and the safety of those present; (iii) limitations on attendance at or participation in the meeting to stockholders of record of the corporation, their duly authorized and constituted proxies or such other persons as shall be determined; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

1.11 Action without Meeting.

(a) Taking of Action by Consent. Any action required or permitted to be taken at any annual or special meeting of stockholders of the corporation may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote on such action were present and voted. Except as otherwise provided by the Certificate of Incorporation, stockholders may act by written consent to elect directors; provided, however, that, if such consent is less than unanimous, such action by written consent may be in lieu of holding an annual meeting only if all of the directorships to which directors could be elected at an annual meeting held at the effective time of such action are vacant and are filled by such action.

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

(c) . Notice of Taking of Corporate Action. Prompt notice of the taking of corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for such meeting had been the date that written consents signed by a sufficient number of holders to take the action were delivered to the corporation.

ARTICLE II

DIRECTORS

2.1 General Powers. The business and affairs of the corporation shall be managed by or under the direction of a Board of Directors, who may exercise all of the powers of the corporation except as otherwise provided by law or the Certificate of Incorporation.

2.2 Number, Election and Qualification. Subject to the rights of holders of any series of Preferred Stock to elect directors, the number of directors of the corporation shall be established from time to time by the stockholders or the Board of Directors. The directors shall be elected at the annual meeting of stockholders by such stockholders as have the right to vote on such election. Election of directors need not be by written ballot. Directors need not be stockholders of the corporation.

2.3 Chairman of the Board; Vice Chairman of the Board. The Board of Directors may appoint from its members a Chairman of the Board and a Vice Chairman of the Board, neither of whom need be an employee or officer of the corporation. If the Board of Directors appoints a Chairman of the Board, such Chairman shall perform such duties and possess such powers as are assigned by the Board of Directors and, if the Chairman of the Board is also designated as the corporation's Chief Executive Officer, shall have the powers and duties of the Chief Executive Officer prescribed in Section 3.7 of these By-laws. If the Board of Directors appoints a Vice Chairman of the Board, such Vice Chairman shall perform such duties and possess such powers as are assigned by the Board of Directors. Unless otherwise provided by the Board of Directors, the Chairman of the Board or, in the Chairman's absence, the Vice Chairman of the Board, if any, shall preside at all meetings of the Board of Directors.

2.4 Tenure. Each director shall hold office until the next annual meeting of stockholders and until a successor is elected and qualified, or until such director's earlier death, resignation or removal.

2.5 Quorum. The greater of (a) a majority of the directors at any time in office and (b) one-third of the number of directors fixed pursuant to Section 2.2 of these By-laws shall constitute a quorum of the Board of Directors. If at any meeting of the Board of Directors there shall be less than such a quorum, a majority of the directors present may adjourn the meeting from time to time without further notice other than announcement at the meeting, until a quorum shall be present.

2.6 Action at Meeting. Every act or decision done or made by a majority of the directors present at a meeting of the Board of Directors duly held at which a quorum is present shall be regarded as the act of the Board of Directors, unless a greater number is required by law or by the Certificate of Incorporation.

2.7 Removal. Except as otherwise provided by the General Corporation Law of the State of Delaware, any one or more or all of the directors of the corporation may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors, except that the directors elected by the holders of a particular class or series of stock may be removed without cause only by vote of the holders of a majority of the outstanding shares of such class or series.

2.8 Vacancies. Subject to the rights of holders of any series of Preferred Stock to elect directors, unless and until filled by the stockholders, any vacancy or newly-created directorship on the Board of Directors, however occurring, may be filled by vote of a majority of the directors then in office, although less than a quorum, or by a sole remaining director. A director elected to fill a vacancy shall be elected for the unexpired term of such director's predecessor in office, and a director chosen to fill a position resulting from a newly-created directorship shall hold office until the next annual meeting of stockholders and until a successor is elected and qualified, or until such director's earlier death, resignation or removal.

2.9 Resignation. Any director may resign by delivering a resignation in writing or by electronic transmission to the corporation at its principal office or to the Chairman of the Board, the Chief Executive Officer, the President or the Secretary. Such resignation shall be effective upon delivery unless it is specified to be effective at some later time or upon the happening of some later event.

2.10 Regular Meetings. Regular meetings of the Board of Directors may be held without notice at such time and place as shall be determined from time to time by the Board of Directors; provided that any director who is absent when such a determination is made shall be given notice of the determination. A regular meeting of the Board of Directors may be held without notice immediately after and at the same place as the annual meeting of stockholders.

2.11 Special Meetings. Special meetings of the Board of Directors may be held at any time and place designated in a call by the Chairman of the Board, the Chief Executive Officer, the President, two or more directors, or by one director in the event that there is only a single director in office.

2.12 Notice of Special Meetings. Notice of the date, place, if any, and time of any special meeting of directors shall be given to each director by the Secretary or by the officer or one of the directors calling the meeting. Notice shall be duly given to each director (a) in person or by telephone at least 24 hours in advance of the meeting, (b) by sending written notice by reputable overnight courier, telecopy, facsimile or electronic transmission, or delivering written notice by hand, to such director's last known business, home or electronic transmission address at least 48 hours in advance of the meeting, or (c) by sending written notice by first-class mail to such director's last known business or home address at least 72 hours in advance of the meeting. A notice or waiver of notice of a meeting of the Board of Directors need not specify the purposes of the meeting.

2.13 Meetings by Conference Communications Equipment. Directors may participate in meetings of the Board of Directors or any committee thereof by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation by such means shall constitute presence in person at such meeting.

2.14 Action by Consent. Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent to the action in writing or by electronic transmission, and the written consents or electronic transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

2.15 Committees. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the corporation with such lawfully delegable powers and duties as the Board of Directors thereby confers, to serve at the pleasure of the Board of Directors. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members of the committee present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board of Directors and subject to the provisions of law, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation and may authorize the seal of the corporation to be affixed to all papers which may require it. Each such committee shall keep minutes and make such reports as the Board of Directors may from time to time request. Except as the Board of Directors may otherwise determine, any committee may make rules for the conduct of its business, but unless otherwise provided by the directors or in such rules, its business shall be conducted as nearly as possible in the same manner as is provided in these By-laws for the Board of Directors. Except as otherwise provided in the Certificate of Incorporation, these By-laws, or the resolution of the Board of Directors designating the committee, a committee may create one or more subcommittees, each subcommittee to consist of one or more members of the committee, and delegate to a subcommittee any or all of the powers and authority of the committee.

2.16 Compensation of Directors. Directors may be paid such compensation for their services and such reimbursement for expenses of attendance at meetings as the Board of Directors may from time to time determine. No such payment shall preclude any director from serving the corporation or any of its parent or subsidiary entities in any other capacity and receiving compensation for such service.

ARTICLE III

OFFICERS

3.1 Titles. The officers of the corporation shall consist of a Chief Executive Officer, a President, a Secretary, a Treasurer and such other officers with such other titles as the Board of Directors shall determine, including one or more Vice Presidents, Assistant Treasurers and Assistant Secretaries. The Board of Directors may appoint such other officers as it may deem appropriate.

3.2 Election. The Chief Executive Officer, President, Treasurer and Secretary shall be elected annually by the Board of Directors at its first meeting following the annual meeting of stockholders. Other officers may be appointed by the Board of Directors at such meeting or at any other meeting.

3.3 Qualification. No officer need be a stockholder. Any two or more offices may be held by the same person.

3.4 Tenure. Except as otherwise provided by law, by the Certificate of Incorporation or by these By-laws, each officer shall hold office until such officer's successor is elected and qualified, unless a different term is specified in the resolution electing or appointing such officer, or until such officer's earlier death, resignation or removal.

3.5 Resignation and Removal. Any officer may resign by delivering a written resignation to the corporation at its principal office or to the Chief Executive Officer, the President or the Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some later time or upon the happening of some later event. Any officer may be removed at any time, with or without cause, by vote of a majority of the directors then in office. Except as the Board of Directors may otherwise determine, no officer who resigns or is removed shall have any right to any compensation as an officer for any period following such officer's resignation or removal, or any right to damages on account of such removal, whether such officer's compensation be by the month or by the year or otherwise, unless such compensation is expressly provided for in a duly authorized written agreement with the corporation.

3.6 Vacancies. The Board of Directors may fill any vacancy occurring in any office for any reason and may, in its discretion, leave unfilled for such period as it may determine any offices other than those of Chief Executive Officer, President, Treasurer and Secretary. Each such successor shall hold office for the unexpired term of such officer's predecessor and until a successor is elected and qualified, or until such officer's earlier death, resignation or removal.

3.7 President; Chief Executive Officer. Unless the Board of Directors has designated another person as the corporation's Chief Executive Officer, the President shall be the Chief Executive Officer of the corporation. The Chief Executive Officer shall have general charge and supervision of the business of the corporation subject to the direction of the Board of Directors, and shall perform all duties and have all powers that are commonly incident to the office of chief executive or that are delegated to such officer by the Board of Directors. The President shall perform such other duties and shall have such other powers as the Board of Directors or the Chief Executive Officer (if the President is not the Chief Executive Officer) may from time to time prescribe. In the event of the absence, inability or refusal to act of the Chief Executive Officer or the President (if the President is not the Chief Executive Officer), the Vice President (or if there shall be more than one, the Vice Presidents in the order determined by the Board of Directors) shall perform the duties of the Chief Executive Officer and when so performing such duties shall have all the powers of and be subject to all the restrictions upon the Chief Executive Officer.

3.8 Vice Presidents. Each Vice President shall perform such duties and possess such powers as the Board of Directors or the Chief Executive Officer may from time to time prescribe. The Board of Directors may assign to any Vice President the title of Executive Vice President, Senior Vice President or any other title selected by the Board of Directors.

3.9 Secretary and Assistant Secretaries. The Secretary shall perform such duties and shall have such powers as the Board of Directors or the Chief Executive Officer may from time to time prescribe. In addition, the Secretary shall perform such duties and have such powers as are incident to the office of the secretary, including without limitation the duty and power to give notices of all meetings of stockholders and special meetings of the Board of Directors, to attend all meetings of stockholders and the Board of Directors and keep a record of the proceedings, to maintain a stock ledger and prepare lists of stockholders and their addresses as required, to be custodian of corporate records and the corporate seal and to affix and attest to the same on documents.

Any Assistant Secretary shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer or the Secretary may from time to time prescribe. In the event of the absence, inability or refusal to act of the Secretary, the Assistant Secretary (or if there shall be more than one, the Assistant Secretaries in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Secretary.

In the absence of the Secretary or any Assistant Secretary at any meeting of stockholders or directors, the chairman of the meeting shall designate a temporary secretary to keep a record of the meeting.

3.10 Treasurer and Assistant Treasurers. The Treasurer shall perform such duties and shall have such powers as may from time to time be assigned by the Board of Directors or the Chief Executive Officer. In addition, the Treasurer shall perform such duties and have such powers as are incident to the office of treasurer, including without limitation the duty and power to keep and be responsible for all funds and securities of the corporation, to deposit funds of the corporation in depositories selected in accordance with these By-laws, to disburse such funds as ordered by the Board of Directors, to make proper accounts of such funds, and to render as required by the Board of Directors statements of all such transactions and of the financial condition of the corporation.

The Assistant Treasurers shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer or the Treasurer may from time to time prescribe. In the event of the absence, inability or refusal to act of the Treasurer, the Assistant Treasurer (or if there shall be more than one, the Assistant Treasurers in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Treasurer.

3.11 Salaries. Officers of the corporation shall be entitled to such salaries, compensation or reimbursement as shall be fixed or allowed from time to time by the Board of Directors.

3.12 Delegation of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

ARTICLE IV

CAPITAL STOCK

4.1 Issuance of Stock. Subject to the provisions of the Certificate of Incorporation, the whole or any part of any unissued balance of the authorized capital stock of the corporation or the whole or any part of any shares of the authorized capital stock of the corporation held in the corporation's treasury may be issued, sold, transferred or otherwise disposed of by vote of the Board of Directors in such manner, for such lawful consideration and on such terms as the Board of Directors may determine.

4.2 Stock Certificates; Uncertificated Shares. The shares of the corporation shall be represented by certificates, provided that the Board of Directors may provide by resolution or resolutions that some or all of any or all classes or series of the corporation's stock shall be uncertificated shares. Every holder of stock of the corporation represented by certificates shall be entitled to have a certificate, in such form as may be prescribed by law and by the Board of Directors, representing the number of shares held by such holder registered in certificate form. Each such certificate shall be signed in a manner that complies with Section 158 of the General Corporation Law of the State of Delaware.

Each certificate for shares of stock which are subject to any restriction on transfer pursuant to the Certificate of Incorporation, these By-laws, applicable securities laws or any agreement among any number of stockholders or among such holders and the corporation shall have conspicuously noted on the face or back of the certificate either the full text of the restriction or a statement of the existence of such restriction.

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

Within a reasonable time after the issuance or transfer of uncertificated shares, the corporation shall send to the registered owner there of a written notice containing the information required to be set forth or stated on certificates pursuant to Sections 151, 202(a) or 218(a) of the General Corporation Law of the State of Delaware or, with respect to Section 151 of the General Corporation Law of the State of Delaware, a statement that the corporation will furnish without charge to each stockholder who so requests the powers, designations, preferences and relative participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

4.3 Transfers. Shares of stock of the corporation shall be transferable in the manner prescribed by law and in these By-laws. Transfers of shares of stock of the corporation shall be made only on the books of the corporation or by transfer agents designated to transfer shares of stock of the corporation. Subject to applicable law, shares of stock represented by certificates shall be transferred only on the books of the corporation by the surrender to the corporation or its transfer agent of the certificate representing such shares properly endorsed or accompanied by a written assignment or power of attorney properly executed, and with such proof of authority or the authenticity of signature as the corporation or its transfer agent may reasonably require. Except as may be otherwise required by law, by the Certificate of Incorporation or by these By-laws, the corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to vote with respect to such stock, regardless of any transfer, pledge or other disposition of such stock until the shares have been transferred on the books of the corporation in accordance with the requirements of these By-laws.

4.4 Lost, Stolen or Destroyed Certificates. The corporation may issue a new certificate of stock in place of any previously issued certificate alleged to have been lost, stolen or destroyed, upon such terms and conditions as the Board of Directors may prescribe, including the presentation of reasonable evidence of such loss, theft or destruction and the giving of such indemnity and posting of such bond as the Board of Directors may require for the protection of the corporation or any transfer agent or registrar.

4.5 Record Date. The Board of Directors may fix in advance a date as a record date for the determination of the stockholders entitled to notice of or to vote at any meeting of stockholders or to express consent (or dissent) to corporate action without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action. Such record date shall not precede the date on which the resolution fixing the record date is adopted, and such record date shall not be more than 60 nor less than 10 days before the date of such meeting, nor more than 10 days after the date of adoption of a record date for a consent without a meeting, nor more than 60 days prior to any other action to which such record date relates.

If no record date is fixed, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day before the day on which notice is given, or, if notice is waived, at the close of business on the day before the day on which the meeting is held. If no record date is fixed, the record date for determining stockholders entitled to express consent to corporate action without a meeting, when no prior action by the Board of Directors is necessary, shall be the day on which the first consent is properly delivered to the corporation. If no record date is fixed, the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating to such purpose.

A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

4.6 Regulations. The issue, transfer, conversion and registration of shares of stock of the corporation shall be governed by such other regulations as the Board of Directors may establish.

ARTICLE V

GENERAL PROVISIONS

5.1 Fiscal Year. Except as from time to time otherwise designated by the Board of Directors, the fiscal year of the corporation shall begin on the first day of January of each year and end on the last day of December in each year.

5.2 Corporate Seal. The corporate seal shall be in such form as shall be approved by the Board of Directors.

5.3 Waiver of Notice. Whenever notice is required to be given by law, by the Certificate of Incorporation or by these By-laws, a written waiver, signed by the person entitled to notice, or a waiver by electronic transmission by the person entitled to notice, whether before, at or after the time of the event for which notice is to be given, shall be deemed equivalent to notice required to be given to such person. Neither the business nor the purpose of any meeting need be specified in any such waiver. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

5.4 Voting of Securities. Except as the Board of Directors may otherwise designate, the Chief Executive Officer, the President or the Treasurer may waive notice of, vote, or appoint any person or persons to vote, on behalf of the corporation at, and act as, or appoint any person or persons to act as, proxy or attorney-in-fact for this corporation (with or without power of substitution) at, any meeting of stockholders or securityholders of any other entity, the securities of which may be held by this corporation.

5.5 Evidence of Authority. A certificate by the Secretary, or an Assistant Secretary, or a temporary Secretary, as to any action taken by the stockholders, directors, a committee or any officer or representative of the corporation shall as to all persons who rely on the certificate in good faith be conclusive evidence of such action.

5.6 Certificate of Incorporation. All references in these By-laws to the Certificate of Incorporation shall be deemed to refer to the Certificate of Incorporation of the corporation, as amended and in effect from time to time.

5.7 Severability. Any determination that any provision of these By-laws is for any reason inapplicable, illegal or ineffective shall not affect or invalidate any other provision of these By-laws.

5.8 Pronouns. All pronouns used in these By-laws shall be deemed to refer to the masculine, feminine or neuter, singular or plural, as the identity of the person or persons may require.

ARTICLE VI

AMENDMENTS

6.1 By the Board of Directors. These By-laws may be altered, amended or repealed, in whole or in part, or new by-laws may be adopted by the Board of Directors.

6.2 By the Stockholders. These By-laws may be altered, amended or repealed, in whole or in part, or new by-laws may be adopted by the affirmative vote of the holders of a majority of the shares of the capital stock of the corporation issued and outstanding and entitled to vote at any annual meeting of stockholders, or at any special meeting of stockholders, provided notice of such alteration, amendment, repeal or adoption of new by-laws shall have been stated in the notice of such special meeting.

ATEA PHARMACEUTICALS, INC.

FOURTH AMENDED AND RESTATED
STOCKHOLDERS AGREEMENT

THIS FOURTH AMENDED AND RESTATED STOCKHOLDERS AGREEMENT (this "**Agreement**"), is made as of May 19, 2020, by and among Atea Pharmaceuticals, Inc., a Delaware corporation (the "**Company**"), the Founder (as defined below), each of the investors listed on Schedule A hereto (together with any subsequent investors or transferees, who become parties hereto as "Investors" pursuant to Subsections 11.9(a) or 11.12 below, the "**Investors**"), and those certain stockholders of the Company listed on Schedule B (together with any subsequent stockholders or transferees, who become parties hereto as "Key Holders" pursuant to Subsection 11.9(b) or 11.12 below, the "**Key Holders**," and together collectively with the Investors, the "**Stockholders**").

RECITALS

WHEREAS, certain of the Investors (the "**Existing Investors**") hold shares of the Company's Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and/or shares of Common Stock issued upon conversion thereof and possess registration rights, information rights, rights of first offer, and other rights pursuant to the Third Amended and Restated Stockholders Agreement dated as of June 29, 2018, by and among the Company and such Investors (the "**Prior Agreement**"); and

WHEREAS, the Existing Investors constitute the Requisite Preferred Holders (as defined in the Prior Agreement) and the holders of a majority of the outstanding shares of Series C Preferred Stock, and the Company and the Existing Investors desire to amend and restate the Prior Agreement in its entirety and to accept the rights created pursuant to this Agreement in lieu of the rights granted to them under the Prior Agreement in order to induce certain of the Investors to invest funds in the Company pursuant to that certain Preferred Stock Purchase Agreement, of even date herewith, by and among the Company and certain of the Investors (the "**Purchase Agreement**").

NOW, THEREFORE, the parties hereby agree as follows:

1. Definitions. For purposes of this Agreement:

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

1.2 "**Board**" means the Board of Directors of the Company.

1.3 "**Capital Stock**" means (a) shares of Common Stock and Preferred Stock (whether now outstanding or hereafter issued in any context), (b) shares of Common Stock issued or issuable upon conversion of Preferred Stock, and (c) shares of Common Stock issued or issuable upon exercise or conversion, as applicable, of stock options, warrants or other convertible securities of the Company, in each case now owned or subsequently acquired by any Key Holder, any Investor, or their respective successors or permitted transferees or assigns. For purposes of the number of shares of Capital Stock held by an Investor or Key Holder (or any other calculation based thereon), all shares of Preferred Stock shall be deemed to have been converted into Common Stock at the then-applicable conversion ratio.

1.4 "**Certificate of Incorporation**" means the Company's certificate of incorporation, as it may be amended and/or restated from time to time.

1.5 "**Common Stock**" means shares of the Company's common stock, par value $0.001 per share.

1.6 "**Company Notice**" means written notice from the Company notifying the selling Rights Holder that the Company intends to exercise its Right of First Refusal as to some or all of the Transfer Stock with respect to any Proposed Restricted Holder Transfer.

1.7 "**Competitor**" means a Person engaged, directly or indirectly (including through any partnership, limited liability company, corporation, joint venture or similar arrangement (whether now existing or formed hereafter)), in discovering, developing or commercializing antivirals for the treatment or prophylaxis of human diseases or conditions resulting from infection by or exposure to RNA or DNA viruses, but shall not include any financial investment firm, venture capital firm or collective investment vehicle that, together with its Affiliates, holds less than ten percent (10%) of the outstanding equity of any Competitor and does not, nor do any of its Affiliates, have a right to designate any members of the board of directors of any Competitor. Notwithstanding anything to the contrary in no event shall Ally Bridge Medalpha Master Fund L.P. or any Affiliate thereof, Bain Capital Life Sciences, LP or any Affiliate thereof, RA Capital Healthcare Fund, L.P. or any Affiliate thereof, Redmile Biopharma Investments II, L.P. ("**Redmile**") or any Affiliate thereof or Rock Springs Capital Master Fund LP or any Affiliate thereof constitute a Competitor.

1.8 "**Damages**" means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (ii) an omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

1.9 "**Deemed Liquidation Event**" shall have the meaning ascribed to it in the Certificate of Incorporation.

1.10 "**Defaulting Investor**" shall have the meaning ascribed to it in the Purchase Agreement.

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

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

1.13 "**Excluded Registration**" means: (i) a registration relating to the sale of securities to employees, consultants and/or members of the Board of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (ii) a registration relating to an SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

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

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

1.16 "**Founder**" means Jean-Pierre Sommadossi, Ph.D.; provided, however, upon the death or total and permanent disability of Jean-Pierre Sommadossi, Ph.D., "Founder" shall mean the Key Holders holding a majority of the outstanding shares of Common Stock held by Key Holders.

1.17 "**Founder Holders**" means (a) Jean-Pierre Sommadossi, Ph.D., (b) any Affiliate of Dr. Sommadossi, (c) the Jean-Pierre Sommadossi Trust 12/10/98 and (d) JPM Partners LLC.

1.18 "**GAAP**" means generally accepted accounting principles in the United States.

1.19 "**Holder**" means any holder of Registrable Securities who is a party to this Agreement.

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

1.21 "**Initiating Holders**" means, collectively, Holders who properly initiate a registration request under this Agreement.

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

1.23 "**Major Investor**" means any Investor that, individually or together with such Investor's Affiliates, holds at least 400,000 shares of Registrable Securities (as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof), and is not a Defaulting Investor.

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

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

1.26 "**Preferred Stock**" means, collectively, the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and Series D-1 Preferred Stock.

1.27 "**Proposed Restricted Holder Transfer**" means any assignment, sale, offer to sell, pledge, mortgage, hypothecation, encumbrance, disposition of or any other like transfer or encumbering of any Transfer Stock (or any interest therein) proposed by any of the Restricted Holders.

1.28 "**Proposed Transfer Notice**" means written notice from a Restricted Holder setting forth the terms and conditions of a Proposed Restricted Holder Transfer.

1.29 "**Prospective Transferee**" means any person to whom a Restricted Holder proposes to make a Proposed Restricted Holder Transfer.

1.30 "**Registrable Securities**" means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; and (ii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clause (i) above; excluding in all cases, however, (A) any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 11.1 and (B) any Common Stock issued upon conversion of Preferred Stock and Common Stock pursuant to the "Special Mandatory Conversion" provisions of the Certificate of Incorporation, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.12 of this Agreement.

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

1.32 "**Requisite Preferred Holders**" means the holders of a majority in voting power of the outstanding shares of Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and Series D-1 Preferred Stock, voting together as a single class.

1.33 "**Restricted Holders**" means the Founder Holders and the Investors; provided, however, upon the death or total and permanent disability of Jean-Pierre Sommadossi, Ph.D., "Restricted Holders" shall not include the Founder Holders.

1.34 "**Restricted Securities**" means the securities of the Company required to be notated with the legend set forth in Subsection 2.11(b) hereof.

1.35 "**Right of Co-Sale**" means the right, but not an obligation, of a Rights Holder to participate in a Proposed Restricted Holder Transfer on the terms and conditions specified in the Proposed Transfer Notice.

1.36 "**Right of First Refusal**" means the right, but not an obligation, of the Company, or its permitted transferees or assigns, to purchase some or all of the Transfer Stock with respect to a Proposed Restricted Holder Transfer, on the terms and conditions specified in the Proposed Transfer Notice.

1.37 "**Rights Holder**" means (i) with respect to a Proposed Restricted Holder Transfer by any Founder Holder, the Investors (who are not Defaulting Investors) and (ii) with respect to a Proposed Restricted Holder Transfer by any Investor, the Founder Holders and each Investor (who is not Defaulting Investor) other than the Investor effecting such Proposed Restricted Holder Transfer.

1.38 "**Rights Holder Notice**" means written notice from a Rights Holder notifying the Company and the selling Restricted Holder that such Rights Holder intends to exercise its Secondary Refusal Right as to a portion of the Transfer Stock with respect to any Proposed Restricted Holder Transfer.

1.39 "**Sale of the Company**" either: (a) a transaction or series of related transactions in which a Person, or a group of related Persons, acquires from stockholders of the Company shares representing more than fifty percent (50%) of the outstanding voting power of the Company (a "**Stock Sale**"); or (b) a transaction that qualifies as a Deemed Liquidation Event.

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

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

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

1.43 "**Secondary Notice**" means written notice from the Company notifying the Rights Holders and the selling Restricted Holder that the Company does not intend to exercise its Right of First Refusal as to all shares of Transfer Stock with respect to any Proposed Restricted Holder Transfer.

1.44 "**Secondary Refusal Right**" means the right, but not an obligation, of each Rights Holder to purchase up to its pro rata portion (based upon the total number of shares of Capital Stock then held by all Rights Holders other than the Rights Holder effecting such Proposed Restricted Holder Transfer) of any Transfer Stock not purchased pursuant to the Right of First Refusal, on the terms and conditions specified in the Proposed Transfer Notice.

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

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

1.47 "**Series A Preferred Stock**" means shares of the Company's Series A Preferred Stock, par value $0.001 per share.

1.48 "**Series B Preferred Stock**" means shares of the Company's Series B Preferred Stock, par value $0.001 per share.

1.49 "**Series C Preferred Stock**" means shares of the Company's Series C Preferred Stock, par value $0.001 per share.

1.50 "**Series D Preferred Stock**" means shares of the Company's Series D Preferred Stock, par value $0.001 per share.

1.51 "**Series D-1 Preferred Stock**" means shares of the Company's Series D-1 Preferred Stock, par value $0.001 per share.

1.52 "**Shares**" means any securities of the Company the holders of which are entitled to vote for members of the Board, including without limitation, all shares of Common Stock and Preferred Stock, by whatever name called, now owned or subsequently acquired by a Stockholder, however acquired, whether through stock splits, stock dividends, reclassifications, recapitalizations, similar events or otherwise.

1.53 "**Transfer Stock**" means shares of Capital Stock owned by a Restricted Holder, or issued to a Restricted Holder after the date hereof (including, without limitation, in connection with any stock split, stock dividend, recapitalization, reorganization, or the like).

1.54 "**Undersubscription Notice**" means written notice from a Rights Holder notifying the Company and the selling Restricted Holder that such Rights Holder intends to exercise its option to purchase all or any portion of the Transfer Stock not purchased pursuant to the Right of First Refusal or the Secondary Refusal Right.

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

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) five (5) years after the date of this Agreement or (ii) one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of a majority of the Registrable Securities then Outstanding that the Company file a Form S-1 registration statement with respect to the Registrable Securities then Outstanding having an anticipated gross aggregate offering price of at least $15 million, then the Company shall (x) within twenty (20) days after the date such request is given, give notice thereof (the "**Demand Notice**") to all Holders other than the Initiating Holders; and (y) as soon as practicable, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of at least thirty percent (30%) of the Registrable Securities then Outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated gross aggregate offering price of at least $5 million, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Board it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company, (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential, or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than one hundred twenty (120) days after the request of the Initiating Holders is given; provided, however, that the Company may not invoke this right more than twice in any twelve (12) month period.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a) (i) during the period that is sixty (60) days before the Company's good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two (2) registrations pursuant to Subsection 2.1(a); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b) (x) during the period that is thirty (30) days before the Company's good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (y) if the Company has effected two registrations pursuant to Subsection 2.1(b) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d).

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

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary

form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this Subsection 2.3, if the underwriter(s) advise(s) the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; provided, however, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Subsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, or (ii) the number of Registrable Securities included in the offering be reduced below twenty percent (20%) of the total number of securities included in such offering. For purposes of the provision in this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any pro rata reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

(c) For purposes of Subsection 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Subsection 2.3(a), fewer than one hundred percent (100%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

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

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

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

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

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

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

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

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

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

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

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

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

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

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and the reasonable fees and disbursements, not to exceed $20,000, of one (1) counsel for the selling Holders ("**Selling Holder Counsel**"), shall be borne and paid by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Initiating Holders (in which case all selling Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Initiating Holders agree to forfeit their right to one (1) registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be; provided further that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in the condition, business, or prospects of the Company from that known to the Holders at the time of their request and have withdrawn the request with reasonable promptness after learning of such information then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one (1) registration pursuant to Subsections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders pro rata on the basis of the number of Registrable Securities registered on their behalf.

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

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

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

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

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action. The failure to give notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Subsection 2.8, to the extent that such failure materially prejudices the indemnifying party's ability to defend such action. The failure to give notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Subsection 2.8.

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

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

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

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

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

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

2.10 "Market Stand-off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the IPO, and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days), (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock (in each case, solely with respect to shares or any such securities held as of immediately prior to the IPO) or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Subsection 2.10 shall apply only to the IPO and shall apply to each Investor only if each officer, director and each stockholder of the Company (together with their Affiliates or related investment funds) owning 1% or more of the Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock are subject to the same restrictions and are bound by similar agreements, shall not apply to: (A) the sale of any shares to an underwriter pursuant to an underwriting agreement, (B) any shares

purchased in the IPO or in open market transactions from and after the IPO, (C) the transfer of any shares owned by a Holder to its affiliates or any of the Holder's stockholders, members, partners or other equity holders; provided that the affiliate, stockholder, member, partner or other equity holder of the Holder agrees to be bound in writing by the restrictions set forth herein, or (D) the transfer of any shares to any trust for the direct or indirect benefit of the Holder or the immediate family of the Holder, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein. The underwriters in connection with such registration are intended third-party beneficiaries of this Subsection 2.10 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Subsection 2.10 or that are necessary to give further effect thereto. Any discretionary waiver or termination of the restrictions of any or all of such agreements by the Company or the underwriters shall apply pro rata only to all Holders that, together with such Holder's Affiliates, own at least 550,000 shares of Series D Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series D Preferred Stock), based on the number of shares subject to such agreements.

2.11 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement. Notwithstanding the foregoing, the Company shall not require any transferee of shares pursuant to an effective registration statement or, following the IPO, SEC Rule 144, in each case, to be bound by the terms of this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.11(c)) be notated with a legend substantially in the following form:

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

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.11.

(c) The holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction or, following the IPO, the transfer is made pursuant to SEC Rule 144, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144; or (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; provided that, with respect to transfers under the foregoing clause (y), each transferee agrees in writing to be subject to the terms of this Subsection 2.11. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144 or pursuant to an effective registration statement, the appropriate restrictive legend set forth in Subsection 2.11(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

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

(a) the closing of a Deemed Liquidation Event;

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

(c) the third anniversary of the IPO.

3. Information Rights.

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

(a) as soon as practicable, but in any event within one hundred eighty days (180) after the end of the fiscal year of the Company ended December 31, 2019 and within one hundred twenty (120) days after the end of each fiscal year of the Company thereafter (or such later date as may be approved by the Board) (i) a balance sheet as of the end of such year, (ii) statements of income and of cash flows for such year, and (iii) a statement of stockholders' equity as of the end of such year, all prepared in accordance with GAAP;

(b) as soon as practicable, but in any event within sixty (60) days after the end of each of the first three (3) quarters of each fiscal year of the Company (or such later date as may be approved by the Board), unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet as of the end of such fiscal quarter, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP); and

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

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date sixty (60) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; provided that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Major Investor (provided that the Board has not reasonably determined that such Major Investor is a Competitor), at such Major Investor's expense, upon not less than 7 days prior notice, to visit and inspect the Company's properties; examine its books of account and records; and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Major Investor; provided, however, that the Company shall not be obligated pursuant to this Subsection 3.2 to provide access to any information that (i) it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company) or (ii) upon the advice of counsel, it determines that the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Termination of Information Rights. The covenants set forth in Subsection 3.1 and Subsection 3.2 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, whichever event occurs first.

3.4 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement or any information provided in connection with a request for a waiver under or an amendment of any term of this Agreement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.4 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, provided that prior to such disclosure such prospective purchaser has agreed to be bound to provisions which are the same or substantially similar to the provisions of this Subsection 3.4 (and further provided such purchaser is not a Competitor); (iii) to any Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law, provided that the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Investor who is not a Defaulting Investor. Each such Investor shall be entitled to apportion the right of first offer hereby granted to it in such proportions as it deems appropriate, among itself and its Affiliates (provided such Affiliates are not a Competitor). Defaulting Investors shall not be entitled to any of the rights set forth in this Section 4.1.

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

(b) By notification to the Company within ten (10) days after the Offer Notice is given, each Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and other Derivative Securities). At the expiration of such ten (10) day period, the Company shall promptly notify each Investor that elects to purchase or acquire all the shares available to it (each, a "**Fully Exercising Investor**") of any other Investor's failure to do likewise. During the five (5) day period commencing after the Company has given such notice,

each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Investors were entitled to subscribe but that were not subscribed for by the Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur within the later of one hundred and twenty (120) days of the date that the Offer Notice is given and the date of the initial sale of New Securities pursuant to Subsection 4.1(c).

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

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Certificate of Incorporation); (ii) shares of Common Stock issued in the IPO; and (iii) the issuance of shares of Preferred Stock pursuant to the Purchase Agreement.

(e) Notwithstanding any provision hereof to the contrary, in lieu of complying with the provisions of this Subsection 4.1, the Company may elect to give notice to the Investors within thirty (30) days after the issuance of New Securities. Such notice shall describe the type, price, and terms of the New Securities. Each Investor shall have twenty (20) days from the date notice is given to elect to purchase up to the number of New Securities that would, if purchased by such Investor, maintain such Investor's percentage-ownership position, calculated as set forth in Subsection 4.1(b) before giving effect to the issuance of such New Securities. The closing of such sale shall occur within sixty (60) days of the date notice is given to the Investors.

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

5. Voting Provisions Regarding Board of Directors.

5.1 Size of the Board. Each Stockholder agrees to vote, or cause to be voted, all Shares owned by such Stockholder, or over which such Stockholder has voting control, from time to time and at all times, in whatever manner as shall be necessary to ensure that the size of the Board shall be set and remain at nine (9) directors and may be increased only with the written consent of the Founder Holders and the Requisite Preferred Holders.

5.2 Board Composition. Each Stockholder agrees to vote, or cause to be voted, all Shares owned by such Stockholder, or over which such Stockholder has voting control, from time to time and at all times, in whatever manner as shall be necessary to ensure that at each annual or special meeting of stockholders at which an election of directors is held or pursuant to any written consent of the stockholders, the following persons shall be elected to the Board:

(a) one person designated by the Investor holding the greatest number of shares of Series A Preferred Stock held by any of the Investors, other than RMI Investments S.A.R.L. or any of its Affiliates (the "**Series A Designee**"), who shall be the Series A Director (as defined in the Certificate of Incorporation), which individual shall initially be Isaac Cheng, for so long as at least 5,000,000 shares of Series A Preferred Stock are issued and outstanding (which number is subject to appropriate adjustment for all stock splits, dividends, combinations, recapitalizations and the like);

(b) one person designated by RMI Investments S.A.R.L. (the "**RMI Designee**"), which individual shall initially be Grigory Borisenko, for so long as such Stockholder and its Affiliates collectively continue to beneficially own at least 1,500,000 shares of Series A Preferred Stock (which number is subject to appropriate adjustment for all stock splits, dividends, combinations, recapitalizations and the like);

(c) one person designated by AJU Growth & Healthcare Fund (the "**Series B Designee**"), who shall be the Series B Director (as defined in the Certificate of Incorporation), which seat shall initially be vacant, for so long as (i) such Stockholder and its Affiliates collectively continue to beneficially own at least 300,000 shares of Series B Preferred Stock (which number is subject to appropriate adjustment for all stock splits, dividends, combinations, recapitalizations and the like) and (ii) at least 5,000,000 shares of Series B Preferred Stock are issued and outstanding (which number is subject to appropriate adjustment for all stock splits, dividends, combinations, recapitalizations and the like);

(d) one person designated by Cormorant Private Healthcare Fund I, LP (the "**Cormorant Designee**"), who shall be the Series C Director (as defined in the Certificate of Incorporation), which individual shall initially be Bihua Chen, for so long as (i) such Stockholder and its Affiliates collectively continue to beneficially own at least 1,100,000 shares of Series C Preferred Stock (which number is subject to appropriate adjustment for all stock splits, dividends, combinations, recapitalizations and the like) and (ii) at least 2,741,228 shares of Series C Preferred Stock are issued and outstanding (which number is subject to appropriate adjustment for all stock splits, dividends, combinations, recapitalizations and the like);

(e) one person designated by Bain Capital Life Sciences, LP (the "**Bain Designee**"), who shall be the Series D Director (as defined in the Certificate of Incorporation), which individual shall initially be Andrew Hack, for so long as such Stockholder and its Affiliates collectively continue to beneficially own at least 1,500,000 shares of Series D Preferred Stock (which number is subject to appropriate adjustment for all stock splits, dividends, combinations, recapitalizations and the like);

(f) One person designated by the holders of a majority of the outstanding shares of Common Stock held by the Key Holders (the "**Key Holder Designee**"), who shall be the director elected by the holders of record of the shares of Common Stock, exclusively and as a separate class, under the Certificate of Incorporation, which individual shall initially be Jean-Pierre Sommadossi, Ph.D.; and

(g) Three (3) persons who are each not otherwise an Affiliate of the Company or of any Stockholder and who are mutually acceptable to (i) the Founder and (ii) the holders of a majority in voting power of the outstanding shares of Preferred Stock (the "**Independent Designees**"), who shall initially be Franklin Berger, Bruce Polsky and Bruno Lucidi.

To the extent that any of clauses (a) through (f) above shall not be applicable, any member of the Board who would otherwise have been designated in accordance with the terms thereof shall instead be voted upon by all the stockholders of the Company entitled to vote thereon in accordance with, and pursuant to, the Certificate of Incorporation.

5.3 Failure to Designate a Board Member. In the absence of any designation from the Persons or groups with the right to designate a director as specified above, the director previously designated by them and then serving shall be reelected if still eligible to serve as provided herein.

5.4 Removal of Board Members. Each Stockholder also agrees to vote, or cause to be voted, all Shares owned by such Stockholder, or over which such Stockholder has voting control, from time to time and at all times, in whatever manner as shall be necessary to ensure that:

(a) no director elected pursuant to Subsections 5.2 or 5.3 of this Agreement may be removed from office unless (i) such removal is directed or approved by the affirmative vote of the Person, or of the holders of a majority of the shares of stock, entitled under Subsection 5.2 to designate that director; or (ii) the Person(s) originally entitled to designate or approve such director pursuant to Subsection 5.2 is no longer so entitled to designate or approve such director;

(b) any vacancies created by the resignation, removal or death of a director elected pursuant to Subsections 5.2 or 5.3 shall be filled pursuant to the provisions of this Section 5; and

(c) upon the request of any party entitled to designate a director as provided in Subsection 5.2(a), Subsection 5.2(b), Subsection 5.2(c), Subsection 5.2(d), Subsection 5.2(e) or Subsection 5.2(f) to remove such director, such director shall be removed.

All Stockholders agree to execute any written consents required to perform the obligations of this Agreement, and the Company agrees at the request of any party entitled to designate directors to call a special meeting of stockholders for the purpose of electing directors.

5.5 No Liability for Election of Recommended Directors. No Stockholder, nor any Affiliate of any Stockholder, shall have any liability as a result of designating a person for election as a director for any act or omission by such designated person in his or her capacity as a director of the Company, nor shall any Stockholder have any liability as a result of voting for any such designee in accordance with the provisions of this Agreement

5.6 No "Bad Actor" Designees. Each Person with the right to designate or participate in the designation of a director as specified above hereby represents and warrants to the Company that, to such Person's knowledge, none of the "bad actor" disqualifying events described in Rule 506(d)(1)(i)-(viii) promulgated under the Securities Act (each, a "**Disqualification Event**"), is applicable to such Person's initial designee named above except, if applicable, for a Disqualification Event as to which Rule 506(d)(2)(ii) or (iii) or (d)(3) is applicable. Any director designee to whom any Disqualification Event is applicable, except for a Disqualification Event as to which Rule 506(d)(2)(ii) or (iii) or (d)(3) is applicable, is hereinafter referred to as a "**Disqualified Designee**". Each Person with the right to designate or participate in the designation of a director as specified above hereby covenants and agrees (A) not to designate or participate in the designation of any director designee who, to such Person's knowledge, is a Disqualified Designee and (B) that in the event such Person becomes aware that any individual previously designated by any such Person is or has become a Disqualified Designee, such Person shall as promptly as practicable take such actions as are necessary to remove such Disqualified Designee from the Board and designate a replacement designee who is not a Disqualified Designee.

6. Vote to Increase Authorized Common Stock. Each Stockholder agrees to vote or cause to be voted all Shares owned by such Stockholder, or over which such Stockholder has voting control, from time to time and at all times, in whatever manner as shall be necessary to increase the number of authorized shares of Common Stock from time to time to ensure that there will be sufficient shares of Common Stock available for conversion of all of the shares of Preferred Stock outstanding at any given time.

7. Drag-Along Right.

7.1 Actions to be Taken. In the event that (i) the Requisite Preferred Holders (the "**Selling Investors**"); (ii) the Board; (iii) the Founder Holders; (iv) if the amount per share payable in respect of outstanding shares of Series D Preferred Stock in connection with such Sale of the Company is less than twice the Series D Original Issue Price (as defined in the Certificate of Incorporation), the holders of a majority of the outstanding Series D Preferred Stock; and (v) if the amount per share payable in respect of outstanding shares of Series D-1 Preferred Stock in connection with such Sale of the Company is less than twice the Series D-1 Original Issue Price (as defined in the Certificate of Incorporation), the holders of a majority of the outstanding Series D-1 Preferred Stock approve a Sale of the Company in writing, specifying that this Section 7 shall apply to such transaction, then each Stockholder and the Company hereby agree:

(a) if such transaction requires stockholder approval, with respect to all Shares that such Stockholder owns or over which such Stockholder otherwise exercises voting power, to vote (in person, by proxy or by action by written consent, as applicable) all Shares in favor of, and adopt, such Sale of the Company (together with any related amendment to the Restated Certificate required in order to implement such Sale of the Company) and to vote in opposition to any and all other proposals that could reasonably be expected to delay or impair the ability of the Company to consummate such Sale of the Company;

(b) if such transaction is a Stock Sale, to sell the same proportion of shares of capital stock of the Company beneficially held by such Stockholder as is being sold by the Selling Investors to the Person to whom the Selling Investors propose to sell their Shares, and, except as permitted in Subsection 7.2 below, on the same terms and conditions as the Selling Investors;

(c) to execute and deliver all related documentation and take such other action in support of the Sale of the Company as shall reasonably be requested by the Company or the Selling Investors in order to carry out the terms and provision of this Section 7, including, without limitation, executing and delivering instruments of conveyance and transfer, and any purchase agreement, merger agreement, indemnity agreement, escrow agreement, consent, waiver, governmental filing, share certificates duly endorsed for transfer (free and clear of impermissible liens, claims and encumbrances), and any similar or related documents;

(d) not to deposit, and to cause their Affiliates not to deposit, except as provided in this Agreement, any Shares of the Company owned by such party or Affiliate in a voting trust or subject any Shares to any arrangement or agreement with respect to the voting of such Shares, unless specifically requested to do so by the acquiror in connection with the Sale of the Company;

(e) to refrain from exercising any dissenters' rights or rights of appraisal under applicable law at any time with respect to such Sale of the Company;

(f) if the consideration to be paid in exchange for the Shares pursuant to this Section 7 includes any securities and due receipt thereof by any Stockholder would require under applicable law: (x) the registration or qualification of such securities or of any person as a broker or dealer or agent with respect to such securities; or (y) the provision to any Stockholder of any information other than such information as a prudent issuer would generally furnish in an offering made solely to "accredited investors" as defined in Regulation D promulgated under the Securities Act the Company may cause to be paid to any such Stockholder in lieu thereof, against surrender of the Shares which would have otherwise been sold by such Stockholder, an amount in cash equal to the fair value (as determined in good faith by the Company) of the securities which such Stockholder would otherwise receive as of the date of the issuance of such securities in exchange for the Shares; and

(g) in the event that the Selling Investors, in connection with such Sale of the Company, appoint a stockholder representative (the "**Stockholder Representative**") with respect to matters affecting the Stockholders under the applicable definitive transaction agreements following consummation of such Sale of the Company, (x) to consent to (i) the appointment of such Stockholder Representative, (ii) the establishment of any applicable escrow, expense or similar fund in connection with any indemnification or similar obligations, and (iii) the payment of such Stockholder's pro rata portion (from the applicable escrow or expense fund or otherwise) of any and all reasonable fees and expenses to such Stockholder Representative in connection with such Stockholder Representative's services and duties in connection with such Sale of the Company and its related service as the representative of the Stockholders, and (y) not to assert any claim or commence any suit against the Stockholder Representative or any other Stockholder with respect to any action or inaction taken or failed to be taken by the Stockholder Representative in connection with its service as the Stockholder Representative, absent fraud or willful misconduct.

7.2 Exceptions. Notwithstanding the foregoing, a Stockholder will not be required to comply with Subsection 7.1 above in connection with any proposed Sale of the Company (the "**Proposed Sale**"), unless:

(a) any representations and warranties to be made by such Stockholder in connection with the Proposed Sale are limited to representations and warranties related to authority, ownership and the ability to convey title to such Shares, including, but not limited to, representations and warranties that (i) the Stockholder holds all right, title and interest in and to the Shares such Stockholder purports to hold, free and clear of all liens and encumbrances, (ii) the obligations of the Stockholder in connection with the transaction have been duly authorized, if applicable, (iii) the documents to be entered into by the Stockholder have been duly executed by the Stockholder and delivered to the acquirer and are enforceable against the Stockholder in accordance with their respective terms; and (iv) neither the execution and delivery of documents to be entered into in connection with the transaction, nor the performance of the Stockholder's obligations thereunder, will cause a breach or violation of the terms of any agreement, law or judgment, order or decree of any court or governmental agency;

(b) the Stockholder shall not be liable for the inaccuracy of any representation or warranty made by any other Person in connection with the Proposed Sale, other than the Company (except to the extent that funds may be paid out of an escrow established to cover breach of representations, warranties and covenants of the Company as well as breach by any stockholder of any of identical representations, warranties and covenants provided by all stockholders);

(c) the liability for indemnification, if any, of such Stockholder in the Proposed Sale and for the inaccuracy of any representations and warranties made by the Company or its Stockholders in connection with such Proposed Sale, is several and not joint with any other Person (except to the extent that funds may be paid out of an escrow established to cover breach of representations, warranties and covenants of the Company as well as breach by any stockholder of any of identical representations, warranties and covenants provided by all stockholders), and subject to the provisions of the Certificate of Incorporation related to the allocation of the escrow, is pro rata in proportion to, and does not exceed, the amount of consideration paid to such Stockholder in connection with such Proposed Sale;

(d) upon the consummation of the Proposed Sale (i) each holder of each class or series of the Company's stock will receive the same form of consideration for their shares of such class or series as is received by other holders in respect of their shares of such same class or series of stock, (ii) each holder of Common Stock will receive the same amount of consideration per share of Common Stock as is received by other holders in respect of their shares of Common Stock, and (iii) unless (A) the Requisite Preferred Holders and (B) the holders of a majority in voting power of the then outstanding shares of Series D Preferred Stock and Series D-1 Preferred Stock, voting separately as a class, elect to receive a lesser amount by written notice given to the Company at least three (3) days prior to the effective date of any such Proposed Sale, the aggregate consideration receivable by all holders of the Preferred Stock and Common Stock shall be allocated among the holders of Preferred Stock and Common Stock on the basis of the relative liquidation preferences to which the holders of each respective series of Preferred Stock and the holders of Common Stock are entitled in a Deemed Liquidation Event (assuming for this purpose that the Proposed Sale is a Deemed Liquidation Event) in accordance with the Company's

Certificate of Incorporation in effect immediately prior to the Proposed Sale; provided, however, that, notwithstanding the foregoing, if the consideration to be paid in exchange for the Key Holder Shares or Investor Shares, as applicable, pursuant to this Subsection 7.2(d) includes any securities and due receipt thereof by any Key Holder or Investor would require under applicable law (x) the registration or qualification of such securities or of any person as a broker or dealer or agent with respect to such securities; or (y) the provision to any Key Holder or Investor of any information other than such information as a prudent issuer would generally furnish in an offering made solely to "accredited investors" as defined in Regulation D promulgated under the Securities Act, the Company may cause to be paid to any such Key Holder or Investor in lieu thereof, against surrender of the Key Holder Shares or Investor Shares, as applicable, which would have otherwise been sold by such Key Holder or Investor, an amount in cash equal to the fair value (as determined in good faith by the Company) of the securities which such Key Holder or Investor would otherwise receive as of the date of the issuance of such securities in exchange for the Key Holder Shares or Investor Shares, as applicable; and

(e) no Stockholder that is a venture capital fund, investment fund or similar investment vehicle shall be required, in connection with such Proposed Sale, to enter into any agreements with non-competition, non-solicitation, non-hire provisions or similar restrictive covenants (other than customary covenants regarding confidentiality).

8. Additional Covenants.

8.1 Insurance. The Company shall use its commercially reasonable efforts to maintain, from financially sound and reputable insurers Directors and Officers liability insurance in an amount and on terms and conditions satisfactory to the Board and will use commercially reasonable efforts to cause such insurance policies to be maintained until such time as the Board determines that such insurance should be discontinued.

8.2 Board Matters. The Company shall reimburse the Key Holder Designee and Independent Designees for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board. The Company may reimburse any other director for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board; provided, however, if the Company decides to reimburse such expenses incurred by any of the Series B Designee, Series A Designee, RMI Designee, Cormorant Designee or Bain Designee, then the Company shall reimburse such expenses of each of the Series B Designee, Series A Designee, RMI Designee, Cormorant Designee and Bain Designee.

8.3 Equity Incentive Plan. So long as holders of Series A Preferred Stock are entitled to elect the Series A Director (as defined in the Certificate of Incorporation), holders of Series B Preferred Stock are entitled to elect the Series B Director (as defined in the Certificate of Incorporation), holders of Series C Preferred Stock are entitled to elect the Series C Director (as defined in the Certificate of Incorporation) and holders of Series D Preferred Stock are entitled to elect the Series D Director (as defined in the Certificate of Incorporation), the Company hereby covenants and agrees with each of the Investors that it shall not, without approval of the Board, which approval must include the affirmative vote of at least two out of the four of (i) the Series A Director, (ii) the Series B Director, (iii) the Series C Director and (iv) the Series D Director (the

"**Special Board Approval**"), amend the Company's 2013 Equity Incentive Plan (the "**Plan**") to increase the aggregate number of shares of Common Stock issuable pursuant to the Plan to in excess of 10,979,971 shares of Common Stock, or approve or adopt any other stock option or equity compensation plan.

8.4 Proprietary Information and Inventions Agreements. Unless otherwise approved by the Board, including the Special Board Approval, the Company shall require all employees and consultants to enter into the Company's standard form of proprietary information and inventions agreement or a different agreement containing substantially similar terms with respect to proprietary information and the assignment of inventions.

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

8.6 Indemnification Matters. The Company hereby acknowledges that one (1) or more of the directors nominated to serve on the Board of Directors by the Investors (each an "**Investor Director**") may have certain rights to indemnification, advancement of expenses and/or insurance provided by one or more of the Investors and certain of their Affiliates (collectively, the "**Investor Indemnitors**"). The Company hereby agrees (a) that it is the indemnitor of first resort (i.e., its obligations to any such Investor Director are primary and any obligation of the Investor Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Investor Director are secondary), (b) that it shall be required to advance the full amount of expenses incurred by such Investor Director and shall be liable for the full amount of all expenses, judgments, penalties, fines and amounts paid in settlement by or on behalf of any such Investor Director to the extent legally permitted and as required by the Company's Certificate of Incorporation or Bylaws of the Company (or any agreement between the Company and such Investor Director), without regard to any rights such Investor Director may have against the Investor Indemnitors, and, (c) that it irrevocably waives, relinquishes and releases the Investor Indemnitors from any and all claims against the Investor Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Investor Indemnitors on behalf of any such Investor Director with respect to any claim for which such Investor Director has sought indemnification from the Company shall affect the foregoing and the Investor Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of such Investor Director against the Company. The Investor Directors and the Investor Indemnitors are intended third party beneficiaries of this Subsection 8.6 and shall have the right, power and authority to enforce the provisions of this Subsection 8.6 as though they were a party to this Agreement.

8.7 Right to Conduct Activities. The Company hereby agrees and acknowledges that each of Ally Bridge MedAlpha Master Fund L.P. (together with its Affiliates), Bain Capital Life Sciences, LP (together with its Affiliates), Omega Fund VI, L.P. (together with its Affiliates), RA Capital Healthcare Fund, L.P. (together with its Affiliates), Redmile (together with its Affiliates) and Rock Springs Capital Master Fund LP (together with its Affiliates) is a professional investment organization, and as such reviews the business plans and related proprietary information of many enterprises, some of which may compete directly or indirectly with the Company's business (as currently conducted or as currently propose to be conducted). The Company hereby agrees that, to the extent permitted under applicable law, each of Ally Bridge MedAlpha Master Fund L.P. (and its Affiliates), Bain Capital Life Sciences, LP (and its Affiliates), Omega Fund VI, L.P. (and its Affiliates), RA Capital Healthcare Fund, L.P. (and its Affiliates), Redmile (and its Affiliates) and Rock Springs Capital Master Fund LP (and its Affiliates) shall not be liable to the Company for any claim arising out of, or based upon, (i) the investment by Ally Bridge MedAlpha Master Fund L.P. (or its Affiliates), Bain Capital Life Sciences, LP (or its Affiliates), Omega Fund VI, L.P. (or its Affiliates), RA Capital Healthcare Fund, L.P. (or its Affiliates), Redmile (or its Affiliates) or Rock Springs Capital Master Fund LP (or its Affiliates), respectively, in any entity competitive with the Company, or (ii) actions taken by any partner, officer, employee or other representative of Ally Bridge MedAlpha Master Fund L.P. (or its Affiliates), Bain Capital Life Sciences, LP (or its Affiliates), Omega Fund VI, L.P. (or its Affiliates), RA Capital Healthcare Fund, L.P. (or its Affiliates), Redmile (or its Affiliates) or Rock Springs Capital Master Fund LP (or its Affiliates), respectively, to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information obtained pursuant to this Agreement, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

9. Agreement Among the Company, the Investors and the Founder.

9.1 Right of First Refusal.

(a) Grant. Subject to the terms of Section 10 below, each Restricted Holder hereby unconditionally and irrevocably grants to the Company, a Right of First Refusal to purchase all or any portion of Transfer Stock that such Restricted Holder may propose to transfer in a Proposed Restricted Holder Transfer, at the same price and on the same terms and conditions as those offered to the Prospective Transferee.

(b) Notice. Each Restricted Holder proposing to make a Proposed Restricted Holder Transfer must deliver a Proposed Transfer Notice to the Company and each Rights Holder not later than forty-five (45) days prior to the consummation of such Proposed Restricted Holder Transfer. Such Proposed Transfer Notice shall contain the material terms and conditions (including price and form of consideration) of the Proposed Restricted Holder Transfer, the identity of the Prospective Transferee and the intended date of the Proposed Restricted Holder Transfer. To exercise its Right of First Refusal under this Section 9, the Company must deliver a Company Notice to the selling Restricted Holder within fifteen (15) days after receipt of the Proposed Transfer Notice. In the event of a conflict between this Agreement and any other agreement that may have been entered into by a Restricted Holder with the Company that contains a preexisting right of first refusal, the Company and the Restricted Holder acknowledge and agree that the terms of this Agreement shall control and the preexisting right of first refusal shall be deemed satisfied by compliance with Subsection 9.1(a) and this Subsection 9.1(b).

(c) Grant of Secondary Refusal Right. Subject to the terms of Section 10 below, each Restricted Holder hereby unconditionally and irrevocably grants to the Rights Holders a Secondary Refusal Right to purchase all or any portion of the Transfer Stock not purchased by the Company pursuant to the Right of First Refusal, as provided in this Subsection 9.1(c). If the Company does not intend to exercise its Right of First Refusal with respect to all Transfer Stock subject to a Proposed Restricted Holder Transfer, the Company must deliver a Secondary Notice to the selling Restricted Holder and to each Rights Holder to that effect no later than fifteen (15) days after the selling Restricted Holder delivers the Proposed Transfer Notice to the Company. To exercise its Secondary Refusal Right, a Rights Holder must deliver a Rights Holder Notice to the selling Restricted Holder and the Company within ten (10) days after the Company's deadline for its delivery of the Secondary Notice as provided in the preceding sentence.

(d) Undersubscription of Transfer Stock. If options to purchase have been exercised by the Company and the Rights Holders with respect to some but not all of the Transfer Stock by the end of the ten (10) day period specified in the last sentence of Subsection 9.1(c) (the "**Rights Holder Notice Period**"), then the Company shall, immediately after the expiration of the Rights Holder Notice Period, send written notice (the "**Company Undersubscription Notice**") to those Rights Holders who fully exercised their Secondary Refusal Right within the Rights Holder Notice Period (the "**Exercising Rights Holders**"). Each Exercising Rights Holder shall, subject to the provisions of this Subsection 9.1(d), have an additional option to purchase all or any part of the balance of any such remaining unsubscribed shares of Transfer Stock on the terms and conditions set forth in the Proposed Transfer Notice. To exercise such option, an Exercising Rights Holder must deliver an Undersubscription Notice to the selling Restricted Holder and the Company within ten (10) days after the expiration of the Rights Holder Notice Period. In the event there are two (2) or more such Exercising Rights Holders that choose to exercise the last-mentioned option for a total number of remaining shares in excess of the number available, the remaining shares available for purchase under this Subsection 9.1(d) shall be allocated to such Exercising Rights Holders pro rata based on the number of shares of Transfer Stock such Exercising Rights Holders have elected to purchase pursuant to the Secondary Refusal Right (without giving effect to any shares of Transfer Stock that any such Exercising Rights Holder has elected to purchase pursuant to the Company Undersubscription Notice). If the options to purchase the remaining shares are exercised in full by the Exercising Rights Holders, the Company shall immediately notify all of the Exercising Rights Holders and the selling Restricted Holder of that fact.

(e) Forfeiture of Rights. Notwithstanding the foregoing, if the total number of shares of Transfer Stock that the Company and the Rights Holders have agreed to purchase in the Company Notice, Rights Holder Notices and Undersubscription Notices is less than the total number of shares of Transfer Stock, then the Company and the Rights Holders shall be deemed to have forfeited any right to purchase such Transfer Stock, and the selling Restricted Holder shall be free to sell all, but not less than all, of the Transfer Stock to the Prospective Transferee on terms and conditions substantially similar to (and in no event more favorable than) the terms and conditions set forth in the Proposed Transfer Notice, it being understood and agreed that (i) any such sale or transfer shall be subject to the other terms and restrictions of this Agreement, including, without limitation, the terms and restrictions set forth in Subsections 9.2 and 11.1; (ii)

any future Proposed Restricted Holder Transfer shall remain subject to the terms and conditions of this Agreement, including this Section 9; and (iii) such sale shall be consummated within sixty (60) days after receipt of the Proposed Transfer Notice by the Company and, if such sale is not consummated within such sixty (60) day period, such sale shall again become subject to the Right of First Refusal and Secondary Refusal Right on the terms set forth herein.

(f) Consideration; Closing. If the consideration proposed to be paid for the Transfer Stock is in property, services or other non-cash consideration, the fair market value of the consideration shall be as determined in good faith by the Board and as set forth in the Company Notice. If the Company or any Rights Holder cannot for any reason pay for the Transfer Stock in the same form of non-cash consideration, the Company or such Rights Holder may pay the cash value equivalent thereof, as determined in good faith by the Board and as set forth in the Company Notice. The closing of the purchase of Transfer Stock by the Company and the Rights Holders shall take place, and all payments from the Company and the Rights Holders shall have been delivered to the selling Restricted Holder, by the later of (i) the date specified in the Proposed Transfer Notice as the intended date of the Proposed Restricted Holder Transfer; and (ii) sixty (60) days after delivery of the Proposed Transfer Notice.

9.2 Right of Co-Sale.

(a) Exercise of Right. If the Transfer Stock subject to a Proposed Restricted Holder Transfer is not purchased pursuant to Subsection 9.1 above and thereafter is to be sold to a Prospective Transferee, each respective Rights Holder may elect to exercise its Right of Co-Sale and participate on a pro rata basis in the Proposed Restricted Holder Transfer as set forth in Subsection 9.2(b) below and, subject to Subsection 9.2(d), otherwise on the same terms and conditions specified in the Proposed Transfer Notice. Each Rights Holder who desires to exercise its Right of Co-Sale (each, a "**Participating Rights Holder**") must give the selling Restricted Holder written notice to that effect within fifteen (15) days after the deadline for delivery of the Secondary Notice described above, and upon giving such notice such Participating Rights Holder shall be deemed to have effectively exercised the Right of Co-Sale.

(b) Shares Includable. Each Participating Rights Holder may include in the Proposed Restricted Holder Transfer all or any part of such Participating Rights Holder's Capital Stock equal to the product obtained by multiplying (i) the aggregate number of shares of Transfer Stock subject to the Proposed Restricted Holder Transfer by (ii) a fraction, the numerator of which is the number of shares of Capital Stock owned by such Participating Rights Holder immediately before consummation of the Proposed Restricted Holder Transfer and the denominator of which is the total number of shares of Capital Stock owned, in the aggregate, by all Participating Rights Holders immediately prior to the consummation of the Proposed Restricted Holder Transfer, plus the number of shares of Transfer Stock held by the selling Restricted Holder. To the extent one (1) or more of the Participating Rights Holders exercise such right of participation in accordance with the terms and conditions set forth herein, the number of shares of Transfer Stock that the selling Restricted Holder may sell in the Proposed Restricted Holder Transfer shall be correspondingly reduced.

(c) Purchase and Sale Agreement. The Participating Rights Holders and the selling Restricted Holder agree that the terms and conditions of any Proposed Restricted Holder Transfer in accordance with Subsection 9.2 will be memorialized in, and governed by, a written purchase and sale agreement with the Prospective Transferee (the "**Purchase and Sale Agreement**") with customary terms and provisions for such a transaction, and the Participating Rights Holders and the selling Restricted Holder further covenant and agree to enter into such Purchase and Sale Agreement as a condition precedent to any sale or other transfer in accordance with this Subsection 9.2.

(d) Allocation of Consideration.

(i) Subject to Subsection 9.2(d)(ii), the aggregate consideration payable to the Participating Rights Holders and the selling Restricted Holder shall be allocated based on the number of shares of Capital Stock sold to the Prospective Transferee by each Participating Rights Holder and the selling Restricted Holder as provided in Subsection 9.2(b), provided that if a Participating Rights Holder wishes to sell Preferred Stock, the price set forth in the Proposed Transfer Notice shall be appropriately adjusted based on the conversion ratio of the Preferred Stock into Common Stock.

(ii) In the event that the Proposed Restricted Holder Transfer constitutes a Stock Sale of the Company, the terms of the Purchase and Sale Agreement shall provide that the aggregate consideration from such transfer shall be allocated to the Participating Rights Holders and the selling Restricted Holder in accordance with Sections 2.1, 2.2, 2.3 and 2.4 of Article FOURTH, Part (B) of the Certificate of Incorporation as if (A) such transfer were a Deemed Liquidation Event (as defined in the Certificate of Incorporation), and (B) the Capital Stock sold in accordance with the Purchase and Sale Agreement were the only Capital Stock outstanding. In the event that a portion of the aggregate consideration payable to the Participating Rights Holder(s) and selling Restricted Holder is placed into escrow, the Purchase and Sale Agreement shall provide that (x) the portion of such consideration that is not placed in escrow (the "**Initial Consideration**") shall be allocated in accordance with Sections 2.1, 2.2, 2.3 and 2.4 of Article FOURTH, Part (B) of the Certificate of Incorporation as if the Initial Consideration were the only consideration payable in connection with such transfer, and (y) any additional consideration which becomes payable to the Participating Rights Holder(s) and selling Restricted Holder upon release from escrow shall be allocated in accordance with Sections 2.1, 2.2, 2.3 and 2.4 of Article FOURTH, Part (B) of the Certificate of Incorporation after taking into account the previous payment of the Initial Consideration as part of the same transfer.

(e) Purchase by Selling Restricted Holder; Deliveries. Notwithstanding Subsection 9.2(c) above, if any Prospective Transferee or Transferees refuse(s) to purchase securities subject to the Right of Co-Sale from any Participating Rights Holder or upon the failure to negotiate in good faith a Purchase and Sale Agreement reasonably satisfactory to the Participating Rights Holders, no Restricted Holder may sell any Transfer Stock to such Prospective Transferee or Transferees unless and until, simultaneously with such sale, such Restricted Holder purchases all securities subject to the Right of Co-Sale from such Participating Rights Holder on the same terms and conditions (including the proposed purchase price) as set forth in the Proposed Transfer Notice and as provided in Subsection 9.2(d)(i); provided, however, if such sale constitutes a Stock Sale of the Company, the aggregate consideration paid by the Selling Restricted Holder to such Participating Rights Holders, shall be allocated in accordance with Subsection 9.2(d)(ii) and further, the portion of the aggregate consideration received by the selling Restricted Holder from

the Transferees that exceeds the aggregate consideration payable by the selling Restricted Holder to such Participating Rights Holders (pursuant to this sentence) shall also be allocated in accordance with Subsection 9.2(d)(ii). In connection with such purchase by the selling Restricted Holder, such Participating Rights Holder shall deliver to the selling Restricted Holder any stock certificate or certificates, properly endorsed for transfer, representing the Capital Stock being purchased by the selling Restricted Holder (or request that the Company effect such transfer in the name of the selling Restricted Holder). Any such shares transferred to the selling Restricted Holder will be transferred to the Prospective Transferee against payment therefor in consummation of the sale of the Transfer Stock pursuant to the terms and conditions specified in the Proposed Transfer Notice, and the selling Restricted Holder shall concurrently therewith remit or direct payment to each such Participating Rights Holder the portion of the aggregate consideration to which each such Participating Rights Holder is entitled by reason of its participation in such sale as provided in this Subsection 9.2(e).

(f) Additional Compliance. If any Proposed Restricted Holder Transfer is not consummated within sixty (60) days after receipt of the Proposed Transfer Notice by the Company, the Restricted Holders proposing the Proposed Restricted Holder Transfer may not sell any Transfer Stock unless they first comply in full with each provision of this Section 9. The exercise or election not to exercise any right by any Rights Holder hereunder shall not adversely affect its right to participate in any other sales of Transfer Stock subject to this Subsection 9.2.

9.3 Effect of Failure to Comply.

(a) Transfer Void; Equitable Relief. Any Proposed Restricted Holder Transfer not made in compliance with the requirements of this Agreement shall be null and void ab initio, shall not be recorded on the books of the Company or its transfer agent and shall not be recognized by the Company. Each party hereto acknowledges and agrees that any breach of this Agreement would result in substantial harm to the other parties hereto for which monetary damages alone could not adequately compensate. Therefore, the parties hereto unconditionally and irrevocably agree that any non-breaching party hereto shall be entitled to seek protective orders, injunctive relief and other remedies available at law or in equity (including, without limitation, seeking specific performance or the rescission of purchases, sales and other transfers of Transfer Stock not made in strict compliance with this Agreement).

(b) Violation of First Refusal Right. If any Restricted Holder becomes obligated to sell any Transfer Stock to the Company or any Rights Holder under this Agreement and fails to deliver such Transfer Stock in accordance with the terms of this Agreement, the Company and/or such Rights Holder may, at its option, in addition to all other remedies it may have, send to such Restricted Holder the purchase price for such Transfer Stock as is herein specified and transfer to the name of the Company or such Rights Holder (or request that the Company effect such transfer in the name of an Rights Holder) on the Company's books any certificates, instruments, or book entry representing the Transfer Stock to be sold.

(c) Violation of Co-Sale Right. If any Restricted Holder purports to sell any Transfer Stock in contravention of the Right of Co-Sale (a "**Prohibited Transfer**"), each Rights Holder who desires to exercise its Right of Co-Sale under Subsection 9.2 may, in addition to such remedies as may be available by law, in equity or hereunder, require such Restricted Holder to

purchase from such Rights Holder the type and number of shares of Capital Stock that such Rights Holder would have been entitled to sell to the Prospective Transferee had the Prohibited Transfer been effected in compliance with the terms of Subsection 9.2. The sale will be made on the same terms, including, without limitation, as provided in Subsection 9.2(d)(i) and the first sentence of Subsection 9.2(d)(ii), as applicable, and subject to the same conditions as would have applied had the Restricted Holder not made the Prohibited Transfer, except that the sale (including, without limitation, the delivery of the purchase price) must be made within ninety (90) days after the Rights Holder learns of the Prohibited Transfer, as opposed to the timeframe proscribed in Subsection 9.2. Such Restricted Holder shall also reimburse each Rights Holder for any and all reasonable and documented out-of-pocket fees and expenses, including reasonable legal fees and expenses, incurred pursuant to the exercise or the attempted exercise of the Rights Holder's rights under Subsection 9.2.

10. Exempt Transfers.

10.1 Notwithstanding the foregoing or anything to the contrary herein, the provisions of Subsections 9.1 and 9.2 shall not apply (a) in the case of a Restricted Holder that is an entity, upon a transfer by such Restricted Holder to its stockholders, members, partners, other equity holders or Affiliates, (b) to a repurchase of Transfer Stock from a Key Holder by the Company at a price no greater than that originally paid by such Key Holder for such Transfer Stock and pursuant to an agreement containing vesting and/or repurchase provisions approved by a majority of the Board, or (c) in the case of a Restricted Holder that is a natural person or a trust, upon a transfer of Transfer Stock by such Restricted Holder made for bona fide estate planning purposes, either to one or more Immediate Family Members, or any other relative approved by the Board, or any custodian or trustee of any trust, partnership or limited liability company for the benefit of, or the ownership interests of which are owned wholly by such Restricted Holder or any such Immediate Family Members; provided that in the case of clause(s) (a) and (c), the Restricted Holder shall deliver prior written notice to the Rights Holders of such pledge, gift or transfer and such shares of Transfer Stock shall at all times remain subject to the terms and restrictions set forth in this Agreement and such transferee shall, as a condition to such issuance, deliver a counterpart signature page to this Agreement as confirmation that such transferee shall be bound by all the terms and conditions of this Agreement as a Restricted Holder (but only with respect to the securities so transferred to the transferee), including the obligations of a Restricted Holder with respect to Proposed Restricted Holder Transfers of such Transfer Stock pursuant to Section 9; and provided further in the case of any transfer pursuant to clause (a) or (c) above, that such transfer is made pursuant to a transaction in which there is no consideration actually paid for such transfer.

10.2 Exempted Offerings. Notwithstanding the foregoing or anything to the contrary herein, the provisions of Section 9 shall not apply to the sale of any Transfer Stock (a) to the public in an offering pursuant to an effective registration statement under the Securities Act; or (b) pursuant to a Sale of the Company.

10.3 Prohibited Transferees. Notwithstanding the foregoing, no Restricted Holder shall transfer any Transfer Stock to (a) any Competitor; or (b) any customer, distributor or supplier of the Company, if the Board should determine that such transfer would result in such customer, distributor or supplier receiving information that would place the Company at a competitive disadvantage with respect to such customer, distributor or supplier.

11. Miscellaneous.

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

11.2 Governing Law. This Agreement shall be governed by the internal law of the Commonwealth of Massachusetts, with the exception of Sections 5, 6 and 7, which shall be governed by the internal law of the State of Delaware, without regard to its conflict of laws principles that would cause the application of laws of any other jurisdiction.

11.3 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.*, www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

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

11.5 Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail or facsimile during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A or Schedule B hereto (as applicable), or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address, facsimile number, or address as subsequently modified by written notice given in accordance with this Subsection 11.5. If notice is given to the Company, a copy shall also be sent to Latham & Watkins LLP, 27th Floor, 200 Clarendon Street, Boston, MA 02116, Attention: Peter N. Handrinos, facsimile: (617) 948-6001, email: peter.handrinos@lw.com.

11.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company, the Founder and the Requisite Preferred Holders; provided that the Company may in its sole discretion waive compliance with Subsection 2.11(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.11(c) shall be deemed to be a waiver); and provided further that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party. Notwithstanding the foregoing, (a) Section 5.2(e), the last sentence of Section 1.7 (with regard to itself only), and this clause (a) may not be amended or waived without the written consent of Bain Capital Life Sciences, LP, (b) Section 7.2(d)(iii)(B) and this clause (b) may not be amended or waived without the written consent of the holders of a majority in voting power of the outstanding shares of Series D Preferred Stock and Series D-1 Preferred Stock, voting together as a single class, (c) clause (iv) in the first paragraph of Section 7.1 and this clause (c) may not be amended or waived without the written consent of the holders of a majority of the outstanding shares of Series D Preferred Stock, (d) clause (v) in the first paragraph of Section 7.1 and this clause (d) may not be amended or waived without the written consent of the holders of a majority of the outstanding shares of Series D-1 Preferred Stock, (e) the last sentence of Section 1.7 and Section 8.7 may not be amended or waived with regard to any of the Investors specifically named therein without the written consent of the applicable Investor, and this clause (e) may not be amended or waived without the written consent of each Investor specifically named in Section 8.7, and (f) this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction). Further, this Agreement may not be amended, and no provision hereof may be waived, in each case, in any way which would adversely affect the rights of the Key Holders hereunder in a manner disproportionate to any adverse effect such amendment or waiver would have on the rights of the Investors hereunder, without also the written consent of the holders

of at least a majority of the Shares held by the Key Holders. Any amendment, termination, or waiver effected in accordance with this Subsection 11.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

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

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

11.9 Additional Parties.

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

(b) In the event that after the date of this Agreement, the Company enters into an agreement with any Person to issue shares of capital stock to such Person (other than to a purchaser of Preferred Stock described in Subsection 11.9(a) above), following which such Person shall hold Shares constituting one percent (1%) or more of the Company's then outstanding capital stock (treating for this purpose all shares of Common Stock issuable upon exercise of or conversion of outstanding options, warrants or convertible securities, as if exercised and/or converted or exchanged), then, the Company shall cause such Person, as a condition precedent to entering into such agreement, to become a party to this Agreement by executing an Adoption Agreement in the form attached hereto as Exhibit A, agreeing to be bound by and subject to the terms of this Agreement as a Stockholder and thereafter such person shall be deemed a Stockholder for all purposes under this Agreement.

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

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

11.12 Transfers. Each transferee or assignee of any Shares subject to this Agreement shall continue to be subject to the terms hereof, and, as a condition precedent to the Company's recognizing such transfer, each transferee or assignee shall agree in writing to be subject to each of the terms of this Agreement by executing and delivering an Adoption Agreement substantially in the form attached hereto as Exhibit A. Upon the execution and delivery of an Adoption Agreement by any transferee, such transferee shall be deemed to be a party hereto as if such transferee were the transferor and such transferee's signature appeared on the signature pages of this Agreement and shall be deemed to be an Investor and Stockholder, or a Key Holder and Stockholder, as applicable. The Company shall not permit the transfer of the Shares subject to this Agreement on its books or issue a new certificate representing any such shares unless and until such transferee shall have complied with the terms of this Subsection 11.12. Each certificate instrument, or book entry representing the Shares subject to this Agreement if issued on or after the date of this Agreement shall be notated by the Company with the legend set forth in Subsection 11.13.

11.13 Share Certificate Legend. Each certificate, instrument, or book entry representing any Shares issued after the date hereof shall be notated by the Company with a legend reading substantially as follows:

> "THE SHARES REPRESENTED HEREBY ARE SUBJECT TO A FOURTH AMENDED AND RESTATED STOCKHOLDERS AGREEMENT, AS MAY BE AMENDED FROM TIME TO TIME (A COPY OF WHICH MAY BE OBTAINED UPON WRITTEN REQUEST FROM THE COMPANY), AND BY ACCEPTING ANY INTEREST IN SUCH SHARES THE PERSON ACCEPTING SUCH INTEREST SHALL BE DEEMED TO AGREE TO AND SHALL BECOME BOUND BY ALL THE PROVISIONS OF THAT FOURTH AMENDED AND RESTATED STOCKHOLDERS AGREEMENT, INCLUDING CERTAIN RESTRICTIONS ON TRANSFER AND OWNERSHIP SET FORTH THEREIN."

The Company, by its execution of this Agreement, agrees that it will cause the certificates instruments, or book entry evidencing the Shares issued after the date hereof to be notated with the legend required by this Subsection 11.13 of this Agreement, and it shall supply, free of charge, a copy of this Agreement to any holder of such Shares upon written request from such holder to the Company at its principal office. The parties to this Agreement do hereby agree that the failure to cause the certificates, instruments, or book entry evidencing the Shares to be notated with the legend required by this Subsection 11.13 herein and/or the failure of the Company to supply, free of charge, a copy of this Agreement as provided hereunder shall not affect the validity or enforcement of this Agreement.

11.14 Stock Splits, Stock Dividends, etc. In the event of any issuance of Shares of the Company's voting securities hereafter to any of the Stockholders (including, without limitation, in connection with any stock split, stock dividend, recapitalization, reorganization, or the like), such Shares shall become subject to this Agreement and shall be endorsed with the legend set forth in Subsection 11.13.

11.15 Term. The terms and conditions of Sections 5, 6, 7, 8, 9 and 10 of this Agreement shall terminate upon the earliest to occur of (a) the consummation of the IPO (other than a registration statement relating either to the sale of securities to employees of the Company pursuant to its stock option, stock purchase or similar plan or an SEC Rule 145 transaction); or (b) the consummation of a Sale of the Company and distribution of proceeds to or escrow for the benefit of the Stockholders in accordance with the Certificate of Incorporation, provided that the provisions of Section 7 hereof will continue after the closing of any Sale of the Company to the extent necessary to enforce the provisions of Section 7 with respect to such Sale of the Company.

11.16 Specific Performance. In addition to any and all other remedies that may be available at law in the event of any breach of this Agreement, each party to this Agreement shall be entitled to seek specific performance of the agreements and obligations of the other parties hereto under this Agreement and to seek such other injunction or other equitable relief as may be granted by a court of competent jurisdiction.

11.17 Ownership. EACH RESTRICTED HOLDER REPRESENTS AND WARRANTS THAT SUCH RESTRICTED HOLDER IS THE SOLE LEGAL AND BENEFICIAL OWNER OF THE SHARES OF TRANSFER STOCK SUBJECT TO THIS AGREEMENT AND THAT NO OTHER PERSON OR ENTITY HAS ANY INTEREST IN SUCH SHARES (OTHER THAN A COMMUNITY PROPERTY INTEREST AS TO WHICH THE HOLDER THEREOF HAS ACKNOWLEDGED AND AGREED IN WRITING TO THE RESTRICTIONS AND OBLIGATIONS HEREUNDER).

[Remainder of Page Intentionally Left Blank]

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

COMPANY:

ATEA PHARMACEUTICALS, INC.

By: /s/ Jean Pierre Sommadossi
Name:Jean Pierre Sommadossi
Title: Chief Executive Officer and President

FOUNDER:

/s/ Jean Pierre Sommadossi
Jean-Pierre Sommadossi, Ph.D.

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

INVESTORS:

9W INVESTMENT FUND I LP

By: /s/ Brandon L. Jones
Name: Brandon L. Jones
Title: General Partner

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

INVESTORS:

ABG-ATEAB LIMITED

By: /s/ Shan-Ju Yeh
Name: Shan-Ju Yeh
Title: Director

ABG-ATEA LIMITED

By: /s/ Shan-Ju Yeh
Name: Shan-Ju Yeh
Title: Director

ALLY BRIDGE MEDALPHA MASTER FUND L.P.

By: Ally Bridge MedAlpha General Partner L.P., its General Partner

By: Ally Bridge MedAlpha GP LLC, its General Partner

By: /s/ Fan Yu
Name: Fan Yu
Title: Manager

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

INVESTORS:

ADAGE CAPITAL PARTNERS, L.P.

By: /s/ Dan Lehan
Name: Dan Lehan
Title: COO

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

INVESTORS:

AJU GROWTH & HEALTHCARE FUND

By: /s/ Derek Yoon
Name: Derek Yoon
Title: Managing Partner

AJU LIFE SCIENCE OVERSEAS EXPANSION PLATFORM FUND, LP

By: /s/ Derek Yoon
Name: Derek Yoon
Title: Managing Partner

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

INVESTORS:

ARCTIC FUNDS PLC

By: Arctic Fund Management AS, the Investment Manager for Arctic Funds plc

By: /s/ Torbjorn Bjerke
Name: Torbjorn Bjerke
Title: Portfolio Manager

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

INVESTORS:

ATEA BROOKLINE LLC

By: /s/ William B. Buchanan, Jr.
Name: William B. Buchanan, Jr.
Title: Managing Director

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

INVESTORS:

BAIN CAPITAL LIFE SCIENCES FUND II, L.P.

By: Bain Capital Life Sciences Investors II, LLC, its General Partner

By: Bain Capital Life Sciences Investors, LLC, its Manager

By: /s/ Andrew Hack
Name: Andrew Hack
Title: Managing Director

BCIP LIFE SCIENCES ASSOCIATES, LP

By: Boylston Coinvestors, LLC, its General Partner

By: /s/ Andrew Hack
Name: Andrew Hack
Title: Authorized Signatory

BAIN CAPITAL PUBLIC EQUITY GLOBAL PARTNERS FUND, L.P.

By: Bain Capital Public Equity Global Investors, LLC, its General Partner

By: Bain Capital Public Equity Management II, LLC, its Manager

By: /s/ Joshua Ross
Name: Joshua Ross
Title: Managing Director

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

INVESTORS:

/s/ Richard Beleson

Richard Beleson

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

INVESTORS:

BLACKWELL PARTNERS LLC – SERIES a

By: /s/ Abayomi A. Adigun
Name: Abayomi A. Adigun
Title: Investment Manager
DUMAC, Inc. Authorized Signatory

By: /s/ Jannine M. Lall
Name: Jannine M. Lall
Title: Head of Finance & Controller
DUMAC, Inc. Authorized Signatory

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

INVESTORS:

/s/ David C L Chiu

David C L Chiu

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

INVESTORS:

/s/ Chung K. Chu

Chung K. Chu

/s/ Chung K. Chu and Jee H. Chu

Chung K. Chu and Jee H. Chu

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

INVESTORS:

FRED E. COHEN AND CAROLYN B. KLEBANOFF TRUST

By: /s/ Fred Cohen
Name: Fred Cohen
Title: Trustee

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

INVESTORS:

/s/ Andrea Corcoran

Andrea Corcoran

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

INVESTORS:

CORMORANT GLOBAL HEALTHCARE MASTER FUND, LP
By: Cormorant Global Healthcare GP, LLC
By: Bihua Chen, Managing Member of the GP

By: /s/ Bihua Chen
Name: Bihua Chen
Title: Managing Member

CORMORANT PRIVATE HEALTHCARE FUND I, LP
By: Cormorant Private Healthcare GP, LLC
By: Bihua Chen, Managing Member of the GP

By: /s/ Bihua Chen
Name: Bihua Chen
Title: Managing Member

CRMA SPV, L.P.
By: Cormorant Asset Management, LP
By: Bihua Chen, Managing Member of the Special Limited Partner

By: /s/ Bihua Chen
Name: Bihua Chen
Title: Managing Member

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

INVESTORS:

CY CAPITAL LIMITED

By: /s/ David C L CHIU
Name: David CL CHIU
Title: Director

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

INVESTORS:

Finance 1805 SA acting as nominee on behalf of undisclosed clients

By: /s/ Gérald Formaz
Name: Gérald Formaz
Title: Attorney

By: /s/ Frédéric Bertrand-Verdier
Name: Frédéric Bertrand-Verdier
Title: Attorney

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

INVESTORS:

HARNAT CAPITAL HOLDINGS LIMITED

By: /s/ David C L CHIU
Name: David CL CHIU
Title: Director

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

INVESTORS:

JAMBOREE INVESTMENTS LIMITED

By: /s/ David C L CHIU
Name: David CL CHIU
Title: Director

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

INVESTORS:

JEM FAMILY PARTNERSHIP, LLC

By: /s/ Laurence Blumberg, M.D.
Name: Laurence Blumberg, M.D.
Title: Manager

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

INVESTORS:

JPM PARTNERS LLC

By: /s/ Jean-Pierre Sommadossi
Name: Jean-Pierre Sommadossi
Title: Manager

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

INVESTORS:

/s/ Mark McDade

Mark McDade

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

INVESTORS:

For and on behalf of
MORNINGSIDE VENTURE INVESTMENTS LIMITED

By: /s/ Jill Marie Franklin/Frances Anne Elizabeth Richard
Name: Jill Marie Franklin/Frances Anne Elizabeth Richard
Title: Authorized Signatures

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

INVESTORS:

MARC & POLLY MURPHY REVOCABLE FAMILY TRUST DATED MARCH 13, 2002

By: /s/ Polly A. Murphy
Name: Polly A. Murphy
Title: Trustee

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

INVESTORS:

/s/ Robert L. Murphy
Robert L. Murphy
JEAN-PIERRE SOMMADOSSI TRUST 12/10/98

By: /s/ Robert L. Murphy
Name: Robert L. Murphy
Title: Trustee

ROBERT L. MURPHY, TRUSTEE OF THE ROBERT LEO MURPHY GRANTOR TRUST

By: /s/ Robert L. Murphy
Name: Robert L. Murphy
Title: Trustee

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

INVESTORS:

NEW EMERGING MEDICAL OPPORTUNITIES FUND II
by its investment manager

By: /s/ Michael Sjöström
Name: Michael Sjöström
Title: Senior Partner

Sectoral Asset Management
1010 Sherbrooke Str. W.
Suite 1810
Montreal, QC, H3A 2R7
Canada

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

INVESTORS:

NEW EMERGING MEDICAL OPPORTUNITIES FUND IV

By: Sectoral Asset Management Inc., its Manager

By: /s/ Michael Sjöström
Name: Michael Sjöström
Title: Senior Partner

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

INVESTORS:

OMEGA FUND VI, L.P.

By: Omega Fund VI GP, L.P., its General Partner

By: Omega Fund VI GP Manager, Ltd., its General Partner

By: /s/ Anne Mari-Paster
Name: Anne Mari-Paster
Title: Director

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

INVESTORS:

PERCEPTIVE LIFE SCIENCES MASTER FUND LTD

By: /s/ James H. Mannix
Name: James H. Mannix
Title: C.O.O.

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

INVESTORS:

RA CAPITAL HEALTHCARE FUND, L.P.

By: RA Capital Healthcare Fund GP, LLC, its General Partner

By: /s/ Peter Kolchinsky
Name: Peter Kolchinsky
Title: Manager

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

INVESTORS:

RA CAPITAL NEXUS FUND, L.P.

By: RA Capital Nexus Fund GP, LLC, its General Partner

By: /s/ Peter Kolchinsky
Name: Peter Kolchinsky
Title: Manager

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

INVESTORS:

REDMILE BIOPHARMA INVESTMENTS II, L.P.

By: Redmile Biopharma Investments II (GP), LLC its General Partner

By: /s/ Joshua Garcia
Name: Joshua Garcia
Title: CFO and Authorized Signatory

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

INVESTORS:

ROCK SPRINGS CAPITAL MASTER FUND LP

By: Rock Springs General Partner LLC, its General Partner

By: /s/ Kris Jenner
Name: Kris Jenner
Title: Manager

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

INVESTORS:

T. ROWE PRICE HEALTH SCIENCES FUND, INC.

TD MUTUAL FUNDS – TD HEALTH SCIENCES FUND

VALIC COMPANY I – HEALTH SCIENCES FUND

T. ROWE PRICE HEALTH SCIENCES PORTFOLIO

Each account, severally and not jointly

By: T. Rowe Price Associates, Inc.,
Investment Adviser or Subadvisor, as applicable

By: /s/ Andrew Baek
Name: Andrew Baek
Title: Vice President

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

INVESTORS:

/s/ Marie M. Warburg
Marie Warburg

INVESTORS:

Jean-Marc Allaire

Jean Luc Allavena

Khalil Michel Amiouni

AMP FAMILY PARTNERSHIP III, LP

By: _____
Name:
Title:

_____
Josiah T. Austin

BERDON VENTURE ASSOCIATES LLC

By: _____
Name:
Title:

/s/ Franklin M. Berger
Franklin M. Berger

John G. Bradley

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

INVESTORS:

WESTLAND PROMENADE INVESTMENT INC.

By: /s/ David C L CHIU
Name: David CL CHIU
Title: Director

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

INVESTORS:

WINDSOR SQUARE INVESTMENT HOLDING INC.

By: /s/ David C L CHIU
Name: David CL CHIU
Title: Director

INVESTORS:

KATO INVESTMENTS, LLC

By: _____
Name:
Title:

_____
John Kellenyi

/s/ Joong Kil Kim
Joong Kil Kim

/s/ Sung Koo Kim
Sung Koo Kim

_____
Mario Kozma

_____
Klaus Kretschmer

_____
Robert Masters

_____
Blandine Medecin

INVESTORS:

9W INVESTMENT FUND I LP

By: _____
Name:
Title:

BROOKLINE SPECIAL SITUATIONS FUND, LLC

By: _____
Name:
Title:

CARINA LEVINTOFF,
TRUSTEE OF THE CARINA LEVINTOFF TRUST

By: _____
Name:
Title:

/s/ Susan Chu Walley
Susan Chu Walley

/s/ Chung K. Chu
Chung K. Chu

/s/ Jaclyn Chu
Jaclyn Chu

_____
Andrea J. Corcoran

SCHEDULE A
Investors

9W Investment Fund I LP
Attn: Erik M.W. Caspersen or Brandon L. Jones
46 White Street #1
New York, NY 10012

ABG-AteaB Limited
Unit 3002-3004 30/F Gloucester Tower
The Landmark
15 Queen's Road
Central Hong Kong

ABG-ATEA Limited
PO Box 173
Kingston Chambers, British Virgin Islands MC275203

Ally Bridge MedAlpha Master Fund
Room 3002-3004, 30th Floor, Gloucester Tower, The Landmark, 15 Queens Road Central,
Hong Kong
Attn: Frank Yu
Tel: +852 3121 9688
Email: frank.yu@ally-bridge.com

Pauline Abou Gergi
[XXX]
[XXX]
[XXX]

Mark Afrasiabi
[XXX]
[XXX]

AJU Growth and Healthcare Fund
c/o AJU IB Investment Co., Ltd.
Attn: JT Won Kim, CEO
201 Teheran-ro
5th Floor
Gangnum-gu, Seoul, Korean 06141

AJU Life Science Overseas Expansion Platform Fund, LP
Attn: Jung Kyoo Yang
4F AJU Bldg
Yeoksam-dong
Gangnam-gu, Seoul, South Korea

Aju Pharm Co., Ltd.
662 Garden Circle
Statham, GA 30666

Jean-Marc Allaire
[XXX]
[XXX]

Jean Luc Allavena
[XXX]
[XXX]

Khalil Michel Amiouni
[XXX]
[XXX]
[XXX]
[XXX]

AMP Family Partnership III, LP
Attn: Art Pappas

[XXX]
[XXX]

ATEA-Brookline LLC
509 Madison Avenue – Suite 1006
New York NY 10022

Josiah T. Austin
[XXX]
[XXX]

Berdon Venture Associates LLC
37 Westerleigh Road
Purchase, NY 10577

Franklin M. Berger
[XXX]
[XXX]
[XXX]

Catherine Bettis
[XXX]
[XXX]

John G. Bradley
[XXX]
[XXX]

Brookline Special Situations Fund, LLC
2501 20th Place, South
Suite 275
Attn: Madding King, III
Birmingham, AL 35223

Carina Levintoff, Trustee of The Carina Levintoff Trust
[XXX]
[XXX]

David CL Chiu
[XXX]
[XXX]
[XXX]

Susan Chu Walley
[XXX]
[XXX]

Chung K. Chu
[XXX]
[XXX]

Chung K. Chu and Jee H. Chu
[XXX]
[XXX]

Jaclyn Chu
[XXX]
[XXX]

John A. Coleman
[XXX]
[XXX]
[XXX]

Andrea J. Corcoran
[XXX]
[XXX]

Cormorant Global Healthcare Master Fund, LP
Attn: Bihua Chen
200 Clarendon Street, 52nd Floor
Boston, MA 02116

Cormorant Private Healthcare Fund I, LP
Attn: Bihua Chen
200 Clarendon Street, 52nd Floor
Boston, MA 02116

CRMA SPV, L.P.
PO Box 309
Ugland House
Grand Cayman, Cayman Islands KY1-1104

CY Capital Limited
4/F, Acme Building
22 Nanking Street
Yaumatei, Kowloon, Hong Kong

Thomas M. Fitzgerald, III
[XXX]
[XXX]

Robert Flammang
[XXX]
[XXX]

Ellen Friedler
[XXX]
[XXX]

Steven J. Gilson
[XXX]
[XXX]

James S. Ginsburg
[XXX]
Glencoe IL 60022

Harnat Capital Holdings Limited
4/F, Acme Building
22 Nanking Street
Yaumatei, Kowloon, Hong Kong

Jimmie Harvey
[XXX]
[XXX]

Helms Family Trust
[XXX]
[XXX]

Hessler Finance Limited
Marcy Bldg 2nd Fl, Purcell Estate
PO Box 2416, Road Town, Tortola BVI
c/o Nextgen Financial Advisors
Via Guisan 6, PO Box 20
6902 Lugano Switzerland

Roman Ivanov
[XXX]
[XXX]

Jamboree Investments Limited
4/F, Acme Building
22 Nanking Street
Yaumatei, Kowloon, Hong Kong

Jean-Pierre Sommadossi Irrevocable Trust 12/10/98
[XXX]
[XXX]

JPM Partners LLC
[XXX]
[XXX]

Kato Investments, LLC
1494 Treeline Drive
Malvern, PA 19355

John Kellenyi
[XXX]
[XXX]

Joong Kil Kim
[XXX]
[XXX]

Sung Koo Kim
[XXX]
[XXX]

Mario Kozma
[XXX]
[XXX]

Klaus Kretschmer
[XXX]
[XXX]

Laurence Lytton
[XXX]
[XXX]

Robert Masters
[XXX]
[XXX]

Charles S. Magolske
[XXX]
[XXX]

Peter A. Magolske
[XXX]
[XXX]

Blandine Medecin
[XXX]
[XXX]

Morningside Venture Investments Limited
Attn: Louise Mary Garbarino
2nd Floor, Le Prince de Galles, 3-5
Avenue des Citronniers
Monaco MC 98000

Robert L. Murphy
[XXX]
[XXX]

Campbell Murray
[XXX]
[XXX]

New Emerging Medical Opportunities Fund II
c/o Codan Trust Company (Cayman) Limited
PO Bx 2681 Cricket Sq, Hutchkins Dr.
Attn: Michael Sjostrom
Grand Cayman, Cayman Islands KY1-1111

New Emerging Medical Opportunities Fund IV SCSp
Sectoral Asset Management
1010 Sherbrooke St West, suite 1610
Montreal, QC CANADA H3A 2R7
Tel: +1 514 940 8083
Email: francois@sectoral.com

Robert Niecestro
[XXX]
[XXX]
[XXX]

Orderspeak Holding Limited Karava 2
Attn: Patricia Haddad Abouhalka
Ergates , Nicosia, Cyprus 2643

Ryan Pearson
[XXX]
[XXX]

The Ryan Pearson & Brittany McQuarry Pearson as co-trustees of the
Ryan & Brittany Pearson Living Trust
[XXX]
[XXX]

PharmaPros LLC
Kenneth D. Pearsen
6467 Main Street
Williamsville, NY 14221

RAQ, LLC
3 Columbus Circle, 15th Floor
Attn: Lindsay A. Rosenwald, MD
New York, NY 10019

Reinfrank Living Trust dtd 6/13/95
[XXX]
[XXX]

Jay Prystawosky, Trustee of the Rey Family Trust
[XXX]
[XXX]

RMI Investments S.A.R.L.
7, rue Robert Stimper
Luxembourg, L-2557

Lindsay A. Rosenwald
[XXX]
[XXX]

Samambia Investments Ltd
The Lake Building, Suite 120,
Wickhams Cays, Road Town, Torts, BVI

Satterfield Vintage Investments, L.P.
571 McDonald Road, Rockwall, Texas 75032
Mail correspondence: 2609 Caldwell Mill Lane, Mountain Brook, AL 35243

Carl and Toni Sadowsky, Tenants by Entirety
[XXX]
[XXX]
[XXX]

Nicholas S. Sadowsky
[XXX]
[XXX]

Richard A. Smith
[XXX]
[XXX]

Starlight Investment Holdings Limited (Anguilla)
9 Burrard Street Heritage Suite
The Valley, Anguilla

Stefan P. and Jane R. Shoup as Trustees of the Shoup Revocable Trust U/A/D 4/29/03
[XXX]
[XXX]

John Sonnier
[XXX]
[XXX]

Striker Asia Opportunities Fund Corporation
Attn: Huen Chung or Yuen Ian c/o Campbell Corporate Services Limited
Willow House Cricket Square, 4th Floor
PO Box 268
Grand Cayman, Cayman Islands KY1-1104

Goran Strokirk Living Trust (08/27/2002)
[XXX]
[XXX]

Sally H. Sullivan
[XXX]
[XXX]

Tisu Investments Limited
Bert K. Waits
306 Wild Olive Lane
Longwood, FL 32799

John F. Vavricka Deed of Trust
[XXX]
[XXX]

Bert K. Waits
[XXX]
[XXX]

Marie M. Warburg
[XXX]
[XXX]

Westland Promenade Investment Inc.
4/F, Acme Building
22 Nanking Street
Yaumatei, Kowloon, Hong Kong

Steven J. Wice
[XXX]
[XXX]

Widder Family Limited Partnership
PO Box 676250
Attn: M. Jacqueline Johnson
Santa Fe, CA 92067

Patrick S. Wilmerding
[XXX]
[XXX]

Windsor Square Investment Holding Inc.
4/F, Acme Building
22 Nanking Street
Yaumatei, Kowloon, Hong Kong

The Diana Wu Family Trust
[XXX]
[XXX]

Finance 1805 S.A., acting as nominee
60, Route des Acacias
1227 Carouge, Geneva
Switzerland

Valence Helix Investments II LLC
Attn: Eric W. Roberts Manager
590 Madison Avenue, 21st Floor
New York, NY 10022

Ernest W. Moody Revocable Trust
[XXX]
[XXX]
[XXX]

Bain Capital Life Sciences Fund II, L.P.
c/o Bain Capital Life Sciences, LP
200 Clarendon Street
Boston, MA 02116
Attn: Andrew Hack
Electronic Mail: AHack@BainCapital.com

BCIP Life Sciences Associates, LP
c/o Bain Capital Life Sciences, LP
200 Clarendon Street
Boston, MA 02116
Attn: Andrew Hack
Electronic Mail: AHack@BainCapital.com

Bain Capital Public Equity Global Partners Fund, L.P.
200 Clarendon Street
Boston, MA 02116
Attn: Josh Ross
Email: JRoss@BainCapital.com

Adage Capital Partners, L.P.
Adage Capital Management, L.P.
200 Clarendon Street, 52nd FL
Boston, MA 02116
Attn: Dan Lehan COO
Tel: (617) 867-2543
Email: djl@adagecapital.com

Arctic Funds plc
Regeringsgatan 38, SE-11156
Stockholm, Sweden
Attn: Torbjorn Bjerke
Tel: +46727444158
Email: torbjorn.bjerke@arctic.com

Richard Beleson
[XXX]
[XXX]
[XXX]
[XXX]
[XXX]

Fred E. Cohen and Carolyn B. Klebanoff Trust
[XXX]
[XXX]
[XXX]

JEM Family Partnership, LLC
[XXX]
[XXX]
[XXX][XXX]

Marc & Polly Murphy Revocable Family Trust dated March 13, 2002
[XXX]
[XXX]
[XXX]

Omega Fund VI, L.P.
888 Boylston Street
Suite 1111
Boston, MA 02199
Attn: General Counsel
Tel: 617-512-1989
Email : dac@omegafunds.com

Perceptive Life Sciences Master Fund LTD
51 Astor Place, 10th floor
New York NY 10003
Attn: James H. Mannix, COO
Tel: 646 205 5300
Email: james@perceptivelife.com

RA Capital Healthcare Fund, L.P.
200 Berkley Street
18th Floor
Boston MA 02116
Tel: 617-778-2500
Email: legal@racap.com

Blackwell Partners LLC – Series A
280 S. Mangum Street, Suite 210
Durham, NC 27701
Attn: Jannie Lall
Tel: 617-778-2500
Email: legal@racap.com

RA Capital Nexus Fund, L.P.
200 Berkley Street
18th Floor
Boston MA 02116
Tel: 617-778-2500
Email: legal@racap.com

Redmile Biopharma Investments II, L.P.
One Letterman Drive, Suite D3-300
The Presidio, San Francisco, CA 94129
Tel: (415) 844-2604
Email: operations@redmilegrp.com

Rock Springs Capital Master Fund LP
650 South Exeter Street, Suite 1070
Baltimore MD 21202
Attn: General Counsel
Email: kris@rockspringscapital.com, ops@rockspringscapital.com, daphne@rockspringscapital.com, and jill@rockspringscapital.com

Four Pines Master Fund LP
650 South Exeter Street, Suite 1070
Baltimore MD 21202
Attn: General Counsel
Email: kris@rockspringscapital.com, ops@rockspringscapital.com, daphne@rockspringscapital.com, and jill@rockspringscapital.com

T. Rowe Price Health Sciences Fund, Inc.
T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn.: Andrew Baek, Vice President
Phone: 410-345-2090
E-mail: andrew.baek@troweprice.com

TD Mutual Funds—TD Health Sciences Fund
T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn.: Andrew Baek, Vice President
Phone: 410-345-2090
E-mail: andrew.baek@troweprice.com

VALIC Company I—Health Sciences Fund
T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn.: Andrew Baek, Vice President
Phone: 410-345-2090
E-mail: andrew.baek@troweprice.com

T. Rowe Price Health Sciences Portfolio
T. Rowe Price Associates, Inc.
100 East Pratt Street
Baltimore, MD 21202
Attn.: Andrew Baek, Vice President
Phone: 410-345-2090
E-mail: andrew.baek@troweprice.com

Mark McDade
[XXX]
[XXX]
[XXX]
[XXX]

SCHEDULE B
Key Holders

JPM Partners LLC
[XXX]
[XXX]

Jean-Pierre Sommadossi Trust 12/10/98
[XXX]
[XXX]

Chung K. Chu
[XXX]
[XXX]

EXHIBIT A

ADOPTION AGREEMENT

This Adoption Agreement ("**Adoption Agreement**") is executed on _____, 20__, by the undersigned (the "**Holder**") pursuant to the terms of that certain Fourth Amended and Restated Stockholders Agreement dated as of _____, 2020 (the "**Agreement**"), by and among the Atea Pharmaceuticals, Inc., a Delaware corporation (the "**Company**"), and certain of its stockholders, as such Agreement may be amended or amended and restated hereafter. Capitalized terms used but not defined in this Adoption Agreement shall have the respective meanings ascribed to such terms in the Agreement. By the execution of this Adoption Agreement, the Holder agrees as follows.

1.1 Acknowledgement. Holder acknowledges that Holder is acquiring certain shares of the capital stock of the Company (the "**Stock**")[or options, warrants, or other rights to purchase such Stock (the "**Options**")], for one of the following reasons (Check the correct box):

☐ As a transferee of Shares from a party in such party's capacity as an "Investor" bound by the Agreement, and after such transfer, Holder shall be considered an "Investor" and a "Stockholder" for all purposes of the Agreement.

☐ As a transferee of Shares from a party in such party's capacity as a "Key Holder" bound by the Agreement, and after such transfer, Holder shall be considered a "Key Holder" and a "Stockholder" for all purposes of the Agreement.

☐ As a new Investor in accordance with Subsection 11.9(a) of the Agreement, in which case Holder will be an "Investor" and a "Stockholder" for all purposes of the Agreement.

☐ In accordance with Subsection 11.9(b) of the Agreement, as a new party who is not a new Investor, in which case Holder will be a "Stockholder" for all purposes of the Agreement.

1.2 Agreement. Holder hereby (a) agrees that the Stock [Options], and any other shares of capital stock or securities required by the Agreement to be bound thereby, shall be bound by and subject to the terms of the Agreement and (b) adopts the Agreement with the same force and effect as if Holder were originally a party thereto.

1.3 Notice. Any notice required or permitted by the Agreement shall be given to Holder at the address or facsimile number listed below Holder's signature hereto.

HOLDER: _____

_____
Name of Signatory

Address: _____

_____

Facsimile Number: _____

ACCEPTED AND AGREED:

ATEA PHARMACEUTICALS, INC.

By: _____

Name: _____

Title: _____

COMMON STOCK

SHARES

ATEA PHARMACEUTICALS, INC.

SEE REVERSE FOR CERTAIN DEFINITIONS

INCORPORATED UNDER THE LAWS
OF THE STATE OF DELAWARE

THIS CERTIFIES THAT

SPECIMEN

IS THE RECORD HOLDER OF

FULLY PAID AND NON-ASSESSABLE SHARES OF COMMON STOCK, $0.001 PAR VALUE PER SHARE, OF

ATEA PHARMACEUTICALS, INC.

transferable on the books of the Corporation in person or by duly authorized attorney upon surrender of this certificate properly endorsed. This certificate is not valid unless countersigned by the Transfer Agent and registered by the Registrar.

Witness the facsimile signatures of its duly authorized officers.

Dated:

PRESIDENT

SECRETARY

BY

AUTHORIZED SIGNATURE

COUNTERSIGNED AND REGISTERED
AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC
(Brooklyn, NY)
TRANSFER AGENT AND REGISTRAR

The following abbreviations, when used in the inscription on the face of this certificate, shall be construed as though they were written out in full according to applicable laws or regulations:

TEN COM	—	as tenants in common	UNIF GIFT MIN ACT —	_____Custodian_____
TEN ENT	—	as tenants by the entireties		(Cust) (Minor)
JT TEN	—	as joint tenants with right of survivorship and not as tenants in common		under Uniform Gifts to Minors Act_____ (State)

Additional abbreviations may also be used though not in the above list.

For value received, _____hereby sell, assign and transfer unto

PLEASE INSERT SOCIAL SECURITY OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

_____

PLEASE PRINT OR TYPEWRITE NAME AND ADDRESS INCLUDING ZIP CODE OF ASSIGNEE

_____

_____

_____Shares of the common stock represented by the within Certificate, and do hereby irrevocably constitute and appoint _____

_____

_____ Attorney to transfer the said stock on the books of the within-named Corporation with full power of substitution in the premises.

Dated, _____

_____

NOTICE: THE SIGNATURE TO THIS ASSIGNMENT MUST CORRESPOND WITH THE NAME AS WRITTEN UPON THE FACE OF THE CERTIFICATE IN EVERY PARTICULAR, WITHOUT ALTERATION OR ENLARGEMENT OR ANY CHANGE WHATEVER.

Signature(s) Guaranteed:

_____

THE SIGNATURE(S) MUST BE GUARANTEED BY AN ELIGIBLE GUARANTOR INSTITUTION (BANKS, STOCKBROKERS, SAVINGS AND LOAN ASSOCIATIONS AND CREDIT UNIONS WITH MEMBERSHIP IN AN APPROVED SIGNATURE GUARANTEE MEDALLION PROGRAM), PURSUANT TO S.E.C. RULE 17Ad-15.

ATEA PHARMACEUTICALS, INC.

2013 EQUITY INCENTIVE PLAN

1. ***Purpose***.

The purpose of the Plan is to advance the interests of the Company's stockholders by enhancing the Company's ability to attract, retain and motivate persons who make (or are expected to make) important contributions to the Company by providing such persons with equity ownership opportunities and thereby better aligning the interests of such persons with those of the Company's stockholders. Capitalized terms used in the Plan are defined in Section 11 below.

2. ***Eligibility***.

Service Providers are eligible to be granted Awards under the Plan, subject to the limitations described herein.

3. ***Administration and Delegation***.

(a) *Administration.* The Plan will be administered by the Administrator. The Administrator shall have authority to determine which Service Providers will receive Awards, to grant Awards and to set all terms and conditions of Awards (including, but not limited to, vesting, exercise and forfeiture provisions). In addition, the Administrator shall have the authority to take all actions and make all determinations contemplated by the Plan and to adopt, amend and repeal such administrative rules, guidelines and practices relating to the Plan as it shall deem advisable. The Administrator may correct any defect or ambiguity, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent it shall deem necessary or appropriate to carry the Plan and any Awards into effect, as determined by the Administrator. The Administrator shall make all determinations under the Plan in the Administrator's sole discretion and all such determinations shall be final and binding on all persons having or claiming any interest in the Plan or in any Award.

(b) *Appointment of Committees.* To the extent permitted by Applicable Laws, the Board may delegate any or all of its powers under the Plan to one or more Committees. The Board may abolish any Committee at any time and re-vest in itself any previously delegated authority.

4. ***Stock Available for Awards***.

(a) *Number of Shares.* Subject to adjustment under Section 8 hereof, Awards may be made under the Plan covering up to 10,979,971 shares of Common Stock. If any Award expires or lapses or is terminated, surrendered or canceled without having been fully exercised or is forfeited in whole or in part (including as the result of shares of Common Stock subject to such Award being repurchased by the Company at or below the original issuance price), in any case in a manner that results in any shares of Common Stock covered by such Award not being issued or being so reacquired by the Company, the unused Common Stock covered by such Award shall again be available for the grant of Awards under the Plan. Further, shares of Common Stock delivered (either by actual delivery or attestation) to the Company by a Participant to satisfy the applicable exercise or purchase price of an Award and/or to satisfy any applicable tax withholding obligation (including shares retained by the Company from the Award being exercised or purchased and/or creating the tax obligation) shall be added to the number of shares of Common Stock available for the grant of Awards under the Plan. However, in the case of Incentive Stock Options (as hereinafter defined), the foregoing provisions shall be subject to any limitations under the Code. Shares of Common Stock issued under the Plan may consist in whole or in part of authorized but unissued shares, shares purchased on the open market or treasury shares.

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

5. ***Stock Options***.

(a) *General*. The Administrator may grant Options to any Service Provider, subject to the limitations on Incentive Stock Options described below. The Administrator shall determine the number of shares of Common Stock to be covered by each Option, the exercise price of each Option and the conditions and limitations applicable to the exercise of each Option, including conditions relating to Applicable Laws, as it considers necessary or advisable.

(b) *Incentive Stock Options.* The Administrator may grant Options intended to qualify as Incentive Stock Options only to employees of the Company, any of the Company's present or future "parent corporations" or "subsidiary corporations" as defined in Sections 424(e) or (f) of the Code, respectively, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code. All Options intended to qualify as Incentive Stock Options shall be subject to and shall be construed consistently with the requirements of Section 422 of the Code. Neither the Company nor the Administrator shall have any liability to a Participant, or any other party, (i) if an Option (or any part thereof) which is intended to qualify as an Incentive Stock Option fails to qualify as an Incentive Stock Option or (ii) for any action or omission by the Administrator that causes an Option not to qualify as an Incentive Stock Option, including without limitation, the conversion of an Incentive Stock Option to a Non-Qualified Stock Option or the grant of an Option intended as an Incentive Stock Option that fails to satisfy the requirements under the Code applicable to an Incentive Stock Option. Any Option that is intended to qualify as an Incentive Stock Option, but fails to so qualify for any reason, including without limitation, the portion of any Option becoming exercisable in excess of the $100,000 limitation described in Treasury Regulation Section 1.422-4, shall be treated as a Non-Qualified Stock Option for all purposes.

(c) *Exercise Price.* The Administrator shall establish the exercise price of each Option and specify the exercise price in the applicable Award Agreement. The exercise price shall be not less than 100% of the Fair Market Value on the date the Option is granted. In the case of an Incentive Stock Option granted to an employee who, at the time of grant of the Option, owns (or is treated as owning under Section 424 of the Code) stock representing more than 10% of the voting power of all classes of stock of the Company (or a "parent corporation" or "subsidiary corporation" thereof within the meaning of Sections 424(e) or 424(f) of the Code, respectively), the per share exercise price shall be no less than 110% of the Fair Market Value on the date the Option is granted.

(d) *Duration of Options.* Each Option shall be exercisable at such times and subject to such terms and conditions as the Administrator may specify in the applicable Award Agreement, provided that the term of any Option shall not exceed ten years. In the case of an Incentive Stock Option granted to an employee who, at the time of grant of the Option, owns (or is treated as owning under Section 424 of the Code) stock representing more than 10% of the voting power of all classes of stock of the Company (or a "parent corporation" or "subsidiary corporation" thereof within the meaning of Sections 424(e) or 424(f) of the Code, respectively), the term of the Option shall not exceed five years.

(e) *Exercise of Option; Notification of Disposition.* Options may be exercised by delivery to the Company of a written notice of exercise, in a form approved by the Administrator (which may be an electronic form), signed by the person authorized to exercise the Option, together with payment in full (i) as specified in Section 5(f) hereof for the number of shares for which the Option is exercised and (ii) as specified in Section 9(e) hereof for any applicable withholding taxes. Unless otherwise determined by the Administrator, an Option may not be exercised for a fraction of a share of Common Stock. If an Option is designated as an Incentive Stock Option, the Participant shall give prompt notice to the Company of any disposition or other transfer of any shares of Common Stock acquired from the Option if such disposition or transfer is made (i) within two years from the grant date with respect to such Option or (ii) within one year after the transfer of such shares to the Participant (other than any such disposition made in connection with a Change in Control). Such notice shall specify the date of such disposition or other transfer and the amount realized, in cash, other property, assumption of indebtedness or other consideration, by the Participant in such disposition or other transfer.

(f) *Payment Upon Exercise.* Common Stock purchased upon the exercise of an Option granted under the Plan shall be paid for in cash or by check, payable to the order of the Company, or, to the extent permitted by the Administrator, by:

(i) (A) delivery of an irrevocable and unconditional undertaking by a broker acceptable to the Company to deliver promptly to the Company sufficient funds to pay the exercise price and any required tax withholding, or (B) delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company cash or a check sufficient to pay the exercise price and any required tax withholding;

(ii) delivery (either by actual delivery or attestation) of shares of Common Stock owned by the Participant valued at their Fair Market Value, provided (A) such method of payment is then permitted under Applicable Laws, (B) such Common Stock, if acquired directly from the Company, was owned by the Participant for such minimum period of time, if any, as may be established by the Company at any time, and (C) such Common Stock is not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements;

(iii) surrendering shares of Common Stock then issuable upon exercise of the Option valued at their Fair Market Value on the date of exercise;

(iv) delivery of a promissory note of the Participant to the Company on terms determined by the Administrator;

(v) delivery of property of any other kind which constitutes good and valuable consideration as determined by the Administrator; or

(vi) any combination of the above permitted forms of payment (including cash or check).

(g) *Early Exercise of Options*. The Administrator may provide in the terms of an Award Agreement that the Service Provider may exercise an Option in whole or in part prior to the full vesting of the Option in exchange for unvested shares of Restricted Stock with respect to any unvested portion of the Option so exercised. Shares of Restricted Stock acquired upon the exercise of any unvested portion of an Option shall be subject to such terms and conditions as the Administrator shall determine.

6. ***Restricted Stock; Restricted Stock Units***.

(a) *General*. The Administrator may grant Restricted Stock, or the right to purchase Restricted Stock, to any Service Provider, subject to the right of the Company to repurchase all or part of such shares at their issue price or other stated or formula price from the Participant (or to require forfeiture of such shares if issued at no cost) in the event that conditions specified by the Administrator in the applicable Award Agreement are not satisfied prior to the end of the applicable restriction period or periods established by the Administrator for such Award. In addition, the Administrator may grant to Service Providers Restricted Stock Units, which may be subject to vesting and forfeiture conditions during applicable restriction period or periods, as set forth in an applicable Award Agreement.

(b) *Terms and Conditions for All Restricted Stock and Restricted Stock Unit Awards*. The Administrator shall determine and set forth in the applicable Award Agreement the terms and conditions applicable to each Restricted Stock and Restricted Stock Unit Award, including the conditions for vesting and repurchase (or forfeiture) and the issue price, in each case, if any.

(c) *Additional Provisions Relating to Restricted Stock*.

(i) *Dividends*. Participants holding shares of Restricted Stock will be entitled to all ordinary cash dividends paid with respect to such shares, unless otherwise provided by the Administrator in the applicable Award Agreement. In addition, unless otherwise provided by the Administrator, if any dividends or distributions are paid in shares, or consist of a dividend or distribution to holders of Common Stock of property other than an ordinary cash dividend, the shares or other property will be subject to the same restrictions on transferability and forfeitability as the shares of Restricted Stock with respect to which they were paid. Each dividend payment will be made as provided in the applicable Award Agreement, but in no event later than the end of the calendar year in which the dividends are paid to stockholders of that class of stock or, if later, the 15th day of the third month following the later of (A) the date the dividends are paid to stockholders of that class of stock, and (B) the date the dividends are no longer subject to forfeiture.

(ii) *Stock Certificates*. The Company may require that any stock certificates issued in respect of shares of Restricted Stock be deposited in escrow by the Participant, together with a stock power endorsed in blank, with the Company (or its designee).

(d) *Additional Provisions Relating to Restricted Stock Units*.

(i) *Settlement*. Upon the vesting of a Restricted Stock Unit, the Participant shall be entitled to receive from the Company one share of Common Stock or an amount of cash or other property equal to the Fair Market Value of one share of Common Stock on the settlement date, as the Administrator shall determine and as provided in the applicable Award Agreement. The Administrator may provide that settlement of Restricted Stock Units shall occur upon or as soon as reasonably practicable after the vesting of the Restricted Stock Units or shall instead be deferred, on a mandatory basis or at the election of the Participant, in a manner that complies with Section 409A.

(ii) *Voting Rights*. A Participant shall have no voting rights with respect to any Restricted Stock Units unless and until shares are delivered in settlement thereof.

(iii) *Dividend Equivalents*. To the extent provided by the Administrator, a grant of Restricted Stock Units may provide a Participant with the right to receive Dividend Equivalents. Dividend Equivalents may be paid currently or credited to an account for the Participant, may be settled in cash and/or shares of Common Stock and may be subject to the same restrictions on transfer and forfeitability as the Restricted Stock Units with respect to which the Dividend Equivalents are paid, as determined by the Administrator, subject, in each case, to such terms and conditions as the Administrator shall establish and set forth in the applicable Award Agreement.

7. ***Other Stock-Based Awards***.

Other Stock-Based Awards may be granted hereunder to Participants, including, without limitation, Awards entitling Participants to receive shares of Common Stock to be delivered in the future. Such Other Stock-Based Awards shall also be available as a form of payment in the settlement of other Awards granted under the Plan, as stand-alone payments and/or as payment in lieu of compensation to which a Participant is otherwise entitled. Other Stock-Based Awards may be paid in shares of Common Stock, cash or other property, as the Administrator shall determine. Subject to the provisions of the Plan, the Administrator shall determine the terms and conditions of each Other Stock-Based Award, including any purchase price, transfer restrictions, vesting conditions and other terms and conditions applicable thereto, which shall be set forth in the applicable Award Agreement.

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

(a) In the event that the Administrator determines that any dividend or other distribution (whether in the form of cash, Common Stock, other securities, or other property), reorganization, merger, consolidation, combination, repurchase, recapitalization, liquidation, dissolution, or sale, transfer, exchange or other disposition of all or substantially all of the assets of the Company, or sale or exchange of Common Stock or other securities of the Company, issuance of warrants or other rights to purchase Common Stock or other securities of the Company, or other similar corporate transaction or event, as determined by the Administrator, affects the Common Stock such that an adjustment is determined by the Administrator to be appropriate in order to prevent dilution or enlargement of the benefits or potential benefits intended by the Company to be made available under the Plan or with respect to any Award, then the Administrator may, in such manner as it may deem equitable, adjust any or all of:

(i) the number and kind of shares of Common Stock (or other securities or property) with respect to which Awards may be granted or awarded (including, but not limited to, adjustments of the limitations in Section 4 hereof on the maximum number and kind of shares which may be issued);

(ii) the number and kind of shares of Common Stock (or other securities or property) subject to outstanding Awards;

(iii) the grant or exercise price with respect to any Award; and

(iv) the terms and conditions of any Awards (including, without limitation, any applicable financial or other performance “targets” specified in an Award Agreement).

(b) In the event of any transaction or event described in Section 8(a) hereof (including without limitation any Change in Control) or any unusual or nonrecurring transaction or event affecting the Company or the financial statements of the Company, or any change in any Applicable Laws or accounting principles, the Administrator, on such terms and conditions as it deems appropriate, either by the terms of the Award or by action taken prior to the occurrence of such transaction or event and either automatically or upon the Participant’s request, is hereby authorized to take any one or more of the following actions whenever the 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 Plan or with respect to any Award granted or issued under the Plan, (y) to facilitate such transaction or event or (z) give effect to such changes in Applicable Laws or accounting principles**:**

(i) To provide for the cancellation of any such Award 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 or realization of the Participant's rights under the vested portion of such Award, as applicable; provided that, if the amount that could have been obtained upon the exercise or settlement of the vested portion of such Award or realization of the Participant's rights, in any case, is equal to or less than zero, then the vested portion of such Award may be terminated without payment;

(ii) To provide that such Award shall vest and, to the extent applicable, be exercisable as to all shares covered thereby, notwithstanding anything to the contrary in the Plan or the provisions of such Award;

(iii) To provide that such Award 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, with appropriate adjustments as to the number and kind of shares and applicable exercise or purchase price, in all cases, as determined by the Administrator;

(iv) To make adjustments in the number and type of shares of Common Stock (or other securities or property) subject to outstanding Awards, and/or in the terms and conditions of (including the grant or exercise price), and the criteria included in, outstanding Awards which may be granted in the future;

(v) To replace such Award with other rights or property selected by the Administrator; and/or

(vi) To provide that the Award will terminate and cannot vest, be exercised or become payable after the applicable event.

(c) In connection with the occurrence of any Equity Restructuring, and notwithstanding anything to the contrary in this Section 8, the Administrator will equitably adjust each outstanding Award, which adjustments may include adjustments to the number and type of securities subject to each outstanding Award and/or the exercise price or grant price thereof, if applicable, the grant of new Awards to Participants, and/or the making of a cash payment to Participants, as the Administrator deems appropriate to reflect such Equity Restructuring. The adjustments provided under this Section 8(c) shall be nondiscretionary and shall be final and binding on the affected Participant and the Company; provided that whether an adjustment is equitable shall be determined by the Administrator.

(d) In the event of any pending stock dividend, stock split, combination or exchange of shares, merger, consolidation or other distribution (other than normal cash dividends) of Company assets to stockholders, or any other change affecting the shares of Stock or the share price of the Stock, including any Equity Restructuring, for reasons of administrative convenience the Administrator may refuse to permit the exercise of any Award during a period of up to thirty days prior to the consummation of any such transaction.

(e) Except as expressly provided in the Plan or pursuant to action of the Administrator under the Plan, no Participant shall have any rights by reason of any subdivision or consolidation of shares of stock of any class, the payment of any dividend, any increase or decrease in the number of shares of stock of any class or any dissolution, liquidation, merger, or consolidation of the Company or any other corporation. Except as expressly provided in the Plan or pursuant to action of the Administrator under the Plan, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number of shares of Stock subject to an Award or the grant or exercise price of any Award. The existence of the Plan, any Award Agreements and the Awards granted hereunder shall not affect or restrict in any way the right or power of the Company to make or authorize (i) any adjustment, recapitalization, reorganization or other change in the Company's capital structure or its business, (ii) any merger, consolidation dissolution or liquidation of the Company or sale of Company assets or (iii) any sale or issuance of securities, including without limitation, securities with rights superior to those of the Common Stock or which are convertible into or exchangeable for Common Stock. The Administrator may treat Participants and Awards (or portions thereof) differently under this Section 8.

9. ***General Provisions Applicable to Awards***.

(a) *Transferability.* Except as the Administrator may otherwise determine or provide in an Award Agreement or otherwise, in any case in accordance with Applicable Laws, Awards shall not be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution, and, during the life of the Participant, shall be exercisable only by the Participant. References to a Participant, to the extent relevant in the context, shall include references to authorized transferees.

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

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

(d) *Termination of Status.* The Administrator shall determine the effect on an Award of the disability, death, retirement, authorized leave of absence or any other change or purported change in a Participant's Service Provider status and the extent to which, and the period during which, the Participant, the Participant's legal representative, conservator, guardian or Designated Beneficiary may exercise rights under the Award, if applicable.

(e) *Withholding.* Each Participant shall pay to the Company, or make provision satisfactory to the Administrator for payment of, any taxes required by law to be withheld in connection with Awards to such Participant no later than the date of the event creating the tax liability. Except as the Administrator may otherwise determine, all such payments shall be made in cash or by certified check. Notwithstanding the foregoing, to the extent permitted by the Administrator, Participants may satisfy such tax obligations in whole or in part by delivery of shares of Common Stock, including shares retained from the Award creating the tax obligation, valued at their Fair Market Value. The Company may, to the extent permitted by Applicable Laws, deduct any such tax obligations from any payment of any kind otherwise due to a Participant.

(f) *Amendment of Award.* The Administrator may amend, modify or terminate any outstanding Award, including but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or settlement, and converting an Incentive Stock Option to a Non-Qualified Stock Option. The Participant's consent to such action shall be required unless (i) the Administrator determines that the action, taking into account any related action, would not materially and adversely affect the Participant, or (ii) the change is permitted under Section 8 and 10(f) hereof.

(g) *Conditions on Delivery of Stock.* The Company will not be obligated to deliver any shares of Common Stock pursuant to the Plan or to remove restrictions from shares previously delivered under the Plan until (i) all conditions of the Award have been met or removed to the satisfaction of the Company, (ii) in the opinion of the Company's counsel, all other legal matters in connection with the issuance and delivery of such shares have been satisfied, including any applicable securities laws and any applicable stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Administrator deems necessary or appropriate to satisfy the requirements of any Applicable Laws. The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is determined by the Administrator to be necessary to the lawful issuance and sale of any securities hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such shares as to which such requisite authority shall not have been obtained.

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

10. ***Miscellaneous***.

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

(b) *No Rights As Stockholder; Certificates.* Subject to the provisions of the applicable Award Agreement, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Award until becoming the record holder of such shares. Notwithstanding any other provision of the Plan, unless otherwise determined by the Administrator or required by any Applicable Laws, the Company shall not be required to deliver to any Participant certificates evidencing shares of Common Stock issued in connection with any Award and instead such shares of Common Stock may be recorded in the books of the Company (or, as applicable, its transfer agent or stock plan administrator). The Company may place legends on stock certificates issued under the Plan deemed necessary or appropriate by the Administrator in order to comply with Applicable Laws.

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

(d) *Amendment of Plan.* The Administrator may amend, suspend or terminate the Plan or any portion thereof at any time; provided that no amendment of the Plan shall materially and adversely affect any Award outstanding at the time of such amendment without the consent of the affected Participant. Awards outstanding under the Plan at the time of any suspension or termination of the Plan shall continue to be governed in accordance with the terms of the Plan and the applicable Award Agreement, as in effect prior to such suspension or termination. The Board shall obtain stockholder approval of any Plan amendment to the extent necessary to comply with Applicable Laws.

(e) *Provisions for Foreign Participants*. The Administrator may modify Awards granted to Participants who are foreign nationals or employed outside the United States or establish subplans or procedures under the Plan to address differences in laws, rules, regulations or customs of such foreign jurisdictions with respect to tax, securities, currency, employee benefit or other matters.

(f) *Section 409A.*

(i) *General*. The Company intends that all Awards be structured in compliance with, or to satisfy an exemption from, Section 409A, such that no adverse tax consequences, interest, or penalties under Section 409A apply in connection with any Awards. Notwithstanding anything herein or in any Award Agreement to the contrary, the Administrator may, without a Participant's prior consent, amend this Plan and/or Awards, adopt policies and procedures, or take any other actions (including amendments, policies, procedures and actions with retroactive effect) as are necessary or appropriate to preserve the intended tax treatment of Awards under the Plan, including without limitation, any such actions intended to (A) exempt this Plan and/or any Award from the application of Section 409A, and/or (B) comply with the requirements of Section 409A, including without limitation any such regulations, guidance, compliance programs and other interpretative authority that may be issued after the date of grant of any Award. The Company makes no representations or warranties as to the tax treatment of any Award under Section 409A or otherwise. The Company shall have no obligation under this Section 10(f) or otherwise to take any action (whether or not described herein) to avoid the imposition of taxes, penalties or interest under Section 409A with respect to any Award and shall have no liability to any Participant or any other person if any Award, compensation or other benefits under the Plan are determined to constitute non-compliant, "nonqualified deferred compensation" subject to the imposition of taxes, penalties and/or interest under Section 409A.

(ii) *Separation from Service*. With respect to any Award that constitutes "nonqualified deferred compensation" under Section 409A, any payment or settlement of such Award that is to be made upon a termination of a Participant's Service Provider relationship shall, to the extent necessary to avoid the imposition of taxes under Section 409A, be made only upon the Participant's "separation from service" (within the meaning of Section 409A), whether such "separation from service" occurs upon or subsequent to the termination of the Participant's Service Provider relationship. For purposes of any such provision of this Plan or any Award Agreement relating to any such payments or benefits, references to a "termination," "termination of employment" or like terms shall mean "separation from service."

(iii) *Payments to Specified Employees*. Notwithstanding any contrary provision in the Plan or any Award Agreement, any payment(s) of "nonqualified deferred compensation" that are otherwise required to be made under an Award to a "specified employee" (as defined under Section 409A and determined by the Administrator) as a result of his or her "separation from service" shall, to the extent necessary to avoid the imposition of taxes under Code Section 409A(a)(2)(B)(i), be delayed until the expiration of the six-month period immediately following such "separation from service" (or, if earlier, until the date of death of the specified employee) and shall instead be paid (in a manner set forth in the Award agreement) on the day that immediately follows the end of such six-month period or as soon as administratively practicable thereafter (without interest). Any payments of "nonqualified deferred compensation" under such Award that are, by their terms, payable more than six months following the Participant's "separation from service" shall be paid at the time or times such payments are otherwise scheduled to be made.

(g) *Limitations on Liability*. Notwithstanding any other provisions of the Plan, no individual acting as a director, officer, other employee or agent of the Company will be liable to any Participant, former Participant, spouse, beneficiary, or any other person for any claim, loss, liability, or expense incurred in connection with the Plan or any Award, nor will such individual be personally liable with respect to the Plan because of any contract or other instrument he or she executes in his or her capacity as an Administrator, director, officer, other employee or agent of the Company. The Company will indemnify and hold harmless each director, officer, other employee and agent of the Company to whom any duty or power relating to the administration or interpretation of the Plan has been or will be granted or delegated, against any cost or expense (including attorneys' fees) or liability (including any sum paid in settlement of a claim with the Administrator's approval) arising out of any act or omission to act concerning this Plan unless arising out of such person's own fraud or bad faith.

(h) *Lock-Up Period.* The Company may, at the request of any representative of the underwriters or otherwise, in connection with any registration of the offering of any securities of the Company under the Securities Act, prohibit Participants from, directly or indirectly, selling or otherwise transferring any shares of Common Stock or other securities of the Company during a period of up to one hundred eighty days following the date of the final prospectus relating to the offeing.

(i) *Right of First Refusal*.

(i) Before any shares of Common Stock held by a Participant or any permitted transferee (each, a "***Holder***") may be sold, pledged, assigned, hypothecated, transferred, or otherwise disposed of (each, a "***Transfer***"), the Company or its assignee(s) shall have a right of first refusal to purchase the shares of Common Stock proposed to be Transferred on the terms and conditions set forth in this Section 10(i) (the "***Right of First Refusal***"). In the event that the Company's charter, bylaws and/or a stockholders' agreement applicable to the shares of Common Stock contain a right of first refusal with respect to the shares of Common Stock, such right of first refusal shall apply to the shares of Common Stock to the extent such provisions are more restrictive than the Right of First Refusal set forth in this Section 10(i) and the Right of First Refusal set forth in this Section 10(i) shall not in any way restrict the operation of the Company's charter, bylaws or the operation of any applicable stockholders' agreement.

(ii) In the event any Holder desires to Transfer any shares of Common Stock, the Holder shall deliver to the Company a written notice (the "***Notice***") stating: (A) the Holder's bona fide intention to sell or otherwise Transfer such shares of Common Stock; (B) the name of each proposed purchaser or other transferee ("***Proposed Transferee***"); (C) the number of shares of Common Stock to be Transferred to each Proposed Transferee; and (D) the price for which the Holder proposes to Transfer the shares of Common Stock (the "***Offered Price***"), and the Holder shall offer such shares of Common Stock at the Offered Price to the Company or its assignee(s).

(iii) Within thirty days after receipt of the Notice, the Company and/or its assignee(s) may elect in writing to purchase all or any portion of the shares of Common Stock proposed to be Transferred to any one or more of the Proposed Transferees by delivery of a written exercise notice to the Holder (a "***Company Notice***"). The purchase price ("***Purchase Price***") for the shares of Common Stock repurchased under this Section 10(i) shall be the Offered Price.

(iv) Payment of the Purchase Price shall be made, at the option of the Company or its assignee(s), in cash (by check or wire transfer), by cancellation of all or a portion of any outstanding indebtedness of the Holder to the Company (or, in the case of repurchase by an assignee, to the assignee), or by any combination thereof, within ten days after delivery of the Company Notice or in the manner and at the times mutually agreed to by the Company and the Holder. Should the Offered Price specified in the Notice be payable in property other than cash, the Company or its assignee shall have the right to pay the purchase price in the form of cash equal in amount to the value of such property, as determined by the Administrator.

(v) If all or a portion of the shares of Common Stock proposed in the Notice to be Transferred are not purchased by the Company and/or its assignee(s) as provided in this Section 10(i), then the Holder may sell or otherwise Transfer such shares of Common Stock to that Proposed Transferee at the Offered Price or at a higher price; provided that such sale or other Transfer is consummated within sixty days after the date of the Notice; and provided, further, that any such sale or other Transfer is effected in accordance with any Applicable Laws and the Proposed Transferee agrees in writing that the provisions of this Plan and the applicable Award Agreement and any other applicable agreements governing the shares of Common Stock to be Transferred shall continue to apply to the shares of Common Stock in the hands of such Proposed Transferee. If the shares of Common Stock described in the Notice are not Transferred to the Proposed Transferee within such sixty-day period, a new Notice shall be given to the Company, and the Company and/or its assignees shall again be offered the Right of First Refusal, as provided herein, before any shares of Common Stock held by the Holder may be sold or otherwise Transferred.

(vi) Anything to the contrary contained in this Section 10(i) notwithstanding and to the extent permitted by the Administrator, the Transfer of any or all of the shares of Common Stock during a Participant's lifetime or upon a Participant's death by will or intestacy to the Participant's Immediate Family or a trust for the benefit of the Participant's Immediate Family shall be exempt from the Right of First Refusal. As used herein, "***Immediate Family***" shall mean spouse, lineal descendant or antecedent, father, mother, brother or sister or stepchild (whether or not adopted). In such case, the transferee or other recipient shall receive and hold the shares of Common Stock so Transferred subject to the provisions of this Plan (including the Right of First Refusal), the applicable Award Agreement and any other applicable agreements governing the shares of Common Stock to be Transferred, and there shall be no further Transfer of such shares of Common Stock except in accordance with the terms of this Section 10(i) (or otherwise as expressly provided under the Plan).

(vii) The Right of First Refusal shall terminate as to all shares of Common Stock if the Company becomes a Publicly Listed Company upon such occurrence.

(j) *Data Privacy*. As a condition of receipt of any Award, each Participant explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of personal data as described in this paragraph by and among, as applicable, the Company and its subsidiaries and affiliates for the exclusive purpose of implementing, administering and managing the Participant's participation in the Plan. The Company and its subsidiaries and affiliates may hold certain personal information about a Participant, including but not limited to, the Participant's name, home address and telephone number, date of birth, social security or insurance number or other identification number, salary, nationality, job title(s), any shares of stock held in the Company or any of its subsidiaries and affiliates, details of all Awards, in each case, for the purpose of implementing, managing and administering the Plan and Awards (the "***Data***"). The Company and its subsidiaries and affiliates may transfer the Data amongst themselves as necessary for the purpose of implementation, administration and management of a Participant's participation in the Plan, and the Company and its subsidiaries and affiliates may each further transfer the Data to any third parties assisting the Company in the implementation, administration and management of the Plan. These recipients may be located in the Participant's country, or elsewhere, and the Participant's country may have different data privacy laws and protections than the recipients' country. Through acceptance of an Award, each Participant authorizes such recipients to receive, possess, use, retain and transfer the Data, in electronic or other form,

for the purposes of implementing, administering and managing the Participant's participation in the Plan, including any requisite transfer of such Data as may be required to a broker or other third party with whom the Company or the Participant may elect to deposit any shares of Common Stock. The Data related to a Participant will be held only as long as is necessary to implement, administer, and manage the Participant's participation in the Plan. A Participant may, at any time, view the Data held by the Company with respect to such Participant, request additional information about the storage and processing of the Data with respect to such Participant, recommend any necessary corrections to the Data with respect to the Participant or refuse or withdraw the consents herein in writing, in any case without cost, by contacting his or her local human resources representative. The Company may cancel Participant's ability to participate in the Plan and, in the Administrator's discretion, the Participant may forfeit any outstanding Awards if the Participant refuses or withdraws his or her consents as described herein. For more information on the consequences of refusal to consent or withdrawal of consent, Participants may contact their local human resources representative.

(k) *Severability*. In the event any portion of the Plan or any action taken pursuant thereto shall be held illegal or invalid for any reason, the illegality or invalidity shall not affect the remaining parts of the Plan, and the Plan shall be construed and enforced as if the illegal or invalid provisions had not been included, and the illegal or invalid action shall be null and void.

(l) *Governing Documents*. In the event of any contradiction between the Plan and any Award Agreement or any other written agreement between a Participant and the Company or any Subsidiary of the Company that has been approved by the Administrator, the terms of the Plan shall govern, unless it is expressly specified in such Award Agreement or other written document that a specific provision of the Plan shall not apply.

(m) *Submission to Jurisdiction; Waiver of Jury Trial*. By accepting an Award, each Participant irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the courts of the Commonwealth of Massachusetts and of the United States of America, in each case located in the Commonwealth of Massachusetts, for any action arising out of or relating to the Plan (and agrees not to commence any litigation relating thereto except in such courts), and further agrees that service of any process, summons, notice or document by U.S. registered mail to the address contained in the records of the Company shall be effective service of process for any litigation brought against it in any such court. By accepting an Award, each Participant irrevocably and unconditionally waives any objection to the laying of venue of any litigation arising out of Plan or Award hereunder in the courts of the Commonwealth of Massachusetts or the United States of America, in each case located in the Commonwealth of Massachusetts, and further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such litigation brought in any such court has been brought in an inconvenient forum. By accepting an Award, each Participant irrevocably and unconditionally waives, to the fullest extent permitted by applicable law, any and all rights to trial by jury in connection with any litigation arising out of or relating to the Plan or any Award hereunder.

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

(o) *Restrictions on Shares; Claw-back Provisions*. Shares of Common Stock acquired in respect of Awards shall be subject to such terms and conditions as the Administrator shall determine, including, without limitation, restrictions on the transferability of shares of Common Stock, the right of the Company to repurchase shares of Common Stock, the right of the Company to require that shares of Common Stock be transferred in the event of certain transactions, tag-along rights, bring-along rights, redemption and co-sale rights and voting requirements. Such terms and conditions may be

additional to those contained in the Plan and may, as determined by the Administrator, be contained in the applicable Award Agreement or in an exercise notice, stockholders' agreement or in such other agreement as the Administrator shall determine, in each case in a form determined by the Administrator. The issuance of such shares of Common Stock shall be conditioned on the Participant's consent to such terms and conditions and the Participant's entering into such agreement or agreements. All Awards (including any proceeds, gains or other economic benefit actually or constructively received by Participant upon any receipt or exercise of any Award or upon the receipt or resale of any shares of Common Stock underlying the Award) shall be subject to the provisions of any claw-back policy implemented by the Company, including, without limitation, any claw-back policy adopted to comply with the requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act and any rules or regulations promulgated thereunder, to the extent set forth in such claw-back policy and/or in the applicable Award Agreement.

(p) *Titles and Headings*. The titles and headings of the Sections in the Plan are for convenience of reference only and, in the event of any conflict, the text of the Plan, rather than such titles or headings, shall control.

(q) *Conformity to Securities Laws*. Participant acknowledges that the Plan is intended to conform to the extent necessary with all provisions of the Securities Act and the Exchange Act and any and all regulations and rules promulgated by the Securities and Exchange Commission thereunder, and state securities laws and regulations. Notwithstanding anything herein to the contrary, the Plan and all Awards granted hereunder shall be administered only in such a manner as to conform to such laws, rules and regulations. To the extent permitted by Applicable Laws, the Plan and all Award Agreements shall be deemed amended to the extent necessary to conform to such laws, rules and regulations.

11. ***Definitions***. As used in the Plan, the following words and phrases shall have the following meanings:

(a) "***Administrator***" means the Board or a Committee to the extent that the Board's powers or authority under the Plan have been delegated to such Committee.

(b) "***Applicable Laws***" means the requirements relating to the administration of equity incentive plans under U.S. federal and state securities, tax and other applicable laws, rules and regulations, the applicable rules of any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws and rules of any foreign country or other jurisdiction where Awards are granted or issued under the Plan.

(c) "***Award***" means, individually or collectively, a grant under the Plan of Options, Restricted Stock, Restricted Stock Units or Other Stock-Based Awards.

(d) "***Award Agreement***" means a written agreement evidencing an Award, which agreements may be in electronic medium and shall contain such terms and conditions with respect to an Award as the Administrator shall determine, consistent with and subject to the terms and conditions of the Plan.

(e) "***Board***" means the Board of Directors of the Company.

(f) "***Cause***," with respect to a Participant, means "Cause" (or any term of similar effect) as defined in such Participant's employment agreement with the Company if such an agreement exists and contains a definition of Cause (or term of similar effect), or, if no such agreement exists or such agreement does not contain a definition of Cause (or term of similar effect), then Cause shall include, but not be limited to: (i) the Participant's unauthorized use or disclosure of confidential information or trade

secrets of the Company or any material breach of a written agreement between the Participant and the Company, including without limitation a material breach of any employment, confidentiality, non-compete, non-solicit or similar agreement; (ii) the Participant's commission of, indictment for or the entry of a plea of guilty or *nolo contendere* by the Participant to, a felony under the laws of the United States or any state thereof or any crime involving dishonesty or moral turpitude (or any similar crime in any jurisdiction outside the United States); (iii) the Participant's negligence or willful misconduct in the performance of the Participant's duties or the Participant's willful or repeated failure or refusal to substantially perform assigned duties; (iv) any act of fraud, embezzlement, material misappropriation or dishonesty committed by the Participant against the Company; or (v) any acts, omissions or statements by a Participant which the Company determines to be materially detrimental or damaging to the reputation, operations, prospects or business relations of the Company.

(g) "***Change in Control***" means (i) a merger or consolidation of the Company with or into any other corporation or other entity or person or (ii) a sale, lease, exchange or other transfer in one transaction or a series of related transactions of all or substantially all of the Company's assets; provided that the following events shall not constitute a "Change in Control": (A) a transaction (other than a sale of all or substantially all of the Company's assets) in which the holders of the voting securities of the Company immediately prior to the merger or consolidation hold, directly or indirectly, at least a majority of the voting securities in the successor corporation or its parent immediately after the merger or consolidation; (B) a sale, lease, exchange or other transaction in one transaction or a series of related transactions of all or substantially all of the Company's assets to an affiliate of the Company; (C) an initial public offering of any of the Company's securities; (D) a reincorporation of the Company solely to change its jurisdiction; or (E) a transaction undertaken for the primary purpose of creating a holding company that will be owned in substantially the same proportion by the persons who held the Company's securities immediately before such transaction. Notwithstanding the foregoing, if a Change in Control would give rise to a payment or settlement event with respect to any Award that constitutes "nonqualified deferred compensation," the transaction or event constituting the Change in Control must also constitute a "change in control event" (as defined in Treasury Regulation §1.409A-3(i)(5)) in order to give rise to the payment or settlement event for such Award, to the extent required by Section 409A.

(h) "***Code***" means the Internal Revenue Code of 1986, as amended, and the regulations issued thereunder.

(i) "***Committee***" means one or more committees or subcommittees of the Board, which may be comprised of one or more directors and/or executive officers of the Company, in either case, to the extent permitted in accordance with Applicable Laws.

(j) "***Common Stock***" means the common stock of the Company.

(k) "***Company***" means Atea Pharmaceuticals, Inc., a Delaware corporation, or any successor thereto. Except where the context otherwise requires, the term "Company" includes any of the Company's present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Code and any other business venture (including, without limitation, joint venture or limited liability company) in which the Company has a significant interest, as determined by the Administrator.

(l) "***Consultant***" means any person, including any advisor, engaged by the Company or a parent or subsidiary of the Company to render services to such entity if: (i) the consultant or adviser renders *bona fide* services to the Company; (ii) the services rendered by the consultant or advisor are not in connection with the offer or sale of securities in a capital-raising transaction and do not directly or indirectly promote or maintain a market for the Company's securities; and (iii) the consultant or advisor is a natural person, or such other advisor or consultant as is approved by the Administrator.

(m) "***Designated Beneficiary***" means the beneficiary or beneficiaries designated, in a manner determined by the Administrator, by a Participant to receive amounts due or exercise rights of the Participant in the event of the Participant's death or incapacity In the absence of an effective designation by a Participant, "Designated Beneficiary" shall mean the Participant's estate.

(n) "***Director***" means a member of the Board.

(o) "***Disability***" means a permanent and total disability within the meaning of Section 22(e)(3) of the Code, as it may be amended from time to time.

(p) "***Dividend Equivalents***" means a right granted to a Participant pursuant to Section 6(d)(3) hereof to receive the equivalent value (in cash or shares of Common Stock) of dividends paid on shares of Common Stock.

(q) "***Employee***" means any person, including officers and Directors, employed by the Company (within the meaning of Section 3401(c) of the Code) or any parent or subsidiary of the Company.

(r) "***Equity Restructuring***" means, as determined by the Administrator, a non-reciprocal transaction between the Company and its stockholders, such as a stock dividend, stock split, spin-off or recapitalization through a large, nonrecurring cash dividend, that affects the shares of Common Stock (or other securities of the Company) or the share price of Common Stock (or other securities of the Company) and causes a change in the per share value of the Common Stock underlying outstanding Awards.

(s) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

(t) "***Fair Market Value***" means, as of any date, the value of Stock determined as follows: (i) if the Common Stock is listed on any established stock exchange, its Fair Market Value shall be the closing sales price for such Common Stock as quoted on such exchange for such date, or if no sale occurred on such date, the first market trading day immediately prior to such date during which a sale occurred, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; (ii) if the Common Stock is not traded on a stock exchange but is quoted on a national market or other quotation system, the last sales price on such date, or if no sales occurred on such date, then on the date immediately prior to such date on which sales prices are reported, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; or (iii) in the absence of an established market for the Common Stock, the Fair Market Value thereof shall be determined by the Administrator in its sole discretion.

(u) "***Incentive Stock Option***" means an "incentive stock option" as defined in Section 422 of the Code.

(v) "***Non-Qualified Stock Option***" means an Option that is not intended to be or otherwise does not qualify as an Incentive Stock Option.

(w) "***Option***" means an option to purchase Common Stock.

(x) "***Other Stock-Based Awards***" means other Awards of shares of Common Stock, and other Awards that are valued in whole or in part by reference to, or are otherwise based on, shares of Common Stock or other property.

(y) "***Participant***" means a Service Provider who has been granted an Award under the Plan.

(z) "***Plan***" means this 2013 Equity Incentive Plan.

(aa) "***Publicly Listed Company***" means that the Company or its successor (i) is required to file periodic reports pursuant to Section 12 of the Exchange Act and (ii) the Common Stock is listed on one or more National Securities Exchanges (within the meaning of the Exchange Act) or is quoted on NASDAQ or a successor quotation system.

(bb) "***Restricted Stock***" means Common Stock awarded to a Participant pursuant to Section 6 hereof that is subject to certain vesting conditions and other restrictions.

(cc) "***Restricted Stock Unit***" means an unfunded, unsecured right to receive, on the applicable settlement date, one share of Common Stock or an amount in cash or other consideration determined by the Administrator equal to the value thereof as of such payment date, which right may be subject to certain vesting conditions and other restrictions.

(dd) "***Section 409A***" means Section 409A of the Code and all regulations, guidance, compliance programs and other interpretative authority thereunder.

(ee) "***Securities Act***" means the Securities Act of 1933, as amended from time to time.

(ff) "***Service Provider***" means an Employee, Consultant or Director.

(gg) "***Termination of Service***" means the date the Participant ceases to be a Service Provider.

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ATEA PHARMACEUTICALS, INC.

2013 EQUITY INCENTIVE PLAN

CALIFORNIA SUPPLEMENT

This supplement is intended to satisfy the requirements of Section 25102(o) of the California Corporations Code and the regulations issued thereunder ("*Section 25102(o)*"). Notwithstanding anything to the contrary contained in the Plan and except as otherwise determined by the Administrator, the provisions set forth in this supplement shall apply to all Grants Awards granted under the Plan to a Participant who is a resident of the State of California on the date of grant (a "***California Participant***") and which are intended to be exempt from registration in California pursuant to Section 25102(o), and otherwise to the extent required to comply with applicable law (but only to such extent). Definitions in the Plan are applicable to this supplement.

12. *Limitation On Securities Issuable Under Plan*. The amount of securities issued pursuant to the Plan shall not exceed the amounts permitted under Section 260.140.45 of the California code of regulations to the extent applicable.

13. *Additional Limitations For Grants.* The terms of all Grants shall comply, to the extent applicable, with section 260.140.41 and 260.140.42 of the California code of regulations.

14. *Additional Requirement To Provide Information To California Participants.* The company shall provide to each California Participant, not less frequently than annually, copies of annual financial statements (which need not be audited). The company shall not be required to provide such statements to key persons whose duties in connection with the company assure their access to equivalent information. In addition, this information requirement shall not apply to any plan or agreement that complies with all conditions of rule 701 of the securities act of 1933, as amended, as determined by the General Partner; provided that for purposes of determining such compliance, any registered domestic partner shall be considered a "family member" as that term is defined in rule 701.

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ATEA PHARMACEUTICALS, INC.

2013 EQUITY INCENTIVE PLAN

STOCK OPTION GRANT NOTICE AND
STOCK OPTION AGREEMENT

Atea Pharmaceuticals, Inc. (the "***Company***"), pursuant to its 2013 Equity Incentive Plan (the "***Plan***"), hereby grants to the participant set forth below ("***Participant***"), an Option to purchase the number of shares of the Company's Common Stock (referred to herein as "***Shares***") set forth below. This Option is subject to all of the terms and conditions as set forth herein and in the Stock Option Agreement attached hereto as Exhibit A (the "***Stock Option Agreement***") and the Plan, each of which is incorporated herein by reference. Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Stock Option Grant Notice and the Stock Option Agreement.

Participant: _____

Grant Date: _____

Vesting Commencement Date: _____

Exercise Price per Share: $_____

Total Exercise Price: $_____

Total Number of Shares Subject to Option: _____

Expiration Date: _____

Type of Option: ☐ Incentive Stock Option ☐ Non-Qualified Stock Option

Vesting Schedule: [The Option shall vest and become exercisable as to [__]% of the total number of Shares subject to the Option (rounded down to the next whole number of Shares) on the [__] anniversary of the Vesting Commencement Date and as to [__]% of the total number of Shares subject to the Option (rounded down to the next whole number of Shares) on the final day of each [one-month] period of Participant's service as a Service Provider thereafter, so that all of the Option shall be fully vested and exercisable on the [__] anniversary of the Vesting Commencement Date.]

By his or her signature and the Company's signature below, Participant agrees to be bound by the terms and conditions of the Plan, the Stock Option Agreement and this Grant Notice. Participant has reviewed the Stock Option Agreement, the Plan and this Grant Notice in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Grant Notice and fully understands all provisions of this Grant Notice, the Stock Option Agreement and the Plan. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator of the Plan upon any questions arising under the Plan or the Option.

ATEA PHARMACEUTICALS, INC.:

By: _____
Name: _____
Title: _____

PARTICIPANT:

By: _____
Name: _____

EXHIBIT A

TO STOCK OPTION GRANT NOTICE

STOCK OPTION AGREEMENT

Pursuant to the Stock Option Grant Notice ("***Grant Notice***") to which this Stock Option Agreement (this "***Agreement***") is attached, Atea Pharmaceuticals, Inc. (the "***Company***") has granted to Participant an Option under the Company's 2013 Equity Incentive Plan (the "***Plan***") to purchase the number of Shares indicated in the Grant Notice.

ARTICLE I

GENERAL

1.1 Defined Terms. Capitalized terms not specifically defined herein shall have the meanings specified in the Plan and the Grant Notice.

1.2 Incorporation of Terms of Plan. The Option is subject to the terms and conditions of the Plan which are incorporated herein by reference. In the event of a conflict between the terms of the Agreement and the Plan, the terms of the Plan shall control.

1.3 Grant of Option. In consideration of Participant's past and/or continued employment with or service to the Company or a parent or subsidiary and for other good and valuable consideration, effective as of the grant date set forth in the Grant Notice (the "***Grant Date***"), the Company irrevocably grants to Participant an Option to purchase any part or all of an aggregate of the number of Shares set forth in the Grant Notice, upon the terms and conditions set forth in the Plan and this Agreement. Unless designated as a Non-Qualified Stock Option in the Grant Notice, the Option shall be an Incentive Stock Option to the maximum extent permitted by law.

ARTICLE II

PERIOD OF EXERCISABILITY

2.1 Vesting; Commencement of Exercisability.

(a) Subject to Sections 2.1(b) and 2.3, the Option shall become vested and exercisable in such amounts and at such times as are set forth in the vesting schedule in the Grant Notice (the "***Vesting Schedule***").

(b) Unless otherwise determined by the Administrator, any portion of the Option that has not become vested and exercisable on or prior to the date of the Participant's Termination of Service shall be forfeited on the date of the Participant's Termination of Service and shall not thereafter become vested or exercisable.

2.2 Duration of Exercisability. The installments provided for in the Vesting Schedule are cumulative. Each such installment which becomes vested and exercisable pursuant to the Vesting Schedule shall remain vested and exercisable until it becomes unexercisable under Section 2.3 or pursuant to the terms of the Plan. Once the Option becomes unexercisable, it shall be forfeited immediately.

2.3 Expiration of Option. The Option may not be exercised to any extent by anyone after the first to occur of the following events:

(a) The Expiration Date set forth in the Grant Notice;

(b) The expiration of three months following the date of Participant's Termination of Service, unless such Termination of Service occurs by reason of Participant's death, Disability or Cause;

(c) The expiration of one year following the date of Participant's Termination of Service by reason of Participant's death or Disability; or

(d) The date of Participant's Termination of Service for Cause.

Participant acknowledges that an Incentive Stock Option exercised more than three months after Participant's termination of status as an Employee, other than by reason of death or Disability, will be taxed as a Non-Qualified Stock Option.

2.4 Special Tax Consequences. Participant acknowledges that, to the extent that the aggregate Fair Market Value (determined as of the time the Option is granted) of all Shares with respect to which Incentive Stock Options, including the Option, are first exercisable for the first time by Participant in any calendar year exceeds $100,000 (or such other limitation as imposed by Section 422(d) of the Code), the Option and such other options shall be treated as not qualifying under Section 422 of the Code but rather shall be considered Non-Qualified Stock Options. Participant further acknowledges that the rule set forth in the preceding sentence shall be applied by taking Options and other "incentive stock options" into account in the order in which they were granted.

ARTICLE III

EXERCISE OF OPTION

3.1 Persons Eligible to Exercise. During the lifetime of Participant, only Participant may exercise the Option or any portion thereof. After the death of Participant, any exercisable portion of the Option may, prior to the time when the Option becomes unexercisable under Section 2.3, be exercised by Participant's personal representative or by any person empowered to do so under the deceased Participant's will or under the then applicable laws of descent and distribution.

3.2 Partial Exercise. Any exercisable portion of the Option or the entire Option, if then wholly exercisable, may be exercised in whole or in part at any time prior to the time when the Option or portion thereof becomes unexercisable under Section 2.3.

3.3 Manner of Exercise. The Option, or any exercisable portion thereof, may be exercised solely by delivery to the Secretary of the Company or the Secretary's office, or such other place as may be determined by the Administrator, of all of the following prior to the time when the Option or such portion thereof becomes unexercisable under Section 2.3:

(a) An exercise notice in substantially the form attached as Exhibit B to the Grant Notice (or such other form as is prescribed by the Administrator) (the "***Exercise Notice***") in writing signed by Participant or any other person then entitled to exercise the Option or portion thereof, stating that the Option or portion thereof is thereby exercised, such notice complying with all applicable rules established by the Administrator; and

(b) Subject to Section 5(f) of the Plan:

(i) Full payment (in cash or by check) for the Shares with respect to which the Option or portion thereof is exercised; or

(ii) With the consent of the Administrator, by delivery of Shares then issuable upon exercise of the Option having a Fair Market Value on the date of delivery equal to the aggregate exercise price of the Option or exercised portion thereof; or

(iii) On and after the date the Company becomes a Publicly Listed Company, through the (A) delivery by Participant to the Company of an irrevocable and unconditional undertaking by a broker acceptable to the Company to deliver promptly to the Company sufficient funds to pay the exercise price or (B) delivery by Participant to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company cash or a check sufficient to pay the exercise price; provided that payment is then made to the Company at such time as may be required by the Administrator; or

(iv) With the consent of the Administrator, any other method of payment permitted under the terms of the Plan; or

(v) Subject to any applicable laws, any combination of the consideration allowed under the foregoing paragraphs; and

(c) The receipt by the Company of full payment for any applicable withholding tax in cash or by check or in the form of consideration permitted by the Administrator, which, following the date the Company becomes a Publicly Listed Company shall include the method provided for in Section 5(f)(i) of the Plan; and

(d) In the event the Option or portion thereof shall be exercised pursuant to Section 3.1 by any person or persons other than Participant, appropriate proof of the right of such person or persons to exercise the Option.

ARTICLE IV

OTHER PROVISIONS

4.1 Restrictive Legends and Stop-Transfer Orders.

(a) Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate “stop transfer” instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(b) The Company shall not be required: (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement, or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such shares shall have been so transferred.

4.2 Lock-Up Agreement. The Participant agrees, in connection with the initial underwritten public offering of the Common Stock of the Company pursuant to a registration statement under the Securities Act of 1933, as amended, (i) not to (a) offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any other securities of the Company or (b) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of shares of Common Stock or other securities of the Company, whether any transaction described in clause (a) or (b) is to be settled by delivery of securities, in cash or otherwise, during the period beginning on the date of the filing of such registration statement with the Securities and Exchange Commission and ending 180 days after the date of the final prospectus relating to the offering, and (ii) to execute any agreement reflecting clause (i) above as may be requested by the Company or the managing underwriters at the time of such offering. The Company may impose stop-transfer instructions with respect to the shares of Common Stock or other securities subject to the foregoing restriction until the end of the "lock-up" period.

4.3 Notices. Any notice to be given under the terms of this Agreement to the Company shall be addressed to the Company at its principal executive offices in care of the Secretary of the Company, and any notice to be given to Participant shall be addressed to Participant at the most recent address for Participant shown in the Company's records. By a notice given pursuant to this Section 4.3, either party may hereafter designate a different address for notices to be given to that party. Any notice which is required to be given to Participant shall, if Participant is then deceased, be given to the person entitled to exercise his or her Option by written notice under this Section 4.3. Any notice shall be deemed duly given when sent via email or when sent by certified mail (return receipt requested) and deposited (with postage prepaid) in a post office or branch post office regularly maintained by the United States Postal Service.

4.4 Titles. Titles are provided herein for convenience only and are not to serve as a basis for interpretation or construction of this Agreement.

4.5 Governing Law; Severability. This Agreement and the Exercise Notice shall be administered, interpreted and enforced under the laws of the State of Delaware, without regard to the conflicts of law principles thereof. Should any provision of this Agreement be determined by a court of law to be illegal or unenforceable, the other provisions shall nevertheless remain effective and shall remain enforceable.

4.6 Conformity to Securities Laws. Participant acknowledges that the Plan is intended to conform to the extent necessary with all provisions of the Securities Act and the Exchange Act and any and all regulations and rules promulgated by the Securities and Exchange Commission thereunder, and state securities laws and regulations. Notwithstanding anything herein to the contrary, the Plan shall be administered, and the Option is granted and may be exercised, only in such a manner as to conform to such laws, rules and regulations. To the extent permitted by applicable law, the Plan and this Agreement shall be deemed amended to the extent necessary to conform to such laws, rules and regulations.

4.7 Successors and Assigns. The Company may assign any of its rights under this Agreement and the Exercise Notice to single or multiple assignees, and this Agreement shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth, this Agreement shall be binding upon Participant and his or her heirs, executors, administrators, successors and assigns.

4.8 Entire Agreement. The Plan and this Agreement (including all Exhibits hereto) constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

EXHIBIT B

TO STOCK OPTION GRANT NOTICE

FORM OF EXERCISE NOTICE

Effective as of today,_____, 20____ ,_____ , the undersigned *("**Participant**")* hereby elects to exercise Participant's option to purchase Shares of Atea Pharmaceuticals, Inc. (the "***Company***") under and pursuant to the Atea Pharmaceuticals, Inc. 2013 Equity Incentive Plan (the "***Plan***") and the Stock Option Grant Notice and Stock Option Agreement dated_____, 20__ (the "***Option Agreement***"). Capitalized terms used herein without definition shall have the meanings given in the Option Agreement.

Grant Date:	_____
Number of Shares as to which Option is Exercised:	_____
Exercise Price per Share:	$_____
Total Exercise Price:	$_____
Certificate to be issued in name of:	_____
Cash Payment delivered herewith:	$_____ (Representing the full Exercise Price for the Shares, as well as any applicable withholding tax)

Type of Option: ☐ Incentive Stock Option ☐ Non-Qualified Stock Option

1. Representations of Participant. Participant acknowledges that Participant has received, read and understood the Plan and the Option Agreement. Participant agrees to abide by and be bound by their terms and conditions.

2. Tax Consultation. Participant understands that Participant may suffer adverse tax consequences as a result of Participant's purchase or disposition of the Shares. Participant represents that Participant has consulted with any tax consultants Participant deems advisable in connection with the purchase or disposition of the Shares and that Participant is not relying on the Company for any tax advice. Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. Participant understands that Participant (and not the Company) shall be responsible for Participant's tax liability that may arise as a result of this investment or the transactions contemplated by this Agreement.

3. Restrictive Legends and Stop-Transfer Orders.

(a) Legends. Participant understands and agrees that the Company shall cause any certificates issued evidencing the Shares to have the legends set forth below or legends substantially equivalent thereto, together with any other legends that may be required by state or federal securities laws:

> THE SHARES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED ("ACT"), NOR HAVE THEY BEEN REGISTERED OR QUALIFIED UNDER THE SECURITIES LAWS OF ANY STATE.

NO TRANSFER OF SUCH SECURITIES WILL BE PERMITTED UNLESS A REGISTRATION STATEMENT UNDER THE ACT IS IN EFFECT AS TO SUCH TRANSFER, THE TRANSFER IS MADE IN ACCORDANCE WITH RULE 144 UNDER THE ACT, OR IN THE OPINION OF COUNSEL (WHICH MAY BE COUNSEL FOR THE COMPANY) REGISTRATION UNDER THE ACT IS UNNECESSARY IN ORDER FOR SUCH TRANSFER TO COMPLY WITH THE ACT AND WITH APPLICABLE STATE SECURITIES LAWS.

THE SHARES REPRESENTED BY THIS CERTIFICATE MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY. SUCH TRANSFER RESTRICTIONS ARE BINDING ON TRANSFEREES OF THESE SHARES.

(b) Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

4. Notices. Any notice required or permitted hereunder shall be given in accordance with the provisions set forth in Section 4.3 of the Option Agreement.

5. Further Instruments. Participant hereby agrees to execute such further instruments and to take such further action as the Company determines are reasonably necessary to carry out the purposes and intent of this Agreement.

6. Entire Agreement. The Plan and Option Agreement are incorporated herein by reference. This Agreement, the Plan and the Option Agreement constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

ACCEPTED BY:
ATEA PHARMACEUTICALS, INC.:

By: _____
Print Name: _____
Title: _____

SUBMITTED BY
PARTICIPANT:

By: _____
Print Name: _____

Address: _____
_____

2013 EQUITY INCENTIVE PLAN OF
ATEA PHARMACEUTICALS, INC.

RESTRICTED STOCK AGREEMENT

GRANT NOTICE

The participant set forth below (the ***"Participant")*** has been granted Restricted Stock, subject to the terms and conditions of the Atea Pharmaceuticals, Inc. 2013 Equity Incentive Plan, as amended from time to time (the ***"Plan")*** and this Restricted Stock Agreement, which includes the terms in this Grant Notice (the "***Grant Notice")*** and Appendix A attached hereto (collectively, this ***"Agreement").*** Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Agreement.

Participant:	_____
Grant Date:	_____
Vesting Commencement Date:	_____
Total Number of Shares of Restricted Stock:	_____
Type of Restricted Stock	Common Stock
Vesting Schedule:	[The Restricted Stock shall vest as to [__]% of the total number of Shares (rounded down to the next whole number of Shares) on the [__] anniversary of the Vesting Commencement Date and as to [__]% of the total number of Shares (rounded down to the next whole number of Shares) on the final day of each [one-month] period thereafter, so that all of the Shares shall be fully vested on the [__] anniversary of the Vesting Commencement Date.]

Both the Company and the Participant acknowledge and agree that this Agreement and the Plan constitute the entire agreement between the Company and the Participant regarding the terms and conditions of the Restricted Stock awarded hereunder, and that the foregoing supersede all prior communications, agreements, and understandings, written or oral, with respect to the terms and conditions of such Restricted Stock. **ACCORDINGLY, PLEASE BE SURE TO READ ALL OF THIS AGREEMENT (INCLUDING THE GRANT NOTICE AND APPENDIX A) AND THE PLAN.**

ATEA PHARMACEUTICALS, INC.:	**PARTICIPANT:**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	

APPENDIX A

TO THE RESTRICTED STOCK AGREEMENT

Pursuant to this Agreement, the Company has awarded to the Participant the number of shares of Restricted Stock under the Plan set forth in the Grant Notice.

ARTICLE I.

GENERAL

1.1 Definitions. All capitalized terms used in this Agreement without definition shall have the meanings ascribed in the Plan and the Grant Notice.

1.1 Incorporation of Terms. The Restricted Stock is subject to the terms and conditions of the Plan, which are incorporated herein by reference. In the event of any inconsistency between the Plan and this Agreement, the terms of the Plan shall control.

ARTICLE II.

AWARD OF RESTRICTED STOCK

2.1 Award of Restricted Stock.

(a) Award. As of the Grant Date, the Company issued to the Participant the number of shares of Restricted Stock set forth in the Grant Notice in consideration of the Participant's agreement to remain in the service or employ of the Company or one of its subsidiaries, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged. Such shares of Restricted Stock and any dividends and distributions made or declared with respect to such shares, in each case, whether vested or unvested shall sometimes be referred to herein as ***"Shares."***

(b) Book Entry Form; Certificates. At the sole discretion of the Administrator, the Shares will be issued in either (i) uncertificated form, with the Shares recorded in the name of the Participant in the books and records of the Company's transfer agent with appropriate notations regarding the Restrictions; or (ii) certificate form subject to the terms of Section 2.1(c). For purposes of this Agreement, ***"Restrictions"*** shall mean the forfeiture provision in Section 2.2 and the other restrictions set forth in this Agreement or the Plan.

(c) Legend. Shares issued pursuant to this Agreement shall bear such legend or legends as shall be determined by the Administrator.

(d) Escrow. The Secretary of the Company or such other escrow holder as the Company may appoint may retain physical custody of any certificates representing the Shares until all of the Restrictions lapse or shall have been removed.

2.2 Restrictions.

(a) Forfeiture. The Restricted Stock shall vest in accordance with the vesting schedule set forth on the Grant Notice. Except as otherwise determined by the Administrator, any portion of the Restricted Stock which is not vested pursuant to the Grant Notice as of the date the Participant incurs a Termination of Service shall automatically be forfeited by the Participant on the date of such Termination of Service without any additional consideration therefor and without any further action by the Company.

(b) Tax Withholding; Conditions to Issuance of Certificates. Notwithstanding any other provision of this Agreement:

(i) The Participant is ultimately liable and responsible for all taxes owed in connection with the Restricted Stock, regardless of any action the Company or any of its subsidiaries takes with respect to any tax withholding obligations that arise in connection with the Restricted Stock. Neither the Company nor any of its subsidiaries makes any representation or undertaking regarding the treatment of any tax withholding in connection with the awarding or vesting of the Restricted Stock or the subsequent sale of shares. The Company and its subsidiaries do not commit and are under no obligation to structure the Restricted Stock to reduce or eliminate the Participant's tax liability.

(ii) Prior to any tax withholding becoming due, the Participant must make arrangements acceptable to the Administrator to satisfy such withholding and must satisfy such tax withholdings when due. To the extent permitted by the Administrator, the Company (or the employing subsidiary) will withhold a portion of the shares of Restricted Stock that have an aggregate Fair Market Value sufficient to pay the minimum federal, state and local income, employment and any other applicable taxes required to withheld by the Company or the employing subsidiary with respect to the shares. Notwithstanding any contrary provision of this Agreement, no vested Shares will be released from the Company unless and until satisfactory arrangements (as determined by the Administrator) will have been made by the Participant with respect to the payment of any income and other taxes which the Company determines must be withheld or collected as of the vesting date with respect to such Shares. In addition and to the maximum extent permitted by Applicable Law, and to the extent other satisfactory arrangements are not made by the Participant, the Company (or the employing subsidiary) has the right to retain from salary or other amounts payable to the Participant, cash having a value sufficient to satisfy any tax withholding obligations that cannot be satisfied by the withholding of otherwise deliverable Shares and any other arrangements made by the Participant.

2.3 Rights as Stockholder. Except as otherwise provided herein, upon the Grant Date, the Participant shall have all the rights of a stockholder with respect to the Shares, including the right to receive any cash or stock dividends or other distributions paid to or made with respect to the Shares, subject to the Restrictions herein.

2.4 Retained Distributions. The Company will retain custody of all cash dividends and other distributions ***("Retained Distributions'')*** made or declared with respect to the Restricted Stock (and such Retained Distributions will be subject to the Restrictions and the other terms and conditions under this Agreement that are applicable to the Restricted Stock) until such time, if ever, as the Restricted Stock with respect to which such Retained Distributions shall have been made, paid or declared shall have become vested pursuant to the Grant Notice or, if earlier, tax withholding is otherwise due with respect to such Restricted Stock.

ARTICLE III.

OTHER PROVISIONS

3.1 Section 83(b) Election. The Participant understands that Section 83(a) of the Code taxes as ordinary income the difference between the amount, if any, paid for the Shares and the Fair Market Value of such Shares at the time the forfeiture provision on such Shares lapse or such Shares become transferable. The Participant understands that, notwithstanding the preceding sentence, the Participant

may elect to be taxed at the time of the Grant Date, rather that at the time the forfeiture provision or transferability restriction lapses, by filing an election under Section 83(b) of the Code (an ***"83(b) Election"***) with the Internal Revenue Service within 30 days after the Grant Date. In the event the Participant files an 83(b) Election, the Participant will recognize ordinary income in an amount equal to the difference between the amount, if any, paid for the Shares and the Fair Market Value of such Shares as of the Grant Date. The Participant further understands that an additional copy of such 83(b) Election form should be filed with his or her federal income tax return for the calendar year in which the Grant Date falls. The Participant acknowledges that the foregoing is only a summary of the effect of United States federal income taxation with respect to the Shares awarded hereunder, and does not purport to be complete. THE PARTICIPANT FURTHER ACKNOWLEDGES THAT THE COMPANY IS NOT RESPONSIBLE FOR FILING THE PARTICIPANT'S 83(b) ELECTION, AND THE COMPANY HAS DIRECTED THE PARTICIPANT TO SEEK INDEPENDENT ADVICE REGARDING THE APPLICABLE PROVISIONS OF THE INTERNAL REVENUE CODE, THE INCOME TAX LAWS OF ANY MUNICIPALITY, STATE OR FOREIGN COUNTRY IN WHICH PARTICIPANT MAY RESIDE, AND THE TAX CONSEQUENCES OF THIS AWARD AND THE PARTICIPANT'S PARTICIPATION IN THE PLAN. A sample 83(b) Election is attached hereto as Exhibit A.

3.2 Lock-Up Agreement. The Participant agrees, in connection with the initial underwritten public offering of the Common Stock of the Company pursuant to a registration statement under the Securities Act of 1933, as amended, (i) not to (a) offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any other securities of the Company or (b) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of shares of Common Stock or other securities of the Company, whether any transaction described in clause (a) or (b) is to be settled by delivery of securities, in cash or otherwise, during the period beginning on the date of the filing of such registration statement with the Securities and Exchange Commission and ending 180 days after the date of the final prospectus relating to the offering, and (ii) to execute any agreement reflecting clause (i) above as may be requested by the Company or the managing underwriters at the time of such offering. The Company may impose stop-transfer instructions with respect to the shares of Common Stock or other securities subject to the foregoing restriction until the end of the "lock-up" period.

3.3 Governing Law; Severability. This Agreement shall be administered, interpreted and enforced under the laws of the State of Delaware, without regard to the conflicts of law principles thereof. Should any provision of this Agreement be determined by a court of law to be illegal or unenforceable, the other provisions shall nevertheless remain effective and shall remain enforceable.

3.4 Notices. Any notice to be given under the terms of this Agreement to the Company shall be addressed to the Company at its principal executive offices in care of the Secretary of the Company, and any notice to be given to the Participant shall be addressed to the Participant at the most recent address for the Participant shown in the Company's records. By a notice given pursuant to this Section 3.4, either party may hereafter designate a different address for notices to be given to that party. Any notice shall be deemed duly given when sent via email or when sent by certified mail (return receipt requested) and deposited (with postage prepaid) in a post office or branch post office regularly maintained by the United States Postal Service.

3.5 Successors and Assigns. The Company may assign any of its rights under this Agreement to single or multiple assignees, and this Agreement shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth, this Agreement shall be binding upon the Participant and his heirs, executors, administrators, successors and assigns.

EXHIBIT A

ELECTION UNDER SECTION 83(b)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended, to include in taxpayer's gross income for the current taxable year the amount of any compensation taxable to taxpayer in connection with taxpayer's receipt of the property described below

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

   NAME: SPOUSE:

   ADDRESS:

   SOCIAL SECURITY NO.: SPOUSE:

   TAXABLE YEAR: 20 [__]

2. The property with respect to which the election is made is described as follows: _____ shares (the "Shares") of the common stock of Atea Pharmaceuticals, Inc. (the "Company").

3. The date on which the property was transferred is: _____ , 20 [__].

4. The property is subject to the following restrictions:

   The Shares may not be transferred and are subject to forfeiture under the terms of an agreement between the taxpayer and the Company. These restrictions lapse upon the satisfaction of certain conditions contained in such agreement.

5. The fair market value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms will never lapse, of such property is: $_____ (or $_____ per share).

6. The amount (if any) paid for such property is: $_____ (or $_____ per share).

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____, _____

_____
Taxpayer

The undersigned spouse of taxpayer joins in this election.

Dated: _____, _____

_____
Spouse of Taxpayer

125 SUMMER STREET
BOSTON, MASSACHUSETTS

OFFICE LEASE AGREEMENT

BETWEEN

OPG 125 SUMMER OWNER (DE) LLC,
a Delaware limited liability company,
AS LANDLORD

AND

ATEA PHARMACEUTICALS, INC.,
a Delaware corporation,
AS TENANT

OFFICE LEASE AGREEMENT

This Office Lease Agreement (this "Lease") is made and entered into as of November 18, 2016 (the "Effective Date"), by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company ("Landlord"), and ATEA PHARMACEUTICALS, INC., a Delaware corporation ("Tenant").

1. Basic Lease Information.

1.1 "Building" shall mean the building located at 125 Summer Street, Boston, Massachusetts 02110 and commonly known as 125 Summer Street. The "Rentable Floor Area of the Building" is deemed to be 475,482 square feet.

1.2 "Premises" shall mean the area shown on **Exhibit A** to this Lease. The Premises are located on the sixteenth (16th) floor of the Building and known as Suite 1675.

1.3 "Rentable Floor Area of the Premises": 5,634 square feet.

1.4 "Term Commencement Date": June 1, 2017.

"BaseRent Commencement Date": August 1, 2017.

1.5 "Term Expiration Date": July 31, 2022.

1.6 "Base Rent":

Period	Annual Base Rent Rate Per Square Foot of Rentable Floor Area	Monthly Base Rent
Lease Year 1:	$ 57.00	$26,761.50
Lease Year 2:	$ 58.00	$27,231.00
Lease Year 3:	$ 59.00	$27,700.50
Lease Year 4:	$ 60.00	$28,170.00
Lease Year 5:	$ 61.00	$28,639.50

As used above, the first "Lease Year" shall commence on the Term Commencement Date and end on the day immediately preceding the first anniversary of the Base Rent Commencement Date (provided, that, if the Base Rent Commencement Date does not occur on the first day of a calendar month, the first Lease Year shall further include the balance of the calendar month within which such first anniversary occurs), and each subsequent Lease Year shall mean each successive period of twelve (12) calendar months following the first Lease Year during the initial Term; provided, that, the last Lease Year of the initial Term shall end on the Term Expiration Date set forth above for the initial Term.

1.7 "Tenant's Proportionate Share": 1.18% for the initial Premises.

1.8 "Base Year" for Expenses (as defined in **Exhibit B**): calendar year 2017.

"Base Year" for Taxes (as defined in **Exhibit B**): Fiscal Year 2017 (i.e., July 1, 2016 to June 30, 2017). For purposes hereof, "Fiscal Year" shall mean the Base Year for Taxes and each period of July 1 to June 30 thereafter.

1.9 "Tenant Work Allowance": $30.00 per square foot of Rentable Floor Area of the Premises, as further described in the attached **Exhibit C**.

1.10 "Delivery Condition" and "Delivery Date": As both terms are defined in **Exhibit C**.

1.11 Additional Provisions: See **Exhibit F**.

1. Parking

1.12 "Letter of Credit" shall mean the letter of credit in the amount of $107,046.00, as provided in Section 6 and **Exhibit G** attached hereto.

1.13 "Broker": Colliers International, which represented Tenant in connection with this Lease.

1.14 "Permitted Use": General, administrative and executive office uses, including ancillary uses thereof, but specifically excluding medical or dental offices, utility company offices, employment agency offices (other than executive or professional staffing firms), governmental or quasi-governmental offices, or a provider of temporary office space or facilities on a contract basis. For purposes hereof, uses ancillary to the Permitted Uses shall include customary coffee stations for use only by the employees and business invitees of Tenant.

1.15 "Notice Address(es)":

For Landlord:

OPG 125 Summer Owner (DE) LLC
c/o Oxford Property Group
125 Summer Street
Boston, MA 02110
Attention: General Manager

With copies of any notices to Landlord sent to:

c/o Oxford Property Group
320 Park Avenue, 17th Floor
New York, NY 10022
Attn: Christopher Lankin, Esq.,
Vice President, Legal

and

Nutter, McClennen & Fish, LLP
Seaport West
155 Seaport Boulevard
Boston, MA 02210
Attn: Timothy M. Smith, Esq.

For Tenant:

Prior to the Term Commencement Date:

ATEA Pharmaceuticals, Inc.
125 Summer Street
Boston, MA 02110
Attn: General Counsel

From and after the Term Commencement Date:

ATEA Pharmaceuticals, Inc.
125 Summer Street
Boston, MA 02110
Attn: General Counsel

1.16 "Business Day(s)" are Monday through Friday of each week, exclusive of New Year's Day, Presidents Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day ("Holidays"). Landlord may designate additional Holidays that are commonly recognized by other office buildings in the area where the Building is located. "Building Service Hours" are 8:00 A.M. to 6:00 P.M. on Business Days and, upon Tenant's request, 9:00 A.M. to 1:00 P.M. on Saturdays.

1.17 "Property" means the Building and the parcel(s) of land on which it is located and, at Landlord's discretion, the parking facilities and other improvements, if any, serving the Building and the parcel(s) of land on which they are located.

1.18 Other Defined Terms: Other capitalized terms shall have the meanings set forth in the Lease and its Exhibits below. References in this Lease to numbered Sections shall be deemed to refer to the numbered Sections of this Lease, unless otherwise specified.

1.19 Exhibits: The following exhibits and attachments are incorporated into and made a part of this Lease:

Exhibit A (Outline and Location of Premises)

Exhibit B (Expenses and Taxes)

Exhibit C (Work Letter)

Exhibit D (Commencement Letter)

Exhibit E (Building Rules and Regulations)

Exhibit F (Additional Provisions)

Exhibit G (Letter of Credit)

2. Lease Grant.

2.1 Premises. Landlord hereby leases the Premises to Tenant and Tenant hereby leases the Premises from Landlord. The Premises exclude the exterior faces of exterior walls, the common stairways and stairwells, elevators and elevator wells, fan rooms, electric and telephone closets, janitor closets, freight elevator vestibules, and pipes, ducts, conduits, wires and appurtenant fixtures serving other parts of the Building (exclusively or in common), and other Common Areas (as defined below) of the Building. If the Premises include the entire rentable area of any floor, the common corridors, elevator lobby, and restroom facilities located on such full floor(s) shall be considered part of the Premises.

2.2 Appurtenant Rights. During the Term, Tenant shall have, as appurtenant to the Premises, the non-exclusive rights to use in common (subject to reasonable rules of general applicability to tenants and other users of the Building from time to time made by Landlord of which Tenant is given notice): (a) the common lobbies, corridors, stairways, elevators and loading platform of the Building, and the pipes, ducts, conduits, wires and appurtenant meters and equipment serving the Premises in common with others; (b) common driveways and walkways necessary for access to the Building; (c) if the Premises include less than the entire rentable floor area of any floor, the common corridors, elevator lobby, and restroom facilities located on such floor; and (d) all other areas or facilities in or about the Building from time to time designated for general use in common by Tenant, other Building tenants, and Landlord (collectively, the "Common Areas").

3. Term and Term Commencement Date.

3.1 Term. The "Term" of this Lease shall begin at 12:01 a.m. on the Term Commencement Date and shall end at 11:59 p.m. on the Term Expiration Date set forth in Section 1, unless sooner terminated in accordance with the provisions of this Lease. Promptly after the Term Commencement Date, Landlord and Tenant shall execute and deliver a commencement letter in the form attached as **Exhibit D** (the "Commencement Letter"). Tenant's failure to execute and return the Commencement Letter, or to provide written objection to the statements contained in the Commencement Letter, within thirty (30) days after its delivery to Tenant shall be deemed an approval by Tenant of the statements contained therein.

3.2 Initial Tenant Work. As used herein, the "Initial Tenant Work" shall mean all Alterations (as defined in Section 8) performed, or to be performed, in or about the Premises that are required initially to put the Premises in condition suitable for Tenant's use and occupancy. The Initial Tenant Work shall be performed in accordance with, and subject to, the provisions of **Exhibit C** attached hereto. Any Initial Tenant Work performed by Tenant (if applicable) shall be subject to the terms, conditions and requirements of Section 8 to the extent so provided in **Exhibit C**. Subject to Landlord's obligation to deliver the Premises to Tenant on the Delivery Date with the Delivery Condition having been satisfied as expressly provided in **Exhibit C**, the Premises shall be leased by Tenant in their current "as is" condition and configuration without any representations or warranties by Landlord.

3.3 Delivery. By taking possession of the Premises, Tenant agrees that the Premises are in good order and satisfactory condition; provided, that, the foregoing shall not limit Landlord's obligations under Section 9.02. Landlord shall not be liable for any delay or failure to deliver possession of the Premises or any other space due to the holdover or unlawful possession of such space by another party or other reason; provided, however, Landlord shall use reasonable efforts to obtain possession of any such space. Without limiting the foregoing, Landlord and Tenant hereby acknowledge and agree that: (a) pursuant to the sublease agreement referenced in the Landlord Consent to Sublease dated as of March 3, 2014, by and among Landlord, as landlord, Portrait International, Inc., an Ohio corporation ("Portrait International"), as sublandlord, and Tenant, as subtenant (the "Sublease"), Tenant is currently subleasing approximately 4,068 square feet of the Premises from Portrait International as more particularly set forth in the Sublease (the "Subleased Space"); and (b) Portrait International is currently leasing the Subleased Space from Landlord pursuant to an Office Lease Agreement dated as of October 29, 2009 (as amended, the "Portrait International Lease"), through June 30, 2017. Landlord hereby represents and warrants to Tenant that, simultaneously with Landlord's execution and delivery of this Lease, Landlord and Portrait International have entered into an agreement to terminate the Portrait International Lease as of May 31, 2017. Any delay in the delivery of the Premises or in the occurrence of the Term Commencement Date shall not give rise to any liability or default by Landlord or affect any of the terms of this Lease or Tenant's obligation to accept the Premises when delivered, except as expressly set forth in Section 3.01 or **Exhibit C**, as the case may be. Notwithstanding the foregoing, except if caused by Force Majeure (as defined in Section 22.06), in the event that the Delivery Date does not occur within sixty (60) days following the Term Commencement Date (the "First Outside Term Commencement Date"), then, commencing on the Rent Commencement Date, Tenant shall be entitled to an abatement of then current Base Rent equal to one (1) day for each day following the First Outside Term Commencement Date that the Term Commencement Date does not occur. Except if caused by Force Majeure, in the event that the Delivery Date does not occur by the one hundred twentieth (120th) day following the Term Commencement Date (the "Second Outside Term Commencement Date"), then Tenant shall have the right to terminate this Lease by written notice to Landlord sent within ten (10) days after the Second Outside Term Commencement Date, whereupon all amounts paid by Tenant to Landlord under this Lease shall be promptly refunded to Tenant and all obligations of the parties hereto shall be null and void and this Lease shall be without recourse to either party hereto, except for those that, by their terms, expressly

survive the termination of this Lease. The foregoing remedies shall be the sole remedies granted to Tenant in the event of a delay in the delivery of the Premises or in the occurrence of the Term Commencement Date. Except as otherwise provided in this Lease and the Sublease, Tenant shall not be permitted to take possession of or enter the Premises before the Term Commencement Date without Landlord's permission and, if Tenant does so, such possession or entry shall be subject to the terms and conditions of this Lease; provided, however, except for the cost of services used or requested by Tenant (e.g., after-hours HVAC service), Tenant shall not be required to pay Rent to Landlord for any such possession or entry before the Term Commencement Date during which Tenant, with Landlord's approval, has entered, or is in possession of, the Premises for the sole purpose of performing the Initial Tenant Work or installing furniture, equipment or other personal property.

4. Rent.

4.1 Base Rent and Additional Rent. Tenant hereby covenants and agrees to pay to Landlord, without any setoff or deduction (except to the extent expressly set forth in this Lease), (a) all Base Rent (as provided in Section 1), (b) Tenant's Proportionate Share of the Expense Excess and the Tax Excess (as provided in **Exhibit B** attached hereto), and (c) all other Additional Rent due for the Term (collectively referred to as "Rent"). "Additional Rent" means all sums (exclusive of Base Rent) that Tenant is required to pay to Landlord from time to time under this Lease.

4.2 Manner and Timing of Payments. Base Rent and other recurring monthly charges of Additional Rent shall be due and payable in advance on the first day of each calendar month without notice or demand. All other items of Rent shall be due and payable by Tenant within thirty (30) days after billing by Landlord. Rent shall be made payable to the entity, and sent to the address, that Landlord from time to time designates for such purposes and shall be paid by Tenant by good and sufficient check payable in United States of America currency or by electronic or wire transfer to an account from time to time designated by Landlord. Landlord's acceptance of less than the entire amount of Rent shall be considered, unless otherwise specified by Landlord, a payment on account of the oldest obligation due from Tenant hereunder, notwithstanding any statement to the contrary contained on or accompanying any such payment from Tenant. Rent for any partial month during the Term shall be prorated on a per diem basis. Tenant shall pay and be liable for all rental, sales and use taxes (but excluding income taxes), if any, imposed upon or measured by Rent. No endorsement or statement on a check or letter accompanying payment shall be considered an accord and satisfaction.

5. Compliance with Laws; Use.

Tenant shall use the Premises only for the Permitted Use and shall not use or permit the use of the Premises for any other purpose. Tenant shall comply with all statutes, codes, ordinances, orders, rules and regulations of any municipal or governmental entity whether in effect now or later, including the Americans with Disabilities Act ("Law(s)"), regarding the operation of Tenant's business and the use, condition, configuration, and occupancy of the Premises and the Building systems located in or exclusively serving the Premises. In addition, Tenant shall, at its sole cost and expense, promptly comply with any Laws that relate to the Base Building (defined below), but only to the extent such obligations are triggered by Tenant's use of the Premises (other than for general office use in accordance with the terms of this Lease) or Alterations (as defined in Section 8.01) in or about the Premises performed or requested by Tenant. "Base Building" shall include the structural portions of the Building, the common restrooms, and the Building mechanical, electrical, and plumbing systems and equipment located in the internal core of the Building on the floor or floors on which the Premises are located. Tenant shall promptly provide Landlord with copies of any notices it receives regarding an alleged violation of Law. Tenant shall not exceed the standard density limit for the Building. Tenant shall not use or permit the use of any portion of the Premises in a manner that results in objectionable noise, odors, or vibrations emanating from the

Premises or any equipment installed by Tenant or any party acting under or through Tenant. Tenant shall comply with the rules and regulations of the Building attached as **Exhibit E** and such other reasonable rules and regulations adopted by Landlord from time to time, including rules and regulations for the performance of Alterations. If the Premises or any portion thereof are located on a multi-tenant floor, Tenant shall cause all portions of such Premises that are visible from the Common Areas on such floors to be arranged, furnished, and lighted in a manner in which such Premises appears at all times to be occupied for the Permitted Use.

6. Security Deposit.

Concurrently with Tenant's execution and delivery of this Lease, Tenant shall deliver to Landlord a clean, irrevocable letter of credit in the amount set forth in Section 1, which shall comply with, and may be drawn by Landlord in accordance with, the provisions of **Exhibit G** attached hereto (such letter of credit, together with any renewal or replacement thereof in accordance herewith, being referred to herein as the "Letter of Credit").

7. Building Services.

7.1 Building Services. Landlord shall furnish Tenant with the following services: (a) water for use in the Base Building restrooms; (b) customary heat and air conditioning in season during Building Service Hours; (c) standard janitorial service on Business Days; (d) elevator service; (e) electricity in accordance with the terms and conditions in Section 7.02; (f) access to the Building for Tenant and its employees 24 hours per day/7 days per week, subject to the terms of this Lease and such protective services or monitoring systems, if any, as Landlord may from time to time impose, including, without limitation, sign-in procedures and/or presentation of identification cards; and (g) such other services as Landlord reasonably determines are necessary or appropriate for the Property. In addition, Tenant shall have the right to receive HVAC service during hours other than Building Service Hours by paying Landlord's then standard charge for additional HVAC service and providing such prior notice as is reasonably specified by Landlord. If Tenant is permitted to connect any supplemental HVAC units to the Building's condenser water loop or chilled water line, such permission shall be conditioned upon Landlord having adequate excess capacity from time to time and such connection and use shall be subject to Landlord's reasonable approval and reasonable restrictions imposed by Landlord, and Landlord shall have the right to charge Tenant a connection fee and/or a monthly usage fee, as reasonably determined by Landlord. If, at Tenant's request, Landlord, or an affiliated or third party service provider, provides any services that are not Landlord's express obligation under this Lease, including, without limitation, any repairs which are Tenant's responsibility pursuant to Section 9 below, Tenant shall pay to the applicable service provider the cost of such services plus a reasonable administrative charge.

7.2 Tenant Electricity. Tenant shall pay to Landlord, as Additional Rent, Tenant's pro rata share of the costs of electricity used on the floor on which the Premises are located, in advance on the first day of each month or partial month of the Term, based on amounts estimated by Landlord from time to time for such electricity charges, subject to periodic reconciliations based on actual electricity usage and utility rates for the space and period in question. Without the consent of Landlord, Tenant's use of electrical service shall not exceed the Building standard usage, per square foot, as reasonably determined by Landlord, based upon the Building standard electrical design load, which is 5 watts per square foot as of the Effective Date. Landlord shall have the right to measure electrical usage by commonly accepted methods, including the installation of measuring devices such as submeters and check-meters, which to the extent not in place prior to the Effective Date shall be installed at Tenant's expense if Landlord reasonably believes that Tenant is utilizing more than its pro rata share of electricity. If it is determined, for any electrical service that is not separately check-metered to Tenant, that Tenant is using electricity in such quantities or during such periods as to cause the total cost of Tenant's electrical usage, on a monthly,

per-rentable-square-foot basis, to materially exceed that which Landlord reasonably deems to be standard for the Building, Tenant shall pay Landlord Additional Rent for the cost of such excess electrical usage and, if applicable, for the cost of purchasing and installing the measuring device(s). Notwithstanding the foregoing, to the extent any electricity service is from time to time metered directly by the utility company to the Premises, then (a) Tenant shall timely pay the separate charges for such electricity service directly to the applicable utility company and, if requested by Landlord from time to time, provide copies of such utility company invoices and evidence of such payments, and (b) such electricity costs shall not be included in the calculation of Additional Rent.

7.3 Interruption of Services. Landlord's failure to furnish, or any interruption, diminishment or termination of services due to the application of Laws, the failure of any equipment, the performance of maintenance, repairs, improvements or alterations, utility interruptions or the occurrence of an event of Force Majeure (defined in Section 22.06) (collectively a "Service Failure") shall not render Landlord liable to Tenant, constitute a constructive eviction of Tenant, give rise to an abatement of Rent, nor relieve Tenant from the obligation to fulfill any covenant or agreement, except as provided in the next sentence. If the Premises, or a material portion of the Premises, are made untenantable for a period in excess of ten (10) consecutive Business Days as a result of a Service Failure that is reasonably within the control of Landlord to correct, then Tenant, as its sole remedy, shall be entitled to receive an abatement of Rent payable hereunder during the period following such ten-(10)-Business-Day period and ending on the day the service has been restored. If the entire Premises has not been rendered untenantable by the Service Failure, the amount of abatement shall be equitably prorated. This Section shall not apply to any Service Failure arising from a casualty event governed by Section 14 below.

7.4 Reservations. Without limiting the generality of the foregoing, Landlord reserves the right from time to time to modify components of the access procedures for the Building or other portions of the Property, to change the number of lobby attendants, or to institute, modify, supplement, or discontinue any particular access control procedures or equipment for the Building, whether during or after business hours. Landlord does not warrant or guarantee the effectiveness of any such system or procedures. Tenant expressly disclaims any such warranty, guarantee, or undertaking by Landlord with respect thereto and acknowledges that access control procedures from time to time in effect are solely for the convenience of tenants generally and are not intended to secure the Premises or to guarantee the physical safety of any persons in or about the Premises or the Property. Tenant shall be responsible for securing the Premises, including without limitation by Tenant's installation of access card readers or other security equipment for the Premises in accordance with **Exhibit C** and/or Section 8 and by restricting or monitoring access into and from the Premises by its employees or other invitees. At the time that any Tenant employee (or other person acting under or through Tenant) who has been issued a Building access card is terminated or otherwise ceases to work at the Premises, Tenant shall retrieve and destroy the Building access card for such person and, in accordance with the Building's standard procedures, notify the Building's property manager that such person should be removed from the active list for Building access cards.

8. Alterations

8.1 Alterations. Tenant shall not make alterations, repairs, additions or improvements or install any Cable (collectively referred to as "Alterations") in the Premises, without first obtaining the written consent of Landlord in each instance, which consent shall not be unreasonably withheld or delayed. "Cable" shall mean and refer to any electronic, fiber, phone and data cabling and related equipment that is installed by or for the exclusive benefit of Tenant or any party acting under or through Tenant. Prior to starting work on any Alterations, Tenant shall furnish Landlord with plans and specifications (which shall be in CAD format if requested by Landlord); names of contractors reasonably acceptable to Landlord (provided that Landlord may designate specific contractors with respect to Base Building and vertical

Cable, as may be described more fully below); required permits and approvals; evidence of contractor's and subcontractor's insurance in amounts reasonably required by Landlord and naming as additional insureds the Landlord, the managing agent for the Building, and such other Additional Insured Parties (as defined in Section 13) as Landlord may designate for such purposes; and any security for performance in amounts reasonably required by Landlord. Landlord may designate specific contractors with respect to oversight, installation, repair, connection to, and removal of vertical Cable. All Cable shall be clearly marked with adhesive plastic labels (or plastic tags attached to such Cable with wire) to show Tenant's name, suite number, and the purpose of such Cable (i) every 6 feet outside the Premises (specifically including, but not limited to, the electrical room risers and any Common Areas), and (ii) at the termination point(s) of such Cable. Changes to the plans and specifications must also be submitted to Landlord for its approval. Alterations shall be constructed in a good and workmanlike manner using materials of a quality reasonably approved by Landlord, and Tenant shall ensure that no Alteration impairs any Building system or Landlord's ability to perform its obligations hereunder. Tenant shall reimburse Landlord for any sums paid by Landlord for third party review of Tenant's plans for Alterations. In addition, Tenant shall reimburse Landlord for any third party expenses incurred by Landlord in connection with the review, inspection and coordination of Tenant's plans for Alterations and Tenant's performance thereof and pay to Landlord or its managing agent a fee for Landlord's administrative oversight and coordination of any Alterations equal to two and one-half percent (2.5%) of the hard costs of such Alterations. Upon completion, Tenant shall furnish "as-built" plans (in CAD format, if requested by Landlord) for Alterations, customary AIA completion affidavits, full and final waivers of lien, any applicable certificate of occupancy for the space affected by such Alterations, and any other items required under the Building's construction rules and regulations for closing out the particular work in question. Landlord's approval of an Alteration shall not be deemed to be a representation by Landlord that the Alteration complies with Law or will not adversely affect any Building system. If any Alteration requires any change to the Base Building, any Building system, or any Common Area, then such changes shall be made at Tenant's sole cost and expense and performed, at Landlord's election, either by Tenant's contractor or a contractor engaged by Landlord. Notwithstanding the foregoing, Landlord's consent shall not be required for any Alteration that satisfies all of the following criteria (a "Cosmetic Alteration"): (a) is of a cosmetic nature such as painting, wallpapering, hanging pictures and installing carpeting; (b) is not visible from the exterior of the Premises or Building; (c) will not affect the Base Building (defined in Section 5); and (d) does not require work to be performed inside the walls or above the ceiling of the Premises. Cosmetic Alterations shall be subject to all the other provisions of this Section 8.03, to the extent applicable thereto.

8.2 Liens. Tenant shall not cause or permit any mechanics' or other liens to be placed upon the Property, the Premises, or Tenant's leasehold interest hereunder in connection with any work or service done or purportedly done by or for the benefit of Tenant, its subtenants, or any other party acting under or through Tenant. Tenant shall give Landlord notice at least fifteen (15) days prior to the commencement of any work in the Premises to afford Landlord the opportunity, where applicable, to post and record notices of non-responsibility. Tenant, within ten (10) days after notice from Landlord, shall fully discharge any such lien by settlement, by bonding or by insuring over the lien in the manner prescribed by the applicable lien Law. If Tenant fails to timely discharge such lien within such period, Tenant shall be deemed in Default under this Lease and, in addition to any other remedies available to Landlord as a result of such Default by Tenant, Landlord, at its option, may bond, insure over or otherwise discharge the lien. Tenant shall reimburse Landlord for any amount paid by Landlord to discharge such lien, including, without limitation, reasonable attorneys' fees. Landlord shall have the right to require Tenant to post a performance or payment bond in connection with any work or service done or purportedly done by or for the benefit of Tenant. Tenant acknowledges and agrees that all such work or service is being performed for the sole benefit of Tenant and not for the benefit of Landlord.

8.3 Leasehold Improvements. All Initial Tenant Work and other leasehold improvements from time to time made in and to the Premises (collectively, "Leasehold Improvements") shall, except as expressly provided in this Lease, remain upon the Premises at the end of the Term without compensation to Tenant. Except as otherwise set forth hereinbelow in connection with any Required Removables Notice (as defined below), Landlord, by written notice to Tenant given at least thirty (30) days prior to the Term Expiration Date, may require Tenant, at Tenant's expense, to remove any Initial Tenant Work or other Leasehold Improvements or other affixed installations that, in Landlord's reasonable judgment, are of a nature that would require removal and repair costs that are materially in excess of the removal and repair costs associated with standard office improvements ("Required Removables"). Required Removables shall include, without limitation, internal stairways, raised floors, private baths and showers, vaults, rolling file systems and structural alterations and modifications. Tenant, at the time it requests approval for a proposed Alteration, including any Initial Tenant Work, may request in writing that Landlord advise Tenant whether the Alteration, including any Initial Tenant Work, or any portion thereof, is a Required Removable. Within ten (10) Business Days after receipt of Tenant's request and true and complete copies of the proposed plans and specifications for such proposed alterations or other improvements (including any Initial Tenant Work), Landlord shall advise Tenant in writing as to which portions of the alteration or other improvements are Required Removables (a "Required Removables Notice"). The Required Removables shall be removed by Tenant before the expiration or earlier termination of this Lease in accordance with Section 20.

9. Repairs and Maintenance.

9.1 Tenant Obligations. Tenant shall periodically inspect the Premises to identify any conditions that are dangerous or in need of maintenance or repair. Tenant shall promptly provide Landlord with notice of any such conditions. Tenant, at its sole cost and expense, shall perform all maintenance and repairs to the Premises that are not Landlord's express responsibility under this Lease, and keep the Premises in good condition and repair, reasonable wear and tear excepted. Tenant's repair and maintenance obligations include, without limitation, repairs to: (a) floor covering; (b) interior partitions; (c) doors; (d) the interior side of demising walls; (e) Alterations (described in Section 8); (f) supplemental air conditioning units, kitchens, including hot water heaters, plumbing, and similar facilities exclusively serving the Premises or any portion thereof, whether such items are installed by Tenant or are currently existing in the Premises; and (g) any Cable. Tenant shall maintain in effect throughout the Term maintenance contracts for any such supplemental air conditioning units or other specialty equipment exclusively serving the Premises and, from time to time upon Landlord's request, provide Landlord with a copy of such maintenance contract and reasonable evidence of its service record. All repairs and other work performed by Tenant or its contractors, including that involving Cable, shall be subject to the terms of Section 8.01 above. If Tenant fails to make any repairs to the Premises for more than fifteen (15) days after notice from Landlord (although notice shall not be required in an emergency), Landlord may make the repairs, and, within thirty (30) days after demand, Tenant shall pay to Landlord the reasonable cost of the repairs, together with an administrative charge in an amount equal to ten percent (10%) of the cost of the repairs.

9.2 Landlord Obligations. Landlord shall keep and maintain in good repair and working order and perform maintenance upon: (a) the structural elements of the Building; (b) the mechanical (including HVAC), electrical, plumbing and fire/life safety systems serving the Building in general (but specifically excluding any supplemental HVAC systems); (c) the Common Areas; (d) the roof of the Building (including the roof membrane); (e) the exterior windows of the Building; and (f) the elevators serving the Building. Subject to reasonable wear and tear, Landlord shall from time to time make repairs for which Landlord is responsible hereunder.

10. Entry by Landlord.

Subject to the terms and provisions of this Section 10, Landlord may enter the Premises to inspect, show or clean the Premises or to perform or facilitate the performance of repairs, alterations or additions to the Premises or any portion of the Building. Except in emergencies or to provide Building services, Landlord shall provide Tenant with reasonable prior verbal notice of such entry at least twenty-four (24) hours prior to such entry. In connection with any such entry for non-emergency work performed during Building Service Hours, Landlord shall use reasonable efforts, consistent with the operation of a first-class high rise building, not to unreasonably interfere with Tenant's use of the Premises. If reasonably necessary, Landlord may temporarily close all or a portion of the Premises to perform repairs, alterations and additions; provided, that, except in emergencies, any such work that would unreasonably prevent the use of a substantial portion of the Premises during Building Service Hours will be performed on weekends or after Building Service Hours. Any such entry by Landlord shall not constitute a constructive eviction or entitle Tenant to an abatement or reduction of Rent; provided Landlord does not materially interfere with Tenant's business or cause damage to any person or property within the Premises.

11. Assignment and Subletting.

11.1 Transfers. Except in connection with a Permitted Transfer (defined in Section 11.04), Tenant shall not assign, sublease, transfer or encumber any interest in this Lease or allow any third party to use all or any portion of the Premises (in each such case, collectively or individually, a "Transfer" to a "Transferee") without the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed. Without limitation, it is agreed that Landlord's consent shall not be considered unreasonably withheld if the proposed Transferee (a) is a governmental entity, (b) is an occupant of the Building, (c) whether or not an occupant of the Building, has been in discussions with Landlord regarding the leasing of space within the Building within the preceding year, (d) is incompatible with the character of occupancy of the Building, (e) is an entity with which the payment for the sublease or assignment is determined in whole or in part based upon its net income or profits, or (f) would subject the Premises to a use which would: (i) involve increased personnel or wear upon the Building; (ii) violate any exclusive right granted to another tenant of the Building; (iii) require any addition to or modification of the Premises or the Building in order to comply with building code or other governmental requirements; or (iv) involve a violation of the Permitted Use clauses of this Lease. If the entity(ies) that directly or indirectly controls the voting shares/rights of Tenant (other than through the ownership of voting securities listed on a recognized securities exchange) changes at any time by more than fifty percent (50%), such change of ownership or control shall constitute a Transfer. Any Transfer in violation of this Section shall, at Landlord's option, be deemed a Default by Tenant as described in Section 16.01, and shall be voidable by Landlord. In no event shall any Transfer, including a Permitted Transfer, release or relieve Tenant from any obligation under this Lease, and the Tenant originally named in this Lease shall remain primarily liable for the performance of the tenant's obligations under this Lease, as amended from time to time.

11.2 Process. Tenant shall provide Landlord with financial statements for the proposed Transferee (or, in the case of a change of ownership or control, for the proposed new controlling entity(ies)), a fully executed copy of the proposed assignment, sublease, or other Transfer documentation, and such other information as Landlord may reasonably request. Within a reasonable period after receipt of the required information and documentation, Landlord shall either: (a) consent to the Transfer by execution of a consent agreement in a form reasonably designated by Landlord; (b) reasonably refuse to consent to the Transfer in writing; or (c) in the event of a proposed assignment of this Lease or subletting of all or part of the Premises, recapture the portion of the Premises that Tenant is proposing to Transfer. If Landlord exercises its right to recapture, this Lease shall automatically be amended (or terminated if the entire Premises is being assigned or sublet) to delete the applicable portion of the Premises effective on the proposed effective date of the Transfer, although Landlord may require Tenant to execute a reasonable amendment or other document reflecting such reduction or termination. Tenant shall pay to Landlord the reasonable costs and attorneys' fees incurred by Landlord in connection with such requested Transfer.

11.3 Excess Payments. In the event, if any, that (i) all rent and other consideration which Tenant receives as a result of a Transfer exceeds (ii) the Rent payable to Landlord for the portion of the Premises and Term covered by the Transfer, then Tenant shall, at Landlord's election, pay to Landlord an amount equal to fifty percent (50%) of such excess, from time to time on a monthly basis upon Tenant's receipt of such excess; provided that in determining any such excess, Tenant may deduct from the excess all reasonable and customary expenses directly incurred by Tenant in connection with such Transfer, except that any construction costs incurred by Tenant in connection with such Transfer shall be deducted on a straight-line basis over the term of the applicable Transfer. If Tenant is in Default, Landlord may require that all sublease payments be made directly to Landlord, in which case Tenant shall receive a credit against Rent in the amount of Tenant's share of payments received by Landlord.

11.4 Permitted Transfers. Tenant may (a) assign this Lease to a successor to Tenant by merger, consolidation, or the purchase of all or substantially all of Tenant's assets, (b) assign this Lease or sublet all or a portion of the Premises to an Affiliate (defined below), or (c) sublet not more than forty- five percent (45%) of the Rentable Floor Area of the Premises to Biothea Pharma, Inc., a Delaware corporation ("Biothea"), in each case, without the consent of Landlord; provided, that, all of the following conditions are satisfied (a "Permitted Transfer"): (i) Tenant must not be in Default; (ii) Tenant must give Landlord written notice at least fifteen (15) Business Days before such Transfer; and (iii) except in the case of a sublease to an Affiliate or Biothea, the Credit Requirement (defined below) must be satisfied. Tenant's notice to Landlord shall include information and documentation evidencing that the Transfer qualifies as a Permitted Transfer hereunder and that each of the above conditions has been satisfied. If requested by Landlord, Tenant's successor shall sign and deliver to Landlord a commercially reasonable form of assumption agreement. "Affiliate" shall mean an entity controlled by, controlling or under common control with Tenant. The "Credit Requirement" shall be deemed satisfied if, as of the date immediately preceding the date of the Permitted Transfer, the financial strength of (A) the entity with which Tenant is to merge or consolidate or to which the Lease is otherwise to be assigned, or (B) the purchaser of all or substantially all of the assets of Tenant, in any such case is not less than that of Tenant, as determined (x) based on credit ratings of such entity and Tenant by both Moody's and Standard & Poor's (or by either such agency alone, if applicable ratings by the other agency do not exist), or (y) if such credit ratings do not exist, then in accordance with certified financial statements for such entity and Tenant covering their last two fiscal years ending before the Transfer. In the event that, at any time after a Permitted Transfer, the Affiliate to which the Permitted Transfer is made ceases to qualify as an Affiliate of the original Tenant, such event shall be deemed a Transfer that is subject to the provisions of Sections 11.01, 11.02, and 11.03 above.

11.5 Prohibited Matters. Except as otherwise expressly set forth hereinbelow, and without limiting Landlord's right to withhold its consent to any transfer by Tenant and regardless of whether Landlord shall have consented to any such transfer, neither Tenant nor any other person having an interest in the possession, use or occupancy of the Premises or any part thereof shall enter into any lease, sublease, license, concession, assignment or other transfer or agreement for possession, use or occupancy of all or any portion of the Premises which provides for rent or other payment for such use, occupancy or utilization based, in whole or in part, on the net income or profits derived by any person or entity from the space so leased, used or occupied, and any such purported lease, sublease, license, concession, assignment or other transfer or agreement shall be absolutely void and ineffective as a conveyance of any right or interest in the possession, use or occupancy of all or any part of the Premises.

12. Notices.

All demands, approvals, consents or notices (collectively referred to as a "notice") shall be in writing and delivered by hand or sent by registered, express, or certified mail, with return receipt requested or with delivery confirmation requested from the U.S. postal service, or sent by overnight or same day courier service at the party's respective Notice Address(es) set forth in Section 1; provided, however, notices sent by Landlord regarding general Building operational matters may be posted in the Building mailroom or the general Building newsletter or sent via e-mail to the e-mail address provided by Tenant to Landlord for such purpose. In addition, if the Building is closed (whether due to emergency, governmental order or any other reason), then any notice address at the Building shall not be deemed a required notice address during such closure, and, unless Tenant has provided an alternative valid notice address to Landlord for use during such closure, any notices sent during such closure may be sent via e-mail or in any other practical manner reasonably designed to ensure receipt by the intended recipient. Each notice shall be deemed to have been received on the earlier to occur of actual delivery or the date on which delivery is refused, or, if Tenant has vacated the Premises or any other Notice Address of Tenant without providing a new Notice Address, three (3) Business Days after notice is deposited in the U.S. mail or with a courier service in the manner described above. Either party may, at any time, change its Notice Address (other than to a post office box address) by giving the other party written notice of the new address.

13. Indemnity and Insurance.

13.1 Indemnification. Except to the extent caused by the negligence or willful misconduct of Landlord or any Landlord Related Parties (defined below), and to the maximum extent permitted under applicable law, Tenant shall indemnify, defend and hold Landlord and Landlord Related Parties harmless against and from all liabilities, obligations, damages, penalties, claims, actions, costs, charges and expenses, including, without limitation, reasonable attorneys' fees and other professional fees (collectively referred to as "Losses"), which may be imposed upon, incurred by or asserted against Landlord or any of the Landlord Related Parties by any third party and arising out of or in connection with any damage or injury occurring in the Premises or any acts or omissions (including violations of Law) of Tenant, its trustees, managers, members, principals, beneficiaries, partners, officers, directors, employees and agents (the "Tenant Related Parties") or any of Tenant's transferees, contractors or licensees. To the maximum extent permitted under applicable law, Tenant hereby waives all claims against and releases Landlord and its trustees, managers, members, principals, beneficiaries, partners, officers, directors, employees, Mortgagees (defined in Section 21) and agents (the "Landlord Related Parties") from all claims for any injury to or death of persons, damage to property or business loss in any manner related to (a) Force Majeure, (b) acts of third parties, (c) the bursting or leaking of any tank, water closet, drain or other pipe, or (d) the inadequacy or failure of any security or protective services, personnel or equipment.

13.2 Tenant's Insurance. Tenant shall maintain the following coverages in the following amounts throughout the Term (and during any other periods before or after the Term during which Tenant or any Tenant Related Party enters into or occupies all or any portion of the Premises):

(a) Commercial General Liability Insurance covering claims of bodily injury, personal injury and property damage arising out of Tenant's operations and contractual liabilities, including coverage formerly known as broad form, on an occurrence basis, with minimum primary limits of $1,000,000 each occurrence and $2,000,000 annual aggregate and a minimum excess/umbrella limit of $5,000,000.

(b) Property insurance covering (i) Tenant's Property (as defined below), and (ii) any Leasehold Improvements in the Premises, whether installed by or for the benefit of Tenant under this Lease or any prior lease or other agreement to which Tenant was a party or otherwise ("Tenant-Insured Improvements"). Such insurance shall be written on a special cause of loss

form for physical loss or damage, for the full replacement cost value (subject to reasonable deductible amounts) without deduction for depreciation of the covered items and in amounts that meet any co-insurance clauses of the policies of insurance, and shall include coverage for damage or other loss caused by fire or other peril, including vandalism and malicious mischief, theft, water damage of any type, including sprinkler leakage, bursting or stoppage of pipes, and explosion, and providing business interruption coverage for a period of one year.

(c) Worker's Compensation and Employer's Liability or other similar insurance to the extent required by Law.

The minimum limits of insurance required to be carried by Tenant shall not limit Tenant's liability. Such insurance shall (i) be issued by an insurance company that has an A.M. Best rating of not less than A-VIII; (ii) be in form and content reasonably acceptable to Landlord; and (iii) provide that it shall not be canceled or materially changed without thirty (30) days' prior notice to Landlord, except that ten (10) days' prior notice may be given in the case of nonpayment of premiums. Tenant's Commercial General Liability Insurance shall (a) name Landlord, Landlord's managing agent, and any other party designated by Landlord ("Additional Insured Parties") as additional insureds; and (b) be primary insurance as to all claims thereunder and provide that any insurance carried by Landlord is excess and non-contributing with Tenant's insurance. Landlord shall be designated as a loss payee with respect to Tenant's property insurance on any Tenant-Insured Improvements. Tenant shall deliver to Landlord, on or before the Term Commencement Date and at least fifteen (15) days before the expiration dates thereof, certificates from Tenant's insurance company on the forms currently designated "ACORD 28" (Evidence of Commercial Property Insurance) and "ACORD 25-S" (Certificate of Liability Insurance) or the equivalent. Attached to the ACORD 25-S (or equivalent) there shall be an endorsement naming the Additional Insured Parties as additional insureds which shall be binding on Tenant's insurance company and shall expressly require the insurance company to notify each Additional Insured Party in writing at least thirty (30) days before any termination or material change to the policies, except that ten (10) days' prior notice may be given in the case of nonpayment of premiums. Notwithstanding the foregoing, if the foregoing requirement that the insurance company provide prior notice to Landlord of cancellation or material change of the applicable policy cannot reasonably be obtained based on then-prevailing insurance industry practices, Tenant shall so advise Landlord of such unavailability and shall instead provide Landlord with notice of any such cancellation or material change as provided above. Upon Landlord's request, Tenant shall deliver to Landlord, in lieu of such certificates, copies of the policies of insurance required to be carried under Section 13.02 showing that the Additional Insured Parties are named as additional insureds.

Tenant shall maintain such increased amounts of the insurance required to be carried by Tenant under this Section 13.02, and such other types and amounts of insurance covering the Premises and Tenant's operations therein, as may be reasonably requested by Landlord, but not in excess of the amounts and types of insurance then being required by landlords of buildings comparable to and in the vicinity of the Building.

13.03. Tenant's Property. All furnishings, fixtures, equipment, and other personal property and effects of Tenant and of all persons claiming through Tenant which from time to time may be on the Premises or elsewhere in the Building or in transit thereto or therefrom (collectively, "Tenant's Property") shall be at the sole risk of Tenant to the maximum extent permitted by law and shall be kept insured by Tenant throughout the Term (and during any other periods before or after the Term during which Tenant or any Tenant Related Party enters into or occupies all or any portion of the Premises) at Tenant's expense in accordance with Section 13.02. Tenant's Property expressly includes all business fixtures and equipment, including without limitation any security or access control systems installed for the Premises, filing cabinets and racks, removable cubicles and partitions, kitchen equipment, computers and related

equipment, raised flooring, supplemental cooling equipment, audiovisual and telecommunications equipment, non-building standard signage, and other tenant equipment installations, in each case including related conduits, cabling, and brackets or mounting components therefor and any connectors to base building systems and in each case whether installed or affixed in or about the Premises, in building core areas, or elsewhere in the Building.

13.04 Waiver of Subrogation. Subject to Section 14, each party waives, and shall cause its insurance carrier to waive, any right of recovery against the other for any loss of or damage to property which loss or damage is (or, if the insurance required hereunder had been carried, would have been) covered by insurance. For purposes of this Section 13.04, any deductible or self-insured retention with respect to a party's insurance shall be deemed covered by, and recoverable by such party under, valid and collectable policies of insurance.

14. Casualty Damage.

14.1 Casualty. If all or any portion of the Premises becomes untenantable or inaccessible by fire or other casualty to the Premises or the Common Areas (collectively a "**Casualty**"), Landlord, with reasonable promptness, shall cause a general contractor selected by Landlord to provide Landlord with a written estimate of the amount of time required, using standard working methods, to substantially complete the repair and restoration of the Premises and any Common Areas necessary to provide access to the Premises ("**Completion Estimate**"). Landlord shall promptly forward a copy of the Completion Estimate to Tenant. If the Completion Estimate indicates that the Premises or any Common Areas necessary to provide access to the Premises cannot be made tenantable within 270 days from the date the repair is started, then either party shall have the right to terminate this Lease upon written notice to the other within 10 days after Tenant's receipt of the Completion Estimate. Tenant, however, shall not have the right to terminate this Lease if the Casualty was caused by the negligence or intentional misconduct of Tenant or any Tenant Related Parties. In addition, Landlord, by notice to Tenant within 90 days after the date of the Casualty, shall have the right to terminate this Lease if: (1) the Premises have been materially damaged and there is less than 2 years of the Term remaining on the date of the Casualty; (2) any Mortgagee requires that the insurance proceeds be applied to the payment of the mortgage debt; or (3) a material uninsured loss to the Building or Premises occurs. Tenant shall have the right to terminate this Lease in the event of a Casualty and less than twelve (12) months of the Term remain after the date of the Casualty.

14.2 Restoration. If this Lease is not terminated, Landlord shall promptly and diligently, subject to reasonable delays for insurance adjustment or other matters beyond Landlord's reasonable control, restore the Premises and Common Areas, subject to the following provisions. Such restoration shall be to substantially the same condition that existed prior to the Casualty, except for modifications required by Law or any other modifications to the Common Areas deemed desirable by Landlord. Notwithstanding Section 13.04, upon notice from Landlord, Tenant shall assign or endorse over to Landlord (or to any party designated by Landlord) all property insurance proceeds payable to Tenant under Tenant's insurance with respect to the Initial Tenant Work and any Leasehold Improvements; provided if the estimated cost to repair such Leasehold Improvements exceeds the amount of insurance proceeds received by Landlord from Tenant's insurance carrier, the excess cost of such repairs shall be paid by Tenant to Landlord prior to Landlord's commencement of repairs. Within fifteen (15) days after demand, Tenant shall also pay Landlord for any additional excess costs that are determined during the performance of the repairs to such Leasehold Improvements. In no event shall Landlord be required to spend more for the restoration of the Premises and Common Areas than the proceeds received by Landlord, whether from Landlord's insurance proceeds or proceeds from Tenant. Landlord shall not be liable for any inconvenience to Tenant, or injury to Tenant's business resulting in any way from the Casualty or the repair thereof. Provided that Tenant is not in Default, during any period of time that all or

a material portion of the Premises is rendered untenantable as a result of a Casualty, the Rent shall abate for the portion of the Premises that is untenantable and not used by Tenant. Notwithstanding the foregoing, Landlord may, at its election, require Tenant to perform the restoration work for the Initial Tenant Work and Leasehold Improvements, in which event Tenant shall be responsible for performing the restoration work (including any revisions thereto that Tenant may wish to make, pursuant to plans approved by Landlord under Section 8), shall retain all insurance proceeds payable to Tenant with respect to the Initial Tenant Work and Leasehold Improvements and the rent abatement period under the preceding sentence shall not exceed the period of time required to diligently perform the restoration of the existing Leasehold Improvements and Initial Tenant Work.

15. Condemnation.

Either party may terminate this Lease if any material part of the Premises is taken or condemned for any public or quasi-public use under Law, by eminent domain or private purchase in lieu thereof (a "Taking"). Landlord shall also have the right to terminate this Lease if there is a Taking of any portion of the Building or Property which would have a material adverse effect on Landlord's ability to profitably operate the remainder of the Building. The terminating party shall provide written notice of termination to the other party within forty five (45) days after it first receives notice of the Taking. The termination shall be effective as of the effective date of any order granting possession to, or vesting legal title in, the condemning authority. If this Lease is not terminated, Base Rent and Tenant's Proportionate Share shall be appropriately adjusted to account for any reduction in the square footage of the Building or Premises. All compensation awarded for a Taking shall be the property of Landlord. The right to receive compensation or proceeds are expressly waived by Tenant, provided, however, Tenant may file a separate claim for Tenant's Property and Tenant's reasonable relocation expenses, provided the filing of the claim does not diminish the amount of Landlord's award. If only a part of the Premises is subject to a Taking and this Lease is not terminated, Landlord, with reasonable diligence, will restore the remaining portion of the Premises as nearly as practicable to the condition immediately prior to the Taking.

16. Events of Default.

16.1 Default. In addition to any other Default specifically described in this Lease, each of the following occurrences shall be a "Default": (a) Tenant's failure to pay any portion of Rent when due, if the failure continues for five (5) days after written notice to Tenant ("Monetary Default"); (b) Tenant's failure (other than a Monetary Default) to comply with any term, provision, condition or covenant of this Lease, if the failure is not cured within thirty (30) days after written notice to Tenant; provided, however, if Tenant's failure to comply cannot reasonably be cured within such thirty (30) day period, Tenant shall be allowed additional time (not to exceed an additional sixty (60) days) as is reasonably necessary to cure the failure so long as Tenant begins the cure within such thirty (30) day period and diligently pursues the cure to completion; (c) Tenant effects or permits a Transfer without Landlord's required approval or otherwise in violation of Section 11 of this Lease; (d) Tenant or any guarantor of Tenant's obligations under this Lease from time to time (a "Guarantor") becomes insolvent, makes a transfer in fraud of creditors, makes an assignment for the benefit of creditors, admits in writing its inability to pay its debts when due or forfeits or loses its right to conduct business; (e) the leasehold estate is taken by process or operation of Law; (f) if a receiver, guardian, conservator, trustee in bankruptcy or similar officer shall be appointed by a court of competent jurisdiction to take charge of all or any part of Tenant's or the Guarantor's property and such appointment is not discharged within ninety (90) days thereafter, or if a petition including, without limitation, a petition for reorganization or arrangement is filed by Tenant or the Guarantor under any bankruptcy law or is filed against Tenant or the Guarantor and, in the case of a filing against Tenant only, the same shall not be dismissed within ninety (90) days from the date upon which it is filed; or (g) Tenant is in default beyond any notice and cure period under any other lease or agreement with Landlord at the Building or Property. In addition, if Landlord provides Tenant with

notice of Tenant's failure to comply with any specific provision of this Lease on two (2) separate occasions during any twelve-(12)-month period, any subsequent violation of such provision within such twelve-(12)-month period shall, at Landlord's option, constitute a Default by Tenant without the requirement of any further notice or cure period as provided above. All notices sent under this Section shall be in satisfaction of, and not in addition to, any notice required by Law.

16.02. Remedies. Upon the occurrence of any Default, Landlord may, immediately or at any time thereafter, elect to terminate this Lease by notice of termination, by entry, or by any other means available under law and may recover possession of the Premises as provided herein. Upon termination by notice, by entry, or by any other means available under law, Landlord shall be entitled immediately, in the case of termination by notice or entry, and otherwise in accordance with the provisions of law to recover possession of the Premises from Tenant and those claiming through or under the Tenant. Such termination of this Lease and repossession of the Premises shall be without prejudice to any remedies which Landlord might otherwise have for arrears of rent or for a prior breach of the provisions of this Lease. Tenant waives any statutory notice to quit and equitable rights in the nature of further cure or redemption, and Tenant agrees that upon Landlord's termination of this Lease Landlord shall be entitled to re-entry and possession in accordance with the terms hereof. Landlord may, without notice, store Tenant's personal property (and those of any person claiming under Tenant) at the expense and risk of Tenant or, if Landlord so elects, Landlord may sell such personal property at public auction or auctions or at private sale or sales after thirty (30) days' notice to Tenant and apply the net proceeds to the earliest of installments of rent or other charges owing Landlord. Tenant agrees that a notice by Landlord alleging any default shall, at Landlord's option (the exercise of such option shall be indicated by the inclusion of the words "notice to quit" in such notice), constitute a statutory notice to quit. If Landlord exercises its option to designate a notice of default hereunder as a statutory notice to quit, any grace periods provided for herein shall run concurrently with any statutory notice periods. Tenant further agrees that it shall not interpose any counterclaim or set-off in any summary proceeding or in any action based in whole or in part on non-payment of Rent, unless Tenant would have no right to commence an independent proceeding to seek to recover on account of such claim.

16.03 Reimbursement of Expenses. In the case of termination of this Lease pursuant to this Section 16, Tenant shall reimburse Landlord for all expenses arising out of such termination, including without limitation, all costs incurred in collecting amounts due from Tenant under this Lease (including attorneys' fees, costs of litigation and the like); all expenses incurred by Landlord in attempting to relet the Premises or parts thereof (including advertisements, brokerage commissions, Tenant's allowances, costs of preparing space, and the like); all of Landlord's then unamortized costs of any work allowances provided to Tenant for the Premises; and all Landlord's other reasonable expenditures necessitated by the termination. The reimbursement from Tenant shall be due and payable immediately from time to time upon notice from Landlord that an expense has been incurred, without regard to whether the expense was incurred before or after the termination.

16.04. Damages. In the event of the termination of this Lease by Landlord, Landlord may elect by written notice to Tenant within six (6) months following such termination to be indemnified for loss of rent by a lump sum payment representing the then present value of the amount of rent and additional charges which would have been paid in accordance with this Lease for the remainder of the Term minus the then present value of the aggregate fair market rent and additional charges payable for the Premises for the remainder of the Term (if less than the rent and additional charges payable hereunder), estimated as of the date of the termination, and taking into account reasonable projections of vacancy and time required to re-lease the Premises. (For the purposes of calculating the rent which would have been paid hereunder for the lump sum payment calculation described herein, the last full year's Additional Rent under Section 4 is to be deemed constant for each year thereafter. The Federal Reserve discount rate (or equivalent) shall be used in calculating present values.) Should the parties be unable to agree on a fair

market rent, the matter shall be submitted, upon the demand of either party, to the Boston, Massachusetts office of the American Arbitration Association, with a request for arbitration in accordance with the rules of the Association by a single arbitrator who shall be an MAI appraiser with at least ten years' experience as an appraiser of major office buildings in downtown Boston. The parties agree that a decision of the arbitrator shall be conclusive and binding upon them. If, at the end of the Term, the rent which Landlord has actually received from the Premises is less than the aggregate fair market rent estimated as aforesaid, Tenant shall thereupon pay Landlord the amount of such difference. If and for so long as Landlord does not make the election provided for in this Section 16.04 above, Tenant shall indemnify Landlord for the loss of rent by a payment at the end of each month which would have been included in the Term, representing the excess of the rent which would have been paid in accordance with this Lease (i.e., Base Rent and Additional Rent that would have been payable to be ascertained monthly) over the rent actually derived from the Premises by Landlord for such month (the amount of rent deemed derived shall be the actual amount less any portion thereof attributable to Landlord's reletting expenses described in Section 16.03 which have not been reimbursed by Tenant thereunder). In the event that Landlord terminates this Lease pursuant to Section 16.02, Landlord shall use commercially reasonable efforts to relet the Premises in an effort to mitigate its damages hereunder, which obligation shall be deemed satisfied if Landlord either engages a commercial leasing broker to market the Premises for Lease or, if Landlord handles the marketing of space for lease in the Building "in house" through its employees, Landlord otherwise markets the Premises for lease through such employees.

In lieu of the damages, indemnity, and full recovery by Landlord of the sums payable under the foregoing provisions of this Section 16.04, Landlord may, by written notice to Tenant within six months after termination under any of the provisions contained in Section 16 and before such full recovery, elect to recover, and Tenant shall thereupon pay, as minimum liquidated damages under this Section 16.04, an amount equal to (i) the aggregate of the Base Rent and Additional Rent for the twelve-month period ending one year after the termination date (or, if lesser, for the balance of the Term had it not been terminated), plus (ii) the amount of Base Rent and Additional Rent of any kind accrued and unpaid at the time of termination, and minus (iii) the amount of any recovery by Landlord under the foregoing provisions of this Section 16 up to the time of payment of such liquidated damages (but reduced by any amounts of reimbursement under Section 16.03). The amount under clause (i) represents a reasonable forecast of the minimum damages expected to occur in the event of a breach, taking into account the uncertainty, time and cost of determining elements relevant to actual damages, such as fair market rent, time and costs that may be required to re-lease the Premises, and other factors. Liquidated damages hereunder shall not be in lieu of any claims for reimbursement under Section 16.03.

Free rent amounts, rent holidays, rent waivers, rent forgivenesses and the like (collectively, "Free Rent Amounts"), if any, have been agreed to by Landlord as inducements for Tenant to enter into and faithfully to perform all of its obligations contained in this Lease. For all purposes under this Lease, upon the occurrence of any event under Section 16.01 and the lapse of any applicable grace or notice period, any Free Rent Amounts set forth in this Lease shall be deemed void as of the date of execution hereof as though such Free Rent Amounts had never been included in this Lease, and calculations of amounts due hereunder, damages and the like shall be determined accordingly. The foregoing shall occur automatically without the requirement of any further notice or action by Landlord not specifically required by Section 16.01, whether or not this Lease is then or thereafter terminated on account of the event in question, and whether or not Tenant thereafter corrects or cures any such event.

Any obligation imposed by law upon Landlord to relet the Premises after any termination of the Lease shall be subject to the reasonable requirements of Landlord to lease to high quality tenants on such terms as Landlord may from time to time deem appropriate and to develop the Building in a harmonious manner with an appropriate mix of uses, tenants, floor areas and terms of tenancies, and the like, and Landlord shall not be obligated to relet the Premises to any party to whom Landlord or its affiliate may desire to lease other available space in the Building.

16.5 Curative Action. If Tenant is in Default of any of its non-monetary obligations under this Lease, Landlord shall have the right, but not the obligation, to perform any such obligation. Tenant shall reimburse Landlord for the cost of such performance upon demand, together with an administrative charge equal to ten percent (10%) of the cost of the work performed by Landlord.

16.6 Claims in Bankruptcy. Nothing herein shall limit or prejudice the right of Landlord to prove and obtain in a proceeding for bankruptcy, insolvency, arrangement or reorganization, by reason of the termination, an amount equal to the maximum allowed by a statute or law in effect at the time when, and governing the proceedings in which, the damages are to be proved, whether or not the amount is greater to, equal to, or less than the amount of the loss or damage which Landlord has suffered.

16.7 Late Charges and Fees. If Tenant does not pay any Rent when due hereunder, then without notice and in addition to all other remedies hereunder, Tenant shall pay to Landlord an administration fee in the amount of four percent (4%) of the unpaid Rent, plus interest on such unpaid amount at the rate of one and one half percent (1.5%) per month from the date such amount was due until the date paid (which interest, as accrued to date, shall be payable from time to time upon Landlord's demand); provided, however, in no event shall such interest exceed the maximum amount permitted to be charged by applicable law. Notwithstanding the foregoing, Tenant shall be entitled to a grace period of five (5) days for the first late payment of Rent in any twelve-(12)-month period prior to the imposition of the foregoing amounts. In addition, Tenant shall pay to Landlord a reasonable fee for any checks returned by Tenant's bank for any reason.

16.08. Enforcement Costs. Tenant shall pay to Landlord, as Additional Rent, the costs and expenses, including reasonable attorneys' fees, incurred in enforcing any obligations of Tenant under this Lease with which Tenant has failed to comply.

16.09 General. The repossession or re-entering of all or any part of the Premises shall not relieve Tenant of its liabilities and obligations under this Lease. No right or remedy of Landlord shall be exclusive of any other right or remedy, and each right and remedy shall be cumulative and in addition to any other right and remedy now or subsequently available to Landlord at law or in equity. Without limiting the generality of the foregoing, in addition to the other remedies provided in this Lease, Landlord shall be entitled to the restraint by court order of the violation or attempted or threatened violation of any of the provisions of this Lease or of applicable Law or to a decree compelling specific performance of any such provisions.

17. Limitation of Liability.

17.1 Landlord's Liability. Tenant agrees from time to time to look only to Landlord's interest in the Building for satisfaction of any claim against Landlord hereunder or under any other instrument related to the Lease (including any separate agreements among the parties and any notices or certificates delivered by Landlord) and not to any other property or assets of Landlord. If Landlord from time to time transfers its interest in the Building (or part thereof which includes the Premises), then from and after each such transfer Tenant shall look solely to the interests in the Building of each of Landlord's transferees for the performance of all of the obligations of Landlord hereunder (or under any related instrument). The obligations of Landlord shall not be binding on any direct or indirect partners (or members, trustees or beneficiaries) of Landlord or of any successor, individually, but only upon Landlord's or such successor's interest described above. If Landlord shall refuse or fail to provide any consent or approval for any matter for which Landlord's consent or approval is required under this Lease or is otherwise requested by Tenant, Landlord shall not be liable for damages as a result thereof, and Tenant's sole remedy to enforce any alleged obligation of Landlord to provide such consent or approval shall be an action for specific performance, injunction, or declaratory relief.

17.2 Assignment of Rents.

(a) With reference to any assignment by Landlord of Landlord's interest in this Lease, or the rents payable hereunder, conditional in nature or otherwise, which assignment is made to the holder of a mortgage on property which includes the Premises, Tenant agrees that the execution thereof by Landlord, and the acceptance thereof by the holder of such mortgage shall never be treated as an assumption by such holder of any of the obligations of Landlord hereunder unless such holder shall, by notice sent to Tenant, specifically otherwise elect and, except as aforesaid, such holder shall be treated as having assumed Landlord's obligations hereunder only upon foreclosure of such holder's mortgage and the taking of possession of the Premises.

(b) In no event shall the acquisition of Landlord's interest in the Property by a purchaser which, simultaneously therewith, leases Landlord's entire interest in the Property back to the seller thereof be treated as an assumption by operation of law or otherwise, of Landlord's obligations hereunder, but Tenant shall look solely to such seller-lessee, and its successors from time to time in title, for performance of Landlord's obligations hereunder. In any such event, this Lease shall be subject and subordinate to the lease to such purchaser. For all purposes, such seller-lessee, and its successors in title, shall be the Landlord hereunder unless and until Landlord's position shall have been assumed by such purchaser-lessor.

(c) Except as provided in paragraph (b) of this Section 17.02, in the event of any transfer of title to the Property by Landlord, Landlord shall thereafter be entirely freed and relieved from the performance and observance of all covenants and obligations hereunder. Tenant hereby agrees to enter into such agreements or instruments as may, from time to time, be requested in confirmation of the foregoing.

17.3 Landlord Default. In the event Tenant alleges that Landlord is in default under any of Landlord's obligations under this Lease, Tenant agrees to give any Mortgagee (as defined in Section 21), by registered mail, a copy of any notice of default which is served upon the Landlord, provided that prior to such notice, Tenant has been notified, in writing (whether by way of notice of an assignment of lease, request to execute an estoppel letter, or otherwise), of the address of any such Mortgagee. Tenant further agrees that if Landlord shall have failed to cure such default within the time provided by law or such additional time as may be provided in this Lease or such notice to Landlord, such Mortgagee shall have a period of thirty (30) days after the last date on which Landlord could have cured such default within which such Mortgagee will be permitted, but not be obligated, to cure such default. If such default cannot be cured within such thirty-(30)-day period, then such Mortgagee shall have such additional time as may be necessary to cure such default, if prior to the end of such thirty-(30)-day period such Mortgagee has commenced and is diligently pursuing such cure or the remedies under the Mortgage necessary for Mortgagee to be able to effect such cure, in which event Tenant shall have no right with respect to such default while such cure and remedies are being diligently pursued by such Mortgagee. Except as may be expressly provided in this Lease, in no event shall Tenant have the right to terminate the Lease nor shall Tenant's obligation to pay Base Rent or other charges under this Lease abate based upon any default by Landlord of its obligations under the Lease. In no event shall Landlord or any Landlord Related Party ever be liable to Tenant for loss of profits, loss of business, or indirect or consequential damages suffered by Tenant from whatever cause.

18. Relocation.

Landlord, at its expense, at any one time before or during the Term, may relocate Tenant from the Premises to space of reasonably comparable size and utility ("Relocation Space") within the Building upon not less than 90 days' prior written notice to Tenant, provided that the Relocation Space shall be located on or above the twelfth (12th) floor of the Building and such relocation shall not occur during the first 24 months of the Term. The Relocation Space must contain similar finishes (subject to commercial availability) and approximately the same rentable square footage as the Premises and the same number of work stations, offices, breakrooms and reception areas as are contained in the Premises as of the date Tenant receives Landlord's notice of relocation. From and after the date of the relocation, the Base Rent and Tenant's Proportionate Share shall be adjusted based on the rentable square footage of the Relocation Space, provided that the total monthly Base Rent for the Relocation Space shall in no event exceed the total monthly Base Rent for the Premises prior to the relocation, and Tenant's Proportionate Share for the Relocation Space shall in no event exceed Tenant's Proportionate Share for the Premises prior to the relocation. Landlord shall pay Tenant's reasonable costs of relocation, including all costs for moving Tenant's furniture, equipment, supplies and other personal property, as well as the cost of replacement of Tenant's signage on the Relocation Space, and the cost of printing and distributing change of address notices to Tenant's customers and one month's supply of stationery showing the new address. Landlord shall also reimburse Tenant for the reasonable cost to install and connect telecommunication and data cabling in the Relocation Space in the manner and to the extent such cabling existed in the Premises prior to the relocation.

19. Holding Over.

If Tenant fails to surrender all or any part of the Premises at the expiration or earlier termination of this Lease, any such occupancy of all or any part of the Premises after such expiration or termination shall be that of a tenancy at sufferance. Any such occupancy after such expiration or termination shall be subject to all the terms and provisions of this Lease, except that Tenant shall pay an amount for such occupancy (on a per month basis without reduction for partial months during the holdover) equal to two times the greater of (i) the Rent due for the month immediately preceding the holdover or (ii) the fair market rent then being obtained for comparable space in the Building. No holdover by Tenant or payment by Tenant after the expiration or earlier termination of this Lease shall be construed to extend the Term or prevent Landlord from immediate recovery of possession of the Premises by summary proceedings or otherwise. In addition, if as a result of such holdover, Landlord is unable to deliver possession of space to a new tenant or to perform improvements therein for a new tenant due to Tenant's failure to timely vacate all or part of the Premises, Tenant shall be liable to Landlord for all damages and losses that Landlord suffers from the holdover.

20. Surrender of Premises.

At the expiration or earlier termination of this Lease or Tenant's right of possession hereunder, Tenant shall remove all Tenant's Property from the Premises, remove all Required Removables (if any) under Section 8.03, and quit and surrender the Premises to Landlord, broom clean, and in good order, condition and repair, ordinary wear and tear and damage which Landlord is obligated to repair hereunder excepted. Tenant shall repair any damage caused by the installation or removal of Tenant's Property or Required Removables. If Tenant fails to remove any of Tenant's Property or to restore or repair the Premises to the required condition as provided herein upon the expiration of the Term of this Lease (or, as applicable, within two (2) days after any earlier termination of this Lease or Tenant's right to possession hereunder), then Landlord, at Tenant's sole cost and expense, shall be entitled, but not obligated, to remove and store Tenant's Property and/or perform such restoration or repair of the Premises. Landlord shall not be responsible for the value, preservation, or safekeeping of Tenant's Property, and Tenant shall pay to Landlord, upon demand, the expenses and storage charges so incurred. If Tenant fails to remove Tenant's Property from the Premises or storage, within thirty (30) days after notice, Landlord may deem all or any part of Tenant's Property to be abandoned and, at Landlord's option, title to Tenant's Property shall vest in Landlord or Landlord may dispose of Tenant's Property in any manner Landlord deems appropriate.

21. Subordination to Mortgages; Estoppel Certificate.

21.1 Subordination. This Lease is and shall be subject and subordinate to any mortgage(s), deed(s) of trust, deeds to secure debt, ground lease(s) or other lien(s) now or subsequently arising upon the Premises, the Building or the Property, and to all renewals, modifications, refinancings, and extensions thereof (collectively referred to as a "Mortgage"). The party having the benefit of a Mortgage shall be referred to as a "Mortgagee". This clause shall be self-operative, but upon request from Landlord or a Mortgagee, Tenant shall execute a subordination, non-disturbance and attornment agreement in favor of the Mortgagee in such Mortgagee's standard form, with such commercially reasonable changes as Tenant may request that are acceptable to Mortgagee for other comparable leases in the Building. As an alternative, any Mortgagee shall have the right at any time to subordinate its Mortgage to this Lease. Upon request, Tenant, without charge, shall attorn to any successor to Landlord's interest in this Lease. In the event Mortgagee enforces it rights under the Mortgage, Tenant, at Mortgagee's option, will attorn to Mortgagee or its successor; provided, however, that, Mortgagee or its successor shall not be liable for or bound by (a) any payment of any Rent installment which may have been made more than thirty (30) days before the due date of such installment, (b) any act or omission of or default by Landlord under this Lease (but Mortgagee, or such successor, shall be subject to the continuing obligations of landlord under the Lease arising from and after such succession, but only to the extent of Mortgagee's, or such successor's, interest in the Property as provided in Section 17), (c) any credits, claims, setoffs or defenses which Tenant may have against Landlord, or (d) any obligation under this Lease to maintain a fitness facility at the Building, if any. Tenant, upon the reasonable request by Mortgagee or such successor in interest, shall execute and deliver an instrument or instruments confirming such attornment.

21.2 Estoppel Certificate. Tenant shall, within ten (10) days after receipt of a written request, execute and deliver a commercially reasonable estoppel certificate addressed to Landlord and any parties reasonably requested by Landlord, such as a current or prospective Mortgagee or purchaser of the Building. Without limitation, such estoppel certificate may include a certification as to the status of this Lease and any particular obligations thereunder, the existence of any defaults, and the amount of Rent that is then due and payable.

21.3 Tenant Information. Upon Landlord's request from time to time, Tenant shall provide to Landlord the financial statements for Tenant and any Guarantor for its most recent fiscal year and fiscal quarter. Financial statements for each fiscal year shall be prepared and certified by a certified public accountant (but in no event earlier than one hundred twenty (120) days after the end of the applicable fiscal year), and financial statements for each quarter shall be prepared and certified by Tenant's or Guarantor's chief financial officer. If requested by Tenant, such financial statements shall be furnished pursuant to a confidentiality agreement in a form reasonably provided by Landlord for such purpose.

22. Miscellaneous.

22.1 Measurement of Floor Area. Landlord and Tenant stipulate and agree that the Rentable Floor Area of the Premises originally leased to Tenant shall be conclusively deemed to be as specified in Section 1 and that the Rentable Floor Area of the Building is as specified in Section 1 as of the date hereof. Any other change in the Rentable Floor Area of the Premises on account of casualty, condemnation, or the like shall be determined in accordance with the measurement standard that was originally used to determine the stipulated Rentable Floor Area for the space in question. Any change in the Rentable Floor Area of the Building on account of casualty, condemnation, or the like shall be determined from time to time by Landlord based on area computations supplied by Landlord's architect, which determinations shall be conclusive. References in this Lease to floor area measurements and square footage shall mean Rentable Floor Area unless the reference explicitly provides otherwise.

22.2 Notice of Lease. Tenant shall not record this Lease or any memorandum or notice without Landlord's prior written consent; provided, however, that Landlord agrees to consent to the recording of a memorandum or notice of this Lease, at Tenant's cost and expense and in a form reasonably satisfactory to Landlord, if the initial term of this Lease together with any extension terms granted hereunder (if any) exceed, in the aggregate, the applicable statutory period for notice of leases in the state in which the Building is located. If this Lease is terminated before the Term expires, upon Landlord's request the parties shall execute, deliver and record an instrument acknowledging such termination date of this Lease, and Tenant appoints Landlord its attorney-in-fact in its name and behalf to execute the instrument if Tenant shall fail to execute and deliver the instrument after Landlord's request therefor within ten (10) days.

22.3 Governing Law, Etc. This Lease shall be interpreted and enforced in accordance with the Laws of the state or commonwealth in which the Building is located and Landlord and Tenant hereby irrevocably consent to the jurisdiction and proper venue of such state or commonwealth. This Lease contains all of the agreements and understandings between Landlord and Tenant with respect to the Premises and supersedes all prior writings and dealings between them with respect thereto, including all lease proposals, letters of intent and other documents. Neither party is relying upon any warranty, statement or representation not contained in this Lease. If any term or provision of this Lease shall to any extent be void or unenforceable, the remainder of this Lease shall not be affected. This Lease may be amended only by a writing signed by all of the parties hereto. The titles are for convenience only and shall not be considered a part of the Lease. Where the phrases "persons acting under Tenant" or "persons claiming under Tenant" or similar phrases are used, such persons shall include subtenants, sub-subtenants, and licensees, and all employees, agents, independent contractors and invitees of Tenant or of such other parties. The enumeration of specific examples of or inclusions in a general provision shall not be construed as a limitation of the general provision. If Tenant is granted any extension option, expansion option, or other right or option, the exercise of such right or option (and notice thereof) must be unconditional to be effective, time always being of the essence to the exercise of such right or option; and if Tenant purports to condition the exercise of any option or to vary its terms in any manner, then the option granted shall be void and the purported exercise shall be ineffective. Unless otherwise stated herein, any consent or approval required hereunder may be given or withheld in the sole absolute discretion of the party whose consent or approval is required. Nothing herein shall be construed as creating the relationship between Landlord and Tenant of principal and agent, or of partners or joint venturers, or any relationship other than landlord and tenant. If there is more than one Tenant or if Tenant is comprised of more than one party or entity, the obligations imposed upon Tenant shall be joint and several obligations of all such parties and entities, any requests or demands from any one person or entity comprising Tenant shall be deemed to have been made by all such persons or entities, and notices to any one person or entity comprising Tenant shall be deemed to have been given to all such persons and entities. Tenant's covenants contained in this Lease are independent and not dependent, and Tenant hereby waives the benefit of any statute or judicial law to the contrary. Tenant's obligation to pay Rent shall not be discharged or otherwise affected by any law or regulation now or hereafter applicable to the Premises, or any other restriction on Tenant's use, or (except as expressly provided in this Lease) any casualty or taking, or any failure by Landlord to perform any covenant contained herein, or any other occurrence; and no termination or abatement remedy that is not expressly provided for in this Lease for any breach or failure by Landlord to perform any obligation under this Lease shall be implied or applicable as a matter of law.

22.4 Representations. Tenant represents and warrants to Landlord, and agrees, that each individual executing this Lease on behalf of Tenant is authorized to do so on behalf of Tenant and that the entity(ies) or individual(s) constituting Tenant or Guarantor or which may own or control Tenant or Guarantor or which may be owned or controlled by Tenant or Guarantor are not and at no time will be (i) in violation of any Laws relating to terrorism or money laundering, or (ii) among the individuals or entities identified on any list compiled pursuant to Executive Order 13224 for the purpose of identifying suspected terrorists or on the most current list published by the U.S. Treasury Department Office of Foreign Assets Control at its official website, http://www.treasury.gov/resource-center/sanctions/SDN- List/Pages/default.aspx or any replacement website or other replacement official publication of such list.

22.5 Waiver of Trial by Jury; No Other Waiver. Landlord and Tenant hereby waive any right to trial by jury in any proceeding based upon a breach of this Lease. No failure by either party to declare a default immediately upon its occurrence, nor any delay by either party in taking action for a default, nor Landlord's acceptance of Rent with knowledge of a default by Tenant, shall constitute a waiver of the default, nor shall it constitute an estoppel. The delivery of keys to Landlord or to Landlord's property manager shall not operate as a termination of this Lease or a surrender of the Premises.

22.6 Time Periods. Whenever a period of time is prescribed for the taking of an action by Landlord or Tenant (other than the payment of the Security Deposit or Rent), the period of time for the performance of such action shall be extended by the number of days that the performance is actually delayed due to strikes, acts of God, shortages of labor or materials, war, terrorist acts, pandemics, civil disturbances and other causes beyond the reasonable control of the performing party ("Force Majeure").

22.7 Transfer of the Property. Landlord shall have the right from time to time to transfer and assign, in whole or in part, all of its rights and obligations under this Lease and in the Building and Property. Upon transfer, Landlord shall be released from any further obligations hereunder and Tenant agrees to look solely to the successor in interest of Landlord for the performance of such obligations, to the extent that any successor pursuant to a voluntary, third party transfer (but not as part of an involuntary transfer resulting from a foreclosure or deed in lieu thereof) shall have assumed Landlord's obligations under this Lease from and after the date of the transfer.

22.8 Submission. The submission of this Lease to Tenant or a summary of some or all of its provisions for examination does not constitute a reservation of or option for the Premises or an offer to lease, and no legal obligations shall arise with respect to the Premises or other matters herein unless and until such time as this Lease is executed and delivered by Landlord and Tenant and approved by the holder of any mortgage on the Building having the right to approve this Lease.

22.9 Brokers. Tenant represents that it has dealt directly with and only with the Broker (described in Section 1) as a broker, agent or finder in connection with this Lease. Tenant shall indemnify and hold Landlord and the Landlord Related Parties harmless from all claims of any other brokers, agents or finders claiming to have represented Tenant in connection with this Lease. Landlord shall indemnify and hold Tenant and the Tenant Related Parties harmless from all claims of any brokers, agents or finders claiming to have represented Landlord in connection with this Lease. Any assistance rendered by any agent or employee of Landlord in connection with this Lease or any subsequent amendment or modification or any other document related hereto has been or will be made as an accommodation to Tenant solely in furtherance of consummating the transaction on behalf of Landlord, and not as agent for Tenant.

22.10 Survival. The expiration of the Term, whether by lapse of time, termination or otherwise, shall not relieve either party of any obligations that accrued prior to or which may continue to accrue after the expiration or termination of this Lease.

22.11 Quiet Enjoyment. This Lease is subject to all easements, restrictions, agreements, and encumbrances of record to the extent in force and applicable. Landlord covenants that Tenant, on paying the Rent and performing the tenant obligations in this Lease, shall peacefully and quietly have, hold and enjoy the Premises, free from any claim by Landlord or persons claiming under Landlord, but subject to all of the terms and provisions hereof, provisions of Law, and rights of record to which this Lease is or may become subordinate. This covenant is in lieu of any other so called quiet enjoyment covenant, either express or implied. This covenant shall be binding upon Landlord and its successors only during its or their respective periods of ownership of the Building.

22.12 Reservations. This Lease does not grant any rights to light or air over or about the Building. Landlord excepts and reserves exclusively to itself any and all rights not specifically granted to Tenant under this Lease. Landlord reserves the right to make changes to the Property, Building and Common Areas as Landlord deems appropriate. Wherever this Lease requires Landlord to provide a customary service or to act in a reasonable manner (whether in incurring an expense, establishing a rule or regulation, providing an approval or consent, or performing any other act), this Lease shall be deemed also to provide that whether such service is customary or such conduct is reasonable shall be determined by reference to the practices of owners of buildings that (i) are comparable to the Building in size, age, class, quality and location, and (ii) at Landlord's option, have been, or are being prepared to be, certified under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system or a similar rating system.

22.13 REIT Provisions. Tenant and Landlord intend that all amounts payable by Tenant to Landlord shall qualify as "rents from real property," and will otherwise not constitute "unrelated business taxable income" or "impermissible tenant services income," all within the meaning of Section 856(d) of the Internal Revenue Code of 1986, as amended (the "Code") and the U.S. Department of Treasury Regulations promulgated thereunder (the "Regulations"). In the event that Landlord determines that there is any risk that any amount payable under this Lease may not qualify as "rents from real property" or will otherwise constitute impermissible tenant services income within the meaning of Section 856(d) of the Code and the Regulations, Tenant agrees to (a) cooperate with Landlord by entering into such amendment or amendments as Landlord deems necessary to qualify all amounts payable under this Lease as "rents from real property," and (b) permit (and, upon request, to acknowledge in writing) an assignment of the obligation to provide certain services under the Lease, and, upon request, to enter into direct agreements with the parties furnishing such services (which shall include, but not be limited to, a taxable REIT subsidiary of Landlord). Notwithstanding the foregoing, Tenant shall not be required to take any action pursuant to the preceding sentence (including acknowledging in writing an assignment of services pursuant thereto) if such action would result in (i) Tenant incurring more than de minimis additional liability under this Lease, or (ii) more than a de minimis negative change in the quality or level of Building operations or services rendered to Tenant under this Lease. For the avoidance of doubt: (A) if Tenant does not acknowledge in writing an assignment as described in clause (b) above (it being agreed that Tenant shall not unreasonably withhold, condition or delay such acknowledgment so long as the criteria in clauses (i) and (ii) hereinabove are satisfied), then Landlord shall not be released from liability under this Lease with respect to the services so assigned; and (B) nothing in this Section 22.13 shall limit or otherwise affect Landlord's ability to assign its entire interest in this Lease to any party as part of a conveyance of Landlord's ownership interest in the Building.

22.14 Execution. This Lease may be executed in one or more counterparts and, when executed by each party, shall constitute an agreement binding on all parties notwithstanding that all parties are not signatories to the original or the same counterpart provided that all parties are furnished a copy or copies thereof reflecting the signature of all parties. Transmission of a facsimile or by email of a pdf copy of the signed counterpart of the Lease shall be deemed the equivalent of the delivery of the original, and any party so delivering a facsimile or pdf copy of the signed counterpart of the Lease by email transmission shall in all events deliver to the other party an original signature promptly upon request.

[Signatures on Following Page]

Landlord and Tenant have executed this Lease as a sealed Massachusetts instrument in two or more counterparts as of the Effective Date of this Lease set forth above.

LANDLORD:

OPG 125 SUMMER OWNER (DE) LLC,
a Delaware limited liability company

By: /s/ Chad Remis
Name: Chad Remis
Title: Vice President

By: /s/ Kristen E. Binck
Name: Kristen E. Binck
Title: Assistant Secretary

TENANT:

ATEA PHARMACEUTICALS, INC.,
a Delaware corporation

By: /s/ Jean-Pierre Sommadossi
Name: Jean-Pierre Sommadossi
Title: President

EXHIBIT A

OUTLINE AND LOCATION OF PREMISES

This Exhibit is attached to and made a part of the Office Lease Agreement (the "Lease") by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company ("Landlord"), and ATEA PHARMACEUTICALS, INC., a Delaware corporation ("Tenant"), for space in the Building located at 125 Summer Street, Boston, Massachusetts 02110.

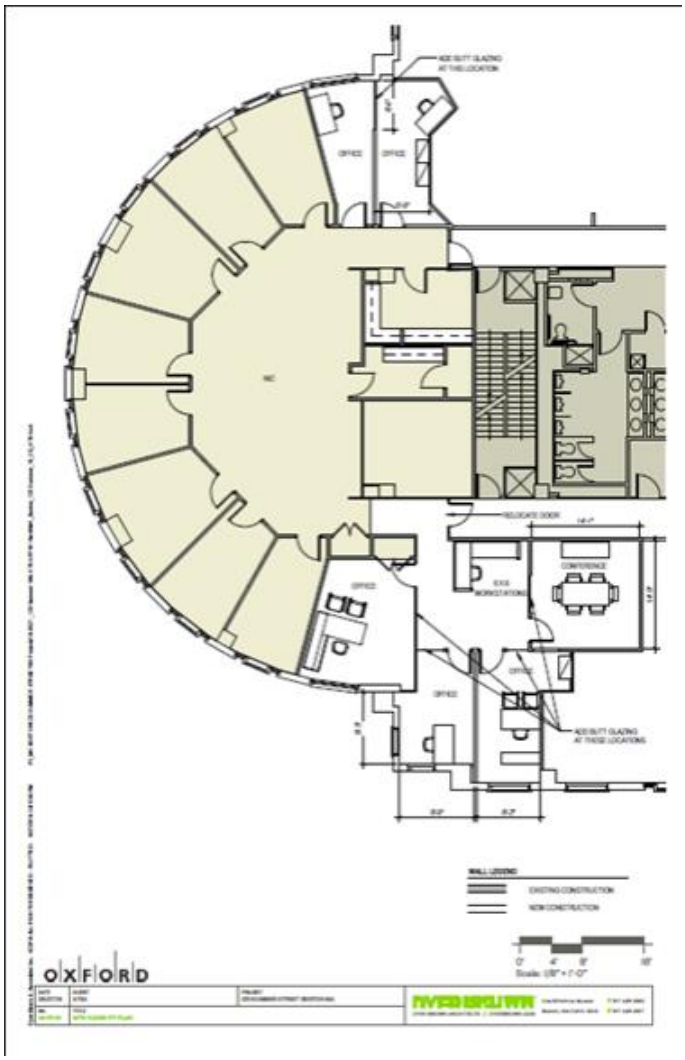

EXHIBIT B

EXPENSES AND TAXES

This Exhibit is attached to and made a part of the Office Lease Agreement (the "Lease") by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company ("Landlord"), and ATEA PHARMACEUTICALS, INC., a Delaware corporation ("Tenant"), for space in the Building located at 125 Summer Street, Boston, Massachusetts 02110. Capitalized terms used but not defined herein shall have the meanings given in the Lease.

1. Payments.

1.1 Expense Excess and Tax Excess. Tenant shall pay Tenant's Proportionate Share of (a) the amount, if any, by which Expenses (defined below) for each calendar year during the Term exceed Expenses for the Base Year (the "Expense Excess") and (b) the amount, if any, by which Taxes (defined below) for each calendar year during the Term exceed Taxes for the Base Year (the "Tax Excess"). If Expenses or Taxes in any calendar year decrease below the amount of Expenses or Taxes for the Base Year, Tenant's Proportionate Share of Expenses or Taxes, as the case may be, for that calendar year shall be $0. Landlord shall provide Tenant with a good faith estimate of the Expense Excess and of the Tax Excess for each calendar year during the Term. On or before the first day of each month, Tenant shall pay to Landlord a monthly installment equal to one-twelfth of Tenant's Proportionate Share of Landlord's estimate of both the Expense Excess and Tax Excess. If Landlord determines that its good faith estimate of the Expense Excess or of the Tax Excess was incorrect by a material amount, Landlord may from time to time provide Tenant with a revised estimate. After its receipt of the revised estimate, Tenant's monthly payments shall be based upon the revised estimate. If Landlord does not provide Tenant with an estimate of the Expense Excess or the Tax Excess by January 1 of a calendar year, Tenant shall continue to pay monthly installments based on the previous year's estimate(s) until Landlord provides Tenant with the new estimate. Upon delivery of the new estimate, an adjustment shall be made for any month for which Tenant paid monthly installments based on the previous year's estimate. Tenant shall pay Landlord the amount of any underpayment within thirty (30) days after receipt of the new estimate. Any overpayment shall be refunded to Tenant within thirty (30) days or credited against the next due future installment(s) of Additional Rent. Appropriate adjustments (including adjustments in the amounts of Expenses and Taxes for the Base Year, which are calculated on an annual basis as set forth above) shall be made for any portion of a year at the beginning or end of the Term or for any year during which changes occur in the percentage of occupancy of the Building or in the Rentable Floor Area to which Landlord furnishes particular services.

1.2 Reconciliation. As soon as is practical following the end of each calendar year, Landlord shall furnish Tenant with a statement of the actual Expenses and Expense Excess and the actual Taxes and Tax Excess for the prior calendar year. If the estimated Expense Excess or the estimated Tax Excess for the prior calendar year is more than the actual Expense Excess or actual Tax Excess, as the case may be, for the prior calendar year, Landlord shall either provide Tenant with a refund or apply any overpayment by Tenant against Additional Rent due or next becoming due, provided that, if the Term expires before the determination of the overpayment, Landlord shall refund any overpayment to Tenant after first deducting the amount of Rent due. If the estimated Expense Excess or the estimated Tax Excess for the prior calendar year is less than the actual Expense Excess or actual Tax Excess, as the case may be, for such prior year, Tenant shall pay Landlord, within thirty (30) days after its receipt of the statement of Expenses or Taxes, any underpayment for the prior calendar year. Landlord's annual statement with respect to Expenses and Taxes, or any other statement regarding other Additional Rent, shall be binding upon, and may not be disputed by, Tenant unless the statement is incorrect and is disputed by Tenant,

within sixty (60) days after Tenant's receipt of Landlord's statement, by a notice to Landlord specifically stating the grounds for dispute. Tenant's failure so to dispute Landlord's statement shall constitute a waiver of Tenant's right to dispute the statement. Notwithstanding any dispute concerning any Landlord's statement, payments shall be made by the parties in accordance with Landlord's statement at the time and in the manner set forth above, and if necessary there shall be a further adjustment between the parties at the time the dispute is resolved.

2. Property Operating Expenses.

2.1 "Expenses" means all costs and expenses incurred in each calendar year in connection with operating, maintaining, repairing, and managing the Building and the Property. Expenses include, without limitation: (a) all labor and labor related costs, including wages, salaries, bonuses, taxes, insurance, uniforms, training, retirement plans, pension plans and other employee benefits; (b) management fees in an amount not to exceed the prevailing rate for comparable owner-managed buildings in downtown Boston; (c) the cost of equipping, staffing and operating an on-site and/or off-site management office for the Building (including, without limitation, the market rental for the management office located in the Building), provided if the management office services one or more other buildings or properties, the shared costs and expenses of equipping, staffing and operating such management office(s) shall be equitably prorated and apportioned between the Building and the other buildings or properties; (d) costs of accounting and IT services (which shall be equitably prorated between the Building and other buildings or properties to which such services are provided); (e) the cost of services; (f) rental and purchase cost of parts, supplies, tools and equipment; (g) insurance premiums and deductibles; (h) electricity, gas and other utility costs; and (i) the amortized cost of capital improvements (as distinguished from replacement parts or components installed in the ordinary course of business) made subsequent to the Base Year that are: (1) intended to effect economies in the operation or maintenance of the Property, reduce current or future Expenses, enhance the safety or security of the Property or its occupants, or enhance the environmental sustainability of the Property's operations, (2) replacements or modifications of nonstructural items located in the Base Building or Common Areas that are required to keep the Base Building or Common Areas in good condition, or (3) required under any Law. The cost of capital improvements shall be amortized by Landlord over the lesser of the Payback Period (defined below) or the useful life of the capital improvement as reasonably determined by Landlord. The amortized cost of capital improvements may, at Landlord's option, include actual or imputed interest at the rate that Landlord would reasonably be required to pay to finance the cost of the capital improvement. "Payback Period" means the reasonably estimated period of time that it takes for the cost savings resulting from a capital improvement to equal the total cost of the capital improvement. Landlord, by itself or through an affiliate, shall have the right to directly perform, provide and be compensated for any services under the Lease. If Landlord incurs Expenses for the Building or Property together with one or more other buildings or properties, whether pursuant to a reciprocal easement agreement, common area agreement or otherwise, the shared costs and expenses shall be equitably prorated and apportioned between the Building and Property and the other buildings or properties.

2.2 Exclusions. Expenses shall not include: (i) the cost of capital improvements (except as set forth above); (ii) depreciation and principal and interest payments of mortgage and other non- operating debts of Landlord; (iii) the cost of repairs or other work to the extent Landlord is reimbursed by insurance or condemnation proceeds; (iv) costs in connection with leasing space in the Building, including brokerage commissions, lease concessions, rental abatements, and construction allowances granted to specific tenants; (v) costs incurred in connection with the sale, financing or refinancing of the Building; (vi) fines, interest and penalties incurred due to the late payment of Taxes or Expenses; (vii) organizational expenses associated with the creation and operation of the entity which constitutes Landlord; (viii) any penalties or damages that Landlord pays to Tenant under this Lease or to other

tenants in the Building under their respective leases; (ix) legal fees and related expenses and legal costs incurred by Landlord (together with any damages awarded against Landlord) due to the violation by Landlord of the terms and conditions of any lease for space in the Building, applicable laws or other agreements to which Landlord is a party, or due to the negligence or willful misconduct of Landlord, or in connection with the defense of Landlord's title to or interest in the Premises or any part thereof; (x) costs incurred to (a) comply with laws relating to the removal of Hazardous Materials (as defined below) which were in existence in the Building or on the Premises prior to the Delivery Date, and/or (b) remove, remedy, contain or treat Hazardous Materials brought into the Building or onto the Premises after the date hereof by Landlord; (xi) costs arising from Landlord's charitable or political contributions; (xii) costs incurred in connection with disputes between Landlord and any third party; (xiii) salaries, benefits and costs for employees of Landlord or its affiliates that are not devoted full-time to the operation, maintenance or repair of the Building, unless properly prorated to the Building based on time actually spent serving the Building; (xiv) all costs for which a third party actually reimburses Landlord; (xv) bad debts loss, rent loss or reserves for bad debts or rent loss; (xvi) costs for rooftop communications equipment not used for the general operation of the Building; (xvii) entertainment, travel, club or industry organization expenses; (xviii) costs of defending or prosecuting any lawsuit with any mortgagee, lender, ground lessor, broker, tenant, occupant or prospective tenant or occupant; (xix) costs of selling or syndicating any of Landlord's interest in the Building; (xx) costs involving disputes between Landlord and Landlord's property manager; (xxi) any expenses that arise out of Landlord's gross negligence or willful misconduct; and (xxii) all items and services for which Tenant or any other tenant in the Building actually reimburses Landlord or which Landlord provides selectively to one or more tenants (other than Tenant) without reimbursement.

2.3 Adjustments. If at any time during a calendar year the Building is not at least 95% occupied and receiving Landlord services hereunder (or if a service provided by Landlord to tenants of the Building generally is not provided by Landlord to particular tenant(s) due to self-provided services or other circumstances), Expenses shall, at Landlord's option, be determined as if the Building had been 95% occupied (and all services provided by Landlord to tenants of the Building generally had been provided by Landlord to tenants occupying 95% of the entire Building) during that calendar year. If Expenses for a calendar year are determined as provided in the prior sentence, Expenses for the Base Year shall also be determined in such manner. Notwithstanding the foregoing, Landlord may calculate the extrapolation of Expenses under this Section based on 100% occupancy and service so long as such percentage is used consistently for each year of the Term.

3. Property Taxes.

"Taxes" shall mean: (a) all real property taxes and other assessments on the Building and/or Property, including, but not limited to, gross receipts taxes, assessments for special improvement districts and business improvement districts, governmental charges, fees and assessments for police, fire, traffic mitigation or other governmental service of purported benefit to the Property, taxes and assessments levied in substitution or supplementation in whole or in part of any such taxes and assessments and the Property's share of any real estate taxes and assessments under any reciprocal easement agreement, common area agreement, or similar agreement as to the Property; (b) all personal property taxes for property that is owned by Landlord and used in connection with the operation, maintenance and repair of the Property; and (c) all costs and fees incurred in connection with seeking reductions in any tax liabilities described in (a) and (b), including, without limitation, any costs incurred by Landlord for compliance, review, and appeal of tax liabilities. Without limitation, Taxes shall be determined without regard to any "green building" credit and shall not include any income, capital levy, transfer, capital stock, gift, estate, or inheritance tax. If a change in Taxes is obtained for any year of the Term during which Tenant paid Tenant's Proportionate Share of any Tax Excess, then Taxes for that year will be retroactively adjusted

and Landlord shall provide Tenant with a credit, if any, based on the adjustment. Likewise, if a change is obtained for Taxes for the Base Year, Taxes for the Base Year shall be restated and the Tax Excess for all subsequent years shall be recomputed. Tenant shall pay Landlord the amount of Tenant's Proportionate Share of any such increase in the Tax Excess within thirty (30) days after Tenant's receipt of a statement from Landlord.

EXHIBIT C

WORK LETTER

This Exhibit is attached to and made a part of the Office Lease Agreement (the "Lease") by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company ("Landlord"), and ATEA PHARMACEUTICALS, INC., a Delaware corporation ("Tenant"), for space in the Building located at 125 Summer Street, Boston, Massachusetts 02110. Capitalized terms used but not defined herein shall have the meanings given in the Lease.

C.1 Acceptance of Existing Condition. Landlord hereby represents and warrants to Tenant that, as of the Delivery Date, (a) all Base Building systems serving the Premises shall be in good working order, and (b) the Premises shall be in compliance with all applicable Laws (collectively, the "Delivery Condition"). Subject only to Landlord's obligation to deliver the Premises to Tenant on the Delivery Date with the Delivery Condition satisfied and to provide the Tenant Work Allowance as provided below, Tenant has inspected, and is satisfied with, the existing, "as-is" condition of the Premises, including any existing improvements and Base Building elements now located therein. Tenant shall be deemed to have accepted the condition of the Premises on the Delivery Date to the extent that the Premises are in the same or better condition as on the Effective Date, reasonable wear and tear and damage by Tenant and persons acting under Tenant excepted. Landlord's sole obligation with respect to any such items shall be to restore to their prior condition any such items damaged after the Effective Date and prior to the Delivery Date (reasonable wear and tear and damage by Tenant and persons acting under Tenant excepted). Any Initial Tenant Work shall be constructed by Tenant in accordance with, and subject to, the terms and conditions set forth in Section 8 of the Lease and this **Exhibit C**, at Tenant's expense (subject to reimbursement from the Tenant Work Allowance as provided below). Landlord shall not be responsible for any aspects of the design or construction of Initial Tenant Work, the correction of any defects therein, or any delays in the completion thereof.

C.2 Delivery Date. The "Delivery Date" shall mean the date on which the Premises are delivered to Tenant with the Delivery Condition satisfied. The foregoing provision shall be self- operative, but in confirmation thereof at Landlord's request Tenant shall execute and deliver an instrument confirming the Delivery Date, provided that any failure by Tenant to execute and return such confirmatory instrument (or to provide written objection identifying the elements of the work that Tenant claims must be completed in order to achieve substantial completion of such work) within two (2) Business Days after its delivery to Tenant shall be deemed Tenant's acknowledgement that the Delivery Condition was satisfied on the Delivery Date.

C.3 Tenant's Construction Documents. On or before the thirtieth (30th) day following the Effective Date (the "Tenant Plan Submission Date"), Tenant shall prepare, at Tenant's expense, and deliver to Landlord the final construction documents for the Initial Tenant Work in accordance with Section 8 of the Lease and the requirements listed on **Schedule C-1** attached hereto (the "Construction Documents"). Within ten (10) days after the Effective Date, Tenant shall retain a qualified architect who is experienced in the design of comparable office tenant space in comparable first-class high-rise buildings and licensed in the state or commonwealth in which the Building is located, to prepare the Construction Documents for the Initial Tenant Work. Tenant shall also retain, or cause its architect to retain, the services of the electrical and mechanical engineers engaged by Landlord for the Building or such other experienced engineers as are otherwise reasonably approved by Landlord, as well as Landlord's structural engineer if any portion of Initial Tenant Work affects structural components of the Building. Even if any such architect or engineers may have been otherwise engaged by Landlord in connection with the Building, Tenant shall be solely responsible for the liabilities and expenses of all architectural and engineering services relating to the Initial Tenant Work and for the adequacy and

completeness of the Construction Documents submitted to Landlord. The Construction Documents shall comply with the Building's construction rules and regulations, including without limitation those designed to maintain a uniform exterior appearance of the Building. Tenant shall be solely responsible for the timely preparation and submission to Landlord of the Construction Documents by the Tenant Plan Submission Date. Landlord shall use reasonable efforts to review and approve (or provide comments on) the Construction Documents, in a written response, within ten (10) Business Days after the same are delivered to Landlord, provided that Landlord reserves the right to extend such review period if reasonably required to review, or to cause Landlord's third-party engineer(s) to review, any structural elements or other special elements of the Initial Tenant Work. Tenant shall promptly cause the Construction Documents to be corrected or revised to address Landlord's comments and resubmitted to Landlord for its review and approval as provided above.

C.4 Tenant Work Allowance. Landlord shall provide Tenant with an allowance for the hard costs (the "Allowance Costs") of constructing the Initial Tenant Work in the Premises for Tenant's initial occupancy in an amount not to exceed the Tenant Work Allowance set forth in Section 1 of the Lease (such amount sometimes being referred to herein as the "Allowance"). All hard construction costs for the Premises in excess of the Allowance shall be paid for entirely by Tenant, and Landlord shall not provide any reimbursement therefor. The Allowance shall be disbursed as requisitioned by Tenant, but no more than monthly. For each disbursement, Tenant shall submit a requisition package to Landlord prior to the first day of the month, with an itemization of the costs being requisitioned, a certificate by an officer of Tenant that all such costs are Allowance Costs and have been incurred and paid for by Tenant, and appropriate back-up documentation including, without limitation, customary AIA forms of progress payment certifications and lien releases (in a customary form provided or reasonably approved by Landlord), and copies of paid invoices and bills. If the total Allowance Costs for the Initial Tenant Work are reasonably estimated to exceed the Allowance, Landlord reserves the right to make pro-rata disbursements of the Allowance for each requisition, in the ratio that the Allowance bears to the total estimated Allowance Costs, subject to a final reconciliation of the Allowance upon completion of the work. Landlord further reserves the right to fund the final ten percent (10%) of the Allowance within thirty (30) days after Tenant's submission to Landlord of the Close-Out Materials. The "Close-Out Materials" shall mean the requisition package for the final amount of the Allowance as provided above, together with (i) a final AIA certificate from Tenant's architect evidencing substantial completion of the Initial Tenant Work in accordance with the approved Construction Documents, (ii) a set of "as built" or final record plans for such work, (iii) final lien waivers for such work from all contractors, subcontractors, and other parties who would be entitled to a lien on the Property if not paid, (iv) a certificate of occupancy for the entire Premises after the performance of such work, and (v) any other items required under the Building's construction rules and regulations for closing out the particular work in question. Tenant shall not be entitled to any unused portion of the Allowance that is not requisitioned within one (1) year after the Delivery Date; provided, that, in the event that any portion of the Allowance has not been disbursed for Allowance Costs following the completion of the Initial Tenant Work and Tenant's delivery to Landlord of the Close-Out Materials, then such undisbursed portion shall be applied by Landlord against the next due monthly installments of Base Rent until fully expended. Notwithstanding the foregoing, Landlord shall have no obligation to disburse any portion of the Allowance or credit any portion thereof against the next due monthly installments of Base Rent as set forth hereinabove at any time when there exists a Default under the Lease (or for so long as an event or condition has occurred which with notice and the passage of time would constitute such a Default), until such time as the Default (or the event or condition) has been cured by Tenant.

C.5 Tenant's Performance of the Work. The Initial Tenant Work shall be performed and constructed by Tenant in accordance with the approved Construction Documents, in compliance with applicable Laws, and the provisions of the Lease, including, without limitation, the terms and conditions of Section 8 thereof and the Building's construction rules and regulations (a copy of which is available

upon request). Any structural work (to the extent, if any, required to reinforce portions of the floor of the Premises for Tenant's filing rooms or similar uses requiring additional support) or other work affecting Base Building systems or areas outside the Premises shall be done only after obtaining Landlord's reasonable prior approval of Construction Documents therefor under Section 8 of the Lease and of the manner in which such work shall be performed under Section 8 of the Lease, specifically including any Landlord requirements concerning access to adjacent tenant areas or Building core areas. All Cabling shall be installed in accordance with Section 8.01 of the Lease. Landlord shall not be responsible for any aspects of the design or construction of the Initial Tenant Work or other Tenant installations in or about the Premises, the correction of any defects therein, or any delays in the completion thereof. After the Construction Documents have been approved by Landlord, any change in the work shown thereon, whether material or not, shall be made only after Tenant shall have submitted revised Construction Documents to Landlord for its review and approval in accordance with Paragraph C.3 above. If the Initial Tenant Work includes any structural or other special items, Tenant shall reimburse Landlord for the reasonable out-of-pocket costs incurred by Landlord in reviewing such items. Tenant shall pay to Landlord or its managing agent a fee for Landlord's administrative oversight and coordination of the Initial Tenant Work in an amount equal to two percent (2%) of the total hard costs of the Initial Tenant Work. In addition, Tenant shall pay to Landlord the costs of Building services or facilities (such as electricity, HVAC, fire alarm plug ins/outs, freight elevator usage, and cleaning) used by Tenant in connection with its performance of the Initial Tenant Work, in each case at Building standard rates charged to tenants generally. Any such costs shall constitute Allowance Costs that may be requisitioned from time to time from the Allowance as provided in Paragraph C.4.

For purposes hereof, the date upon which the Initial Tenant Work shall be deemed to be "substantially complete" and/or the date upon which "substantial completion" of the Initial Tenant Work shall be deemed to have occurred shall mean the date upon which Landlord provides Tenant with written notice that Landlord has reviewed and approved all of the Close-Out Materials pursuant to Section C.4 above. Notwithstanding anything in this Lease or this **Exhibit C**, the Term Commencement Date shall be extended one (1) day for each day of actual delay in the substantial completion of the Initial Tenant Work to the extent any such delay is caused by and results form Force Majeure or: (i) the failure of Landlord to timely approve or disapprove any Construction Documents, any Close-Out Materials or any other matter which requires Landlord's timely approval or disapproval; (ii) the unreasonable interference by Landlord, its agents, representatives, engineers, consultants or contractors in the Building with the substantial completion of the Initial Tenant Work; (iii) delays due to Landlord's performance of any renovations to the lobby of the Building; (iv) delays due to the discovery of Hazardous Materials in the Premises; and/or (v) all other delays attributable to Landlord's failure to deliver the Premises to Tenant upon the Term Commencement Date (other than due to any request or delay caused by Tenant or any person acting under Tenant), but only to the extent that any such delay actually delays Tenant's commencement or substantial completion of the Initial Tenant Work.

C.6 Access. During the period between the Delivery Date and the Term Commencement Date, Tenant's access to the Premises for the performance of the Initial Tenant Work hereunder and its installation of wiring, furniture, equipment, and personal property prior to commencing the regular conduct of business in the Premises shall be subject in each case to the terms and conditions of Section 8 of the Lease, including without limitation (i) Landlord's approval of the Construction Documents for the Initial Tenant Work in accordance with Paragraph C.3 above, (ii) Landlord's approval of Tenant's contractors in accordance with Section 8 of the Lease, (iii) Landlord's receipt from Tenant of copies of all necessary permits for the applicable Initial Tenant Work, and (iv) customary insurance certificates from Tenant's contractors, subcontractors, and other parties acting under or through Tenant with respect to the applicable work in accordance with Section 8 of the Lease. Tenant shall be responsible for any damage to the Premises caused by Tenant or its employees, agents, contractors, subcontractors, material suppliers and laborers. Any entry into the Premises by Tenant (or its contractors, subcontractors, or other persons acting under Tenant) prior to the Term Commencement Date shall be subject to all of the provisions of the Lease that are applicable to the Premises during the Term, except for the obligation to pay Base Rent and Tenant's Proportionate Share of Expense Excess and Tax Excess charges.

C.7 Tenant's Authorized Representative. Tenant hereby designates Andrea Corcoran to serve as Tenant's Authorized Representative, who shall have full power and authority to act on behalf of Tenant on any matters relating to the Initial Tenant Work. Tenant may from time to time change the Tenant's Authorized Representative or designate additional Tenant's Authorized Representative(s) by written notice delivered to Landlord in accordance with the Lease.

Schedule C-1

Requirements for Construction Documents for Initial Tenant Work

1. Preparation of Construction Documents. The Construction Documents shall include all architectural, mechanical, electrical, fire protection, plumbing and structural drawings and detailed specifications for the Initial Tenant Work, as applicable, and shall show and/or specify all work necessary to complete the Initial Tenant Work including all cutting, fitting, and patching and all connections to the mechanical and electrical systems and other components of the Building as well as any re-balancing and re-commissioning scope that is necessary to address Base Building systems affected by the Initial Tenant Work. Where the Initial Tenant Work interfaces with Base Building, the Initial Tenant Work design shall visually integrate with the Base Building in a manner and with materials and finishes that are compatible with the Base Building in that area. Landlord reserves the right to reject Construction Documents which in its reasonable opinion fail to comply with this provision. The Construction Documents shall include but not be limited to:

(a) Major Work Information: A list of any items or matters which might require structural modifications to the Building, including but not limited to the following:

(1) Location and details of special floor areas exceeding the applicable floor load for such area of the Building;

(2) Location and weights of storage files, batteries, HVAC units and technical areas;

(3) Location of any special soundproofing requirements;

(4) Existence of any extraordinary HVAC requirements necessitating perforation of structural members; and

(5) Existence of any requirements for heavy loads, dunnage or other items affecting the structure.

(b) Plans Submission: Two (2) blackline drawings and one (1) CAD disk (subject to Tenant's architect's and its consultants' and subconsultants' reasonable conditions for re-use) showing all architectural, mechanical and electrical systems, including cutsheets (where reasonably requested by Landlord), specifications and the following:

CONSTRUCTION PLANS:

(1) All partitions shall be shown; indicate ratings of all partitions; indicate all non- standard construction and details referenced;

(2) Dimensions for partition shall be shown to face of drywall; critical tolerances and ± dimensions shall be clearly noted;

(3) All plumbing fixtures or other equipment requirements and any equipment requiring connection to Building plumbing systems shall be noted.

REFLECTED CEILING PLAN:

(1) Layout suspended ceiling grid pattern in each room, describing the intent of the ceiling working point, origin and/or centering; and

(2) Locate all ceiling-mounted lighting fixtures and air handling devices including air dampers, fan boxes, etc., lighting fixtures, supply air diffusers, wall switches, down lights, special lighting fixtures, special return air registers, special supply air diffusers, and special wall switches.

TELECOMMUNICATIONS AND ELECTRICAL EQUIPMENT PLAN:

(1) All telephone outlets required;

(2) All electrical outlets required; note non-standard power devices and/or related equipment;

(3) All electrical requirements associated with plumbing fixtures or equipment; append product data for all equipment requiring special power, temperature control or plumbing considerations;

(4) Location of telecommunications equipment and general layout of conduits; and

(5) Components and design of antennas, if any, (including associated equipment) as installed, in sufficient detail to evaluate weight, bearing requirements, wind-load characteristics, power requirements and the effects on Building structure, moisture resistance of the roof membrane and operations of pre-existing telecommunications equipment, to the extent known or based on information provided by Landlord.

DOOR SCHEDULE:

(1) Provide a schedule of doors, sizes, finishes, hardware sets and ratings; and

(2) Non-standard materials and/or installation shall be explicitly noted.

HVAC:

(1) Areas requiring special temperature and/or humidity control requirements;

(2) Heat emission of equipment (including catalogue cuts where reasonably required by Landlord or, where unavailable, based on engineer’s assumptions therefor), such as CRTs, copy machines, etc.;

(3) Special exhaust requirements for conference rooms, pantry, toilets, etc.; and

(4) Any extension of system beyond demised space.

ELECTRICAL:

(1) Special lighting requirements;

(2) Power requirements and special outlet requirements of equipment;

(3) Security requirements;

(4) Supplied telephone equipment and the necessary space allocation for same;

(5) Any extensions of tenant equipment beyond demised space; and

(6) Load study confirming compliance with the leased space's allowable watts per square foot.

PLUMBING:

(1) Remote toilets;

(2) Pantry equipment requirements;

(3) Remote water and/or drain requirements such as for sinks, ice makers, etc.; and

(4) Special drainage requirements, such as those requiring holding or dilution tanks.

ROOF:

Detailed plan of any existing and proposed roof equipment, if any, showing location and elevations of all equipment.

SPECIAL SERVICES:

Equipment cuts (where reasonably requested by Landlord), power requirements, heat emissions, raised floor requirements, fire protection requirements, security requirements, and emergency power.

2. Plan Requirements. The Construction Documents shall be fully detailed and fully coordinated with each other and with the Base Building design, shall show complete dimensions, and shall have designated thereon all points of location and other matters, including special construction details and finish schedules. Tenant and its architect shall be solely responsible for ascertaining all existing field conditions. Any plans in Landlord's files, if any, that are provided to Tenant shall be without any representation or warranty. All drawings shall be uniform size, shall incorporate the standard electrical and plumbing symbols, and be at a scale of 1/8" = 1'0" or larger. Materials and/or installation shall be explicitly noted and adequately specified to allow for performing Landlord review, securing a building permit, pursuing construction pricing, and performing construction. All equipment and installations shall be made in accordance with standard materials and procedures unless a deviation outside of industry standards is shown on the Construction Documents and approved by Landlord. To the extent practicable, a concise description of products, acceptable substitutes (if any), and installation procedures and standards shall be provided to the extent customary. Product cuts (where reasonably requested by Landlord) must be provided and special mechanical or electrical loads noted. Landlord's approval of the plans, drawings, specifications or other submissions in respect of any work, addition, alteration or improvement to be undertaken by or on behalf of Tenant shall create no liability or responsibility on the part of Landlord for their completeness, design sufficiency or compliance with requirements of any applicable laws, rules or regulations of any governmental or quasi-governmental agency, board or authority.

3. Change Orders. The Construction Documents shall not be changed or modified by Tenant after approval by Landlord without the further approval in writing by Landlord, which approval shall not be unreasonably withheld or delayed as provided in the Lease.

EXHIBIT D

COMMENCEMENT LETTER

(EXAMPLE)

Date _____

Tenant _____
Address _____
_____
_____
_____

Re: Commencement Letter with respect to that certain Lease dated as of____, 20 , by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company, as Landlord, and ATEA PHARMACEUTICALS, INC., a Delaware corporation, as Tenant, for 5,634 rentable square feet on the sixteenth (16th) floor of the Building located at 125 Summer Street, Boston, Massachusetts 02110 (the "Lease").

Lease Id: _____

Business Unit Number: _____

Dear : _____

Capitalized terms used, but not otherwise defined herein shall have the meanings ascribed to them in the Lease. In accordance with the terms and conditions of the above referenced Lease, Tenant accepts possession of the Premises and acknowledges:

1. The Term Commencement Date of the Lease is_____. The Base Rent Commencement Date of the Lease is_____.

2. The Term Expiration Date of the Lease is _____.

Please acknowledge the foregoing and your acceptance of possession by signing all 3 counterparts of this Commencement Letter in the space provided and returning two (2) fully executed counterparts to my attention. Tenant's failure to execute and return this letter, or to provide written objection to the statements contained in this letter, within thirty (30) days after the date of this letter shall be deemed an approval by Tenant of the statements contained herein.

Sincerely,

_____
Authorized Signatory

Acknowledged and Accepted:

Tenant: _____

By: _____
Name: _____
Title: _____
Date: _____

EXHIBIT E

BUILDING RULES AND REGULATIONS

This Exhibit is attached to and made a part of the Office Lease Agreement (the "Lease") by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company ("Landlord"), and ATEA PHARMACEUTICALS, INC., a Delaware corporation ("Tenant"), for space in the Building located at 125 Summer Street, Boston, Massachusetts 02110. Capitalized terms used but not defined herein shall have the meanings given in the Lease.

The following rules and regulations shall apply, where applicable, to the Premises, the Building, the parking facilities (if any), the Property and the appurtenances. In the event of a conflict between the following rules and regulations and the remainder of the terms of the Lease, the remainder of the terms of the Lease shall control.

1. Sidewalks, doorways, vestibules, halls, stairways and other similar areas shall not be obstructed by Tenant or used by Tenant for any purpose other than ingress and egress to and from the Premises. No rubbish, litter, trash, or material shall be placed, emptied, or thrown in those areas. At no time shall Tenant permit Tenant's employees to loiter in Common Areas or elsewhere about the Building or Property.

2. Plumbing fixtures and appliances shall be used only for the purposes for which designed and no sweepings, rubbish, rags or other unsuitable material shall be thrown or placed in the fixtures or appliances.

3. No signs, advertisements or notices shall be painted or affixed to windows, doors or other parts of the Building, except those of such color, size, style and in such places as are first approved in writing by Landlord. On multi-tenant floors, elevator lobby signage identifying each tenant using Building standard graphics shall be installed by Landlord at its expense, provided that any changes to a tenant's initial elevator lobby signage shall be made by Landlord at such tenant's expense. All tenant identification and suite numbers at the entrance to the Premises, whether on multi-tenant or single-tenant floors, shall be subject to Landlord's prior approval in writing and shall be installed by Tenant, at its cost and expense, in accordance with the provisions of the Lease. Except in connection with the hanging of lightweight pictures and wall decorations, no nails, hooks or screws shall be inserted into any part of the Premises or Building except by the Building maintenance personnel without Landlord's prior approval, which approval shall not be unreasonably withheld.

4. Landlord may provide and maintain in the first floor (main lobby) of the Building an alphabetical directory board or other directory device listing tenants and no other directory shall be permitted unless previously consented to by Landlord in writing.

5. Tenant shall not place any lock(s) on any door in the Premises or Building without Landlord's prior written consent, which consent shall not be unreasonably withheld. All locks installed by Tenant shall be keyed to the Building's master key system for emergency access purposes. Landlord shall have the right at all times to retain and use keys or other access codes or devices to all locks within and into the Premises. A reasonable number of keys to the locks on the entry doors in the Premises shall be furnished by Landlord to Tenant at Tenant's cost and Tenant shall not make any duplicate keys. All keys shall be returned to Landlord at the expiration or early termination of the Lease.

6. All contractors, contractor's representatives and installation technicians performing work in the Building and all third party vendors providing services or deliveries to tenants or other occupants in the Building (such as special event caterers and liquor providers) shall be subject to Landlord's prior approval (which approval shall not be unreasonably withheld), shall be required to provide customary certificates of insurance (in form and substance reasonably approved by Landlord for the applicable work or service and naming Landlord and other designated parties as additional insureds), and shall comply with Landlord's standard rules, regulations, policies and procedures, which may be revised from time to time. Landlord has no obligation to allow any particular telecommunication service provider to have access to the Building or to the Premises. If Landlord permits access, Landlord may condition the access upon the payment to Landlord by the service provider of fees assessed by Landlord in Landlord's sole discretion.

7. Movement in or out of the Building of furniture or office equipment, or dispatch or receipt by Tenant of merchandise or materials requiring the use of elevators, stairways, lobby areas or loading dock areas, shall be performed in a manner and restricted to hours reasonably designated by Landlord. Tenant shall obtain Landlord's prior approval by providing a detailed listing of the activity, including the names of any contractors, vendors or delivery companies, which approval shall not be unreasonably withheld. All persons engaged or authorized by Tenant to move or remove furniture or equipment to or from the Premises shall have a property removal pass. Tenant shall assume all risk for damage, injury or loss in connection with the activity.

8. Landlord shall have the right to approve the weight, size, or location of heavy equipment or articles in and about the Premises, which approval shall not be unreasonably withheld; provided that approval by Landlord shall not relieve Tenant from liability for any damage in connection with such heavy equipment or articles.

9. Corridor doors, when not in use, shall be kept closed.

10. Tenant shall not: (a) make or permit any improper, objectionable or unpleasant noises, odors, or vibrations in the Building, or otherwise interfere in any way with other tenants or persons having business with them; (b) solicit business or distribute or cause to be distributed, in any portion of the Building, handbills, promotional materials or other advertising; or (c) conduct or permit other activities in the Building that might, in Landlord's sole opinion, constitute a nuisance.

11. No animals, except any "service" animals required for particular individuals, shall be brought into the Building or kept in or about the Premises.

12. No inflammable, explosive or dangerous fluids or substances shall be used or kept by Tenant in the Premises, Building or about the Property, except for those substances as are typically found in similar premises used for general office purposes and are being used by Tenant in a safe manner and in accordance with all applicable Laws. Tenant shall not, without Landlord's prior written consent, use, store, install, spill, remove, release or dispose of, within or about the Premises or any other portion of the Property, any asbestos-containing materials or any solid, liquid or gaseous material now or subsequently considered toxic or hazardous under the provisions of 42 U.S.C. Section 9601 et seq., M.G.L. c. 21C, M.G.L. c. 21E or any other applicable environmental Law which may now or later be in effect (collectively, "Hazardous Materials"). Tenant shall comply with all Laws pertaining to and governing the use of Hazardous Materials by Tenant and shall remain solely liable for the costs of abatement and removal.

13. Tenant shall not use or occupy the Premises in any manner or for any purpose which might injure the reputation or impair the present or future value of the Premises or the Building. Tenant shall not use, or permit any part of the Premises to be used for lodging, sleeping or for any illegal purpose.

14. Tenant shall not take any action which would violate Landlord's labor contracts or which would cause a work stoppage, picketing, labor disruption or dispute or interfere with Landlord's or any other tenant's or occupant's business or with the rights and privileges of any person lawfully in the Building ("Labor Disruption"). Tenant shall take the actions necessary to resolve the Labor Disruption, and shall have pickets removed and, at the request of Landlord, immediately terminate any work in the Premises that gave rise to the Labor Disruption, until Landlord gives its written consent for the work to resume. Tenant shall have no claim for damages against Landlord or any of the Landlord Related Parties nor shall the Term Commencement Date of the Term be extended as a result of the above actions.

15. Tenant shall not install, operate or maintain in the Premises or in any other area of the Building, electrical equipment that would overload the electrical system beyond its capacity for proper, efficient and safe operation as determined solely by Landlord. Tenant shall not furnish cooling or heating to the Premises, including, without limitation, the use of electric or gas heating devices, without Landlord's prior written consent. Tenant shall not use more than its proportionate share of HVAC, electric, or telecommunication services available to service the Building.

16. Tenant shall not operate or permit to be operated a coin or token operated vending machine or similar device (including, without limitation, telephones, lockers, toilets, scales, amusement devices and machines for sale of beverages, foods, candy, cigarettes and other goods), except for machines for the exclusive use of Tenant's employees and invitees.

17. Bicycles and other vehicles are not permitted inside the Building or on the walkways outside the Building, except in areas designated by Landlord.

18. Landlord may from time to time adopt systems and procedures for the security and safety of the Building and Property, their occupants, entry, use and contents. Tenant, its agents, employees, contractors, guests and invitees shall comply with Landlord's systems and procedures.

19. Landlord shall have the right to prohibit the use of the name of the Building, any photographs or other graphic representations of the Building, or any other publicity by Tenant that in Landlord's sole opinion may impair the reputation of the Building or its desirability. Upon written notice from Landlord, Tenant shall refrain from and discontinue such publicity immediately.

20. The Building is a non-smoking building. Neither Tenant nor its employees, contractors, agents, guests, or invitees shall smoke or permit smoking either in the Premises, in any other part of the Building, around the entrances to the Building, or in any other exterior area of the Property, other than in any exterior area of the Property (if any) that Landlord may, from time to time in its discretion, designate as a permitted smoking area.

21. Landlord shall have the right to designate and approve standard window coverings for the Premises and to establish rules to assure that the Building presents a uniform exterior appearance. Tenant shall ensure, to the extent reasonably practicable, that window coverings are closed on windows in the Premises while they are exposed to the direct rays of the sun.

22. Deliveries to and from the Premises shall be made only at the times in the areas and through the entrances and exits reasonably designated by Landlord. Tenant shall not make deliveries to or from the Premises in a manner that might interfere with the use by any other tenant of its premises or of the Common Areas, any pedestrian use, or any use which is inconsistent with good business practice.

All such delivery vendors shall provide customary certificates of insurance as provided above or other evidence of insurance acceptable to Landlord for the delivery in question.

23. The work of cleaning personnel shall not be hindered by Tenant after 5:30 P.M., and cleaning work may be done at any time when the offices are vacant. Windows, doors and fixtures may be cleaned at any time. Tenant shall provide adequate waste and rubbish receptacles to prevent unreasonable hardship to the cleaning service.

EXHIBIT F

ADDITIONAL PROVISIONS

This Exhibit is attached to and made a part of the Office Lease Agreement (the "Lease") by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company ("Landlord"), and ATEA PHARMACEUTICALS, INC., a Delaware corporation ("Tenant"), for space in the Building located at 125 Summer Street, Boston, Massachusetts 02110. Capitalized terms used but not defined herein shall have the meanings given in the Lease.

1. Parking. So long as (i) no Default has occurred, (ii) this Lease is still in full force and effect, and (iii) no Transfer has occurred under Article 11 of the Lease (other than a Permitted Transfer), during the Term, Tenant shall have the right to lease from Landlord, and Landlord shall lease to Tenant, or cause the operator (the "Operator") of the garage servicing the Building (the "Garage") to lease to Tenant, up to three (3) unreserved parking spaces in the Garage (each, a "Space" and collectively, the "Spaces") for the use of Tenant and its employees. The Spaces shall be leased at the rate of $525.00 per Space, per month, plus applicable tax thereon, as such rate may be adjusted from time-to-time to reflect the then current rate for parking in the Garage. If requested by Landlord, Tenant shall execute and deliver to Landlord the standard parking agreement used by Landlord or the Operator (the "Parking Agreement") in the Garage for such Spaces.

(a) No deductions or allowances shall be made for days when Tenant or any of its employees does not utilize the Garage or for when Tenant is not utilizing the Spaces. Tenant shall not have the right to lease or otherwise use more than the three (3) unreserved Spaces set forth above.

(b) Except for particular spaces and areas designated by Landlord or the Operator for reserved parking, all parking in the Garage shall be on an unreserved, first-come, first-served basis.

(c) Neither Landlord nor the Operator shall be responsible for money, jewelry, automobiles or other personal property lost in or stolen from the Garage regardless of whether such loss or theft occurs when the Garage or other areas therein are locked or otherwise secured. Without limiting the terms of the preceding sentence, Landlord shall not be liable for any loss, injury or damage to persons using the Garage or automobiles or other property therein, it being agreed that, to the fullest extent permitted by law, the use of the Spaces shall be at the sole risk of Tenant and its employees.

(d) Landlord or its Operator shall have the right from time to time to designate the location of the Spaces and to promulgate reasonable rules and regulations regarding the Garage, the Spaces and the use thereof, including, but not limited to, rules and regulations controlling the flow of traffic to and from various parking areas, the angle and direction of parking and the like. Tenant shall comply with and cause its employees to comply with all such rules and regulations, all reasonable additions and amendments thereto, and the terms and provisions of the Parking Agreement, if any.

(e) Tenant shall not store or permit its employees to store any automobiles in the Garage without the prior written consent of Landlord. Except for emergency repairs, Tenant and its employees shall not perform any work on any automobiles while located in the Garage or on the Property. If it is necessary for Tenant or its employees to leave an automobile in the Garage overnight, Tenant shall provide Landlord with prior notice thereof designating the license plate number and model of such automobile.

(f) Landlord or the Operator shall have the right to temporarily close the Garage or certain areas therein in order to perform necessary repairs, maintenance and improvements to the Garage.

(g) Tenant shall not assign or sublease the Spaces without the written consent of Landlord. Landlord shall have the right to terminate the foregoing provisions and/or any Parking Agreement with respect to any Space that Tenant desires to sublet or assign.

(h) Landlord may elect to provide parking cards or keys to control access to the Garage. In such event, Landlord shall provide Tenant with one card or key for each Space that Tenant is leasing hereunder, provided that Landlord shall have the right to require Tenant or its employees to place a deposit on such access cards or keys and to pay a fee for any lost or damaged cards or keys.

EXHIBIT G

LETTER OF CREDIT REQUIREMENTS

This Exhibit is attached to and made a part of the Office Lease Agreement (the "Lease") by and between OPG 125 SUMMER OWNER (DE) LLC, a Delaware limited liability company ("Landlord"), and ATEA PHARMACEUTICALS, INC., a Delaware corporation ("Tenant"), for space in the Building located at 125 Summer Street, Boston, Massachusetts 02110. Capitalized terms used but not defined herein shall have the meanings given in the Lease.

The Letter of Credit (as defined in the Lease) shall be for the amount set forth in Section 1 of the Lease, subject to the terms of Section 6 of the Lease. The Letter of Credit (i) shall be irrevocable and shall be issued by a commercial bank that has a financial condition reasonably acceptable to Landlord and has an office in Boston, Massachusetts or New York City that accepts requests for draws on the Letter of Credit (provided, that, such commercial bank need not have an office in such locations as long as, upon request, such commercial bank agrees to review and approve in advance any draw under the Letter of Credit by facsimile or .pdf copies of the form of drawing certificate and sight draft relating to such draws and accepts actual draws by overnight mail), (ii) shall require only the presentation to the issuer of a certificate of the holder of the Letter of Credit stating that Landlord is entitled to draw on the Letter of Credit pursuant to the terms of the Lease, (iii) shall be payable to Landlord or its successors in interest as the Landlord and shall be freely transferable without cost to any such successor or any lender holding a collateral assignment of Landlord's interest in the Lease, (iv) shall be for an initial term of not less than one year and contain a provision that such term shall be automatically renewed for successive one-year periods unless the issuer shall, at least forty five (45) days prior to the scheduled expiration date, give Landlord notice of such nonrenewal, and (v) shall otherwise be in form and substance reasonably acceptable to Landlord. Notwithstanding the foregoing, the term of the Letter of Credit for the final period shall be for a term ending not earlier than the date forty five (45) days after the last day of the Term. In the event that the issuer ceases to be reasonably acceptable to Landlord, due to a deterioration in its financial condition or change in status that threatens to compromise Landlord's ability to draw on the Letter of Credit as determined in good faith by Landlord, then Tenant shall provide a replacement Letter of Credit from an issuer satisfying the terms of this Exhibit within thirty (30) days after Landlord's notice of such event.

Landlord shall be entitled to draw upon the Letter of Credit for its full amount or any portion thereof if (a) Tenant shall fail to perform any of its obligations under the Lease after the expiration of any applicable notice and cure period, or fail to perform any of its obligations under the Lease and transmittal of a default notice or the running of any cure period is barred or tolled by applicable law, or fail to perform any of its obligations under the Lease and any applicable notice and cure period would expire after the expiration of the Letter of Credit, or (b) not less than thirty (30) days before the scheduled expiration of the Letter of Credit, Tenant has not delivered to Landlord a new Letter of Credit in accordance with this Exhibit. Without limiting the generality of the foregoing, Landlord may, but shall not be obligated to, draw on the Letter of Credit from time to time in the event of a bankruptcy filing by or against Tenant and/or to compensate Landlord, in such order as Landlord may determine, for all or any part of any unpaid rent, any damages arising from any termination of the Lease in accordance with the terms of the Lease, and/or any damages arising from any rejection of the Lease in a bankruptcy proceeding commenced by or against Tenant. Landlord may, but shall not be obligated to, apply the amount so drawn to the extent necessary to cure Tenant's failure.

Any amount of the Letter of Credit drawn in excess of the amount applied by Landlord to cure any such failure shall be held by Landlord as a cash security deposit for the performance by Tenant of its obligations under the Lease. Any cash security deposit may be mingled with other funds of Landlord and

no fiduciary relationship shall be created with respect to such deposit, nor shall Landlord be liable to pay Tenant interest thereon. If Tenant shall fail to perform any of its obligations under the Lease, Landlord may, but shall not be obliged to, apply the cash security deposit to the extent necessary to cure Tenant's failure. After any such application by Landlord of the Letter of Credit or cash security deposit, as the case may be, Tenant shall reinstate the Letter of Credit to the amount originally required to be maintained under the Lease, upon demand. Provided that Tenant is not then in default under the Lease, and no condition exists or event has occurred which after the expiration of any applicable notice or cure period would constitute such a default, within forty five (45) days after the later to occur of (i) the payment of the final Rent due from Tenant or (ii) the later to occur of the Term Expiration Date or the date on which Tenant surrenders the Premises to Landlord in compliance with Section 20 of the Lease, the Letter of Credit and any cash security deposit, to the extent not applied, shall be returned to the Tenant, without interest.

In the event of a sale of the Building or lease, conveyance or transfer of the Building, Landlord shall transfer the Letter of Credit or cash security deposit to the transferee. Upon such transfer, the transferring Landlord shall be released by Tenant from all liability for the return of such security, and Tenant agrees to look to the transferee solely for the return of said security. The provisions hereof shall apply to every transfer or assignment made of the security to such a transferee. Tenant further covenants that it will not assign or encumber or attempt to assign or encumber the Letter of Credit or the monies deposited herein as security, and that neither Landlord nor its successors or assigns shall be bound by any assignment, encumbrance, attempted assignment or attempted encumbrance.

Notwithstanding anything in this **Exhibit G** to the contrary, so long as: (A) Tenant shall not be, or have been, in Default under this Lease; (B) this Lease is still in full force and effect; (C) the three (3) year anniversary of the Rent Commencement Date has occurred; and (D) Tenant provides Landlord with written notice requesting the same (requirements (A) through (D), collectively, the "Letter of Credit Reduction Conditions"), then the Letter of Credit shall be reduced to $80,284.50 (the "Letter of Credit Reduction Amount"). If the Letter of Credit Reduction Conditions have been fully satisfied and the security deposit is then being held in cash, then Landlord shall return, within thirty (30) days following the satisfaction of the Letter of Credit Reduction Conditions, the applicable portion of the security deposit to Tenant to yield the Letter of Credit Reduction Amount, and if the security deposit is then being held in the form of the Letter of Credit, then Tenant shall cause a replacement letter of credit in the amount of the Letter of Credit Reduction Amount to be issued to Landlord meeting the requirements of this **Exhibit G**, whereupon Landlord shall simultaneously return the original Letter of Credit to Tenant. Further notwithstanding anything to the contrary contained herein, in no event shall the security deposit or Letter of Credit be in an amount less than the Letter of Credit Reduction Amount.

Amendment #1 to Consulting Agreement

This Amendment No. 1 to the Consulting Agreement ("Amendment") is made as of August 8, 2019 ("Effective Date"), by and between Atea Pharmaceuticals, Inc. ("Company") and Danforth Advisors, LLC ("Consultant" or "Danforth") and amends that certain Consulting Agreement by and between the Company and Danforth made effective as of July 31, 2019 (" Agreement"). Capitalized terms used but not defined herein shall have the respective meaning set forth in the Agreement.

WHEREAS, Danforth is engaged by the Company under the terms and conditions of the Consulting Agreement; and

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements herein contained and for the other good and valuable consideration, receipt of which is hereby acknowledge , the parties hereby agree to revise and amend Exhibit A to the Agreement, as follows:

1. Exhibit A - is modified to add the services of Managing Director, Lance Thibault, and Controller, Michael Casey; and to revise the Schedule and Fees as further specified and attached hereto in Exhibit A-1 which is added to the Agreement in its entirety.

2. Except as specifically provided for in this Amendment, the terms of the Agreement shall be unmodified and shall remain in full force and effect.

This Amendment may be executed in one or more counterparts, each of which shall be considered an original instrument , but all of which shall be considered one and the same Amendment, and shall become binding when one or more counterparts have been signed by each of the parties and delivered to the other.

IN WITNESS WHEREOF, this Amendment has been executed by the Company and Danforth Advisors, LLC to be effective as of the Effective Date.

DANFORTH ADVISORS, LLC	ATEA PHARMACEUTICALS, INC.
/s/ Gregg Beloff	/s/ Andrea Corcoran
Gregg Beloff Print Name	Andrea Corcoran Print Name
Managing Director Title	Exec. VP, Legal; Administration Title
August 19, 2019 Date	August 15, 2019 Date

CONSULTING AGREEMENT

This Consulting Agreement (the "Agreement") is made effective as of July 31 , 2019 (the "Effective Date"), by and between Atea Pharmaceuticals, Inc., a Delaware corporation, with its principal place of business being 125 Summer Street, Boston, MA 02110 (the "Company") and Danforth Advisors, LLC, a Massachusetts limited liability corporation, with its principal place of business being 91 Middle Road, Southborough, MA 01772 ("Danforth"). The Company and Danforth are herein sometimes referred to individually as a "Party" and collectively as the "Parties."

WHEREAS, the Company is engaged in the discovery and development of antiviral therapeutics and possesses know-how and proprietary technology related thereto; and

WHEREAS, Danforth has expertise in financial and corporate operations and strategy; and

WHEREAS, Danforth desires to serve as an independent consultant for the purpose of providing the Company with certain strategic and financial advice and support services, as more fully described in Exhibit A attached hereto, (the "Services"); and

WHEREAS, the Company wishes to engage Danforth on the terms and conditions set forth herein.

NOW THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which are hereby acknowledged, the Parties agree and covenant as follows.

1. Services of Consultant. Danforth will undertake and perform in a professional, competent and timely manner the Services described in Exhibit A attached hereto. Danforth and the Company will review the Services on a monthly basis to prioritize and implement the tasks listed on Exhibit A. Consultant may not subcontract or otherwise delegate Consultant's obligations under this Agreement without the Company's prior written consent, and in the event the Company gives such consent, Consultant will remain fully liable to the Company for the performance of all permitted employees, independent contractors, agents or representatives of Consultant (each, an "Authorized Representative").

2. Compensation for Services. In full consideration of Danforth's full, prompt and faithful performance of the Services, the Company shall compensate Danforth a consulting fee more fully described in Exhibit A (the "Consulting Fee"). Danforth shall, from time to time, but not more frequently than twice per calendar month, invoice the Company for Services rendered, and the undisputed portion of such invoice will be paid upon fifteen (15) days of receipt. Each month the Parties shall evaluate jointly the current fee structure and scope of Services. Danforth reserves the right to an annual increase in consultant rates of up to 4%, effective on January 1 of each year. Upon termination of this Agreement pursuant to Section 3, no compensation or benefits of any kind as described in

this Section 2 shall be payable or issuable to Danforth after the effective date of such termination. In addition, the Company will reimburse Danforth for reasonable and necessary out-of-pocket business expenses, including but not limited to travel and parking, incurred by Danforth in performing the Services hereunder, upon submission by Danforth of supporting documentation reasonably acceptable to the Company. Any such accrued expenses in any given three (3) month period that exceed one thousand dollars ($1,000) shall be submitted to the Company for its prior written approval.

All Danforth invoices and billing matters should be addressed

to: Company Contact:

David Blanchard
Blanchard.David@ateapharma.com
857-284-8891
Atea Pharmaceuticals, Inc.
125 Summer Street, Suite 1675
Boston, MA 02110

All Company payments and billing inquiries should be addressed to:

Danforth Accounting:

Betsy Sherr
bsherr@danforthadvisors.com
(508) 277-0031
Danforth Advisors
PO Box 335
Southborough, MA 01772

3. Term and Termination. The term of this Agreement will commence on the Effective Date and will continue until such time as either party has given notice of termination pursuant to this paragraph 3 (the "Term"). This Agreement may be terminated by either Party hereto: (a) with Cause (as defined below), upon ten (10) days prior written notice to the other Party; or (b) without Cause upon sixty (60) days prior written notice to the other Party. For purposes of this Section 3, "Cause" shall include: (i) a breach of the terms of this Agreement which is not cured within ten (10) days of written notice of such default or (ii) the commission of any act of fraud, embezzlement or deliberate disregard of a rule or policy of the Company.

4. Time Commitment. Danforth will devote such time to perform the Services under this Agreement as may reasonably be required.

5. Place of Performance. Danforth will perform the Services at such locations upon which the Company and Danforth may mutually agree. Danforth will not, without the prior written consent of the Company, perform any of the Services at any facility or in any manner that might give anyone other than the Company any rights to any Inventions (as defined below) or Confidential Information (as defined below) or allow for disclosure of any Confidential Information.

6. Compliance with Policies and Guidelines. Danforth will perform the Services in accordance with all rules or policies adopted by the Company that the Company discloses in writing to Danforth.

7. Confidential Information. Danforth acknowledges and agrees that during the course of performing the Services, Danforth may receive, come into possession of or otherwise become aware of technical, scientific and non-technical and non-scientific information relating to the Company and its business, including, without limitation information relating to the Company's strategy, products and technologies and any derivatives, improvements and enhancements related to any of the foregoing or to the Company's suppliers or business partners (collectively, "Confidential Information") whether in graphic, written, electronic or oral form. Confidential Information may be labeled or identified at the time of disclosure as confidential or proprietary, or equivalent, but Confidential Information also includes information which by its context would reasonably be deemed to be confidential and proprietary. "Confidential Information" also includes, without limitation, unpublished patent applications and other intellectual property filings, ideas, work product, techniques, works of authorship, models, inventions, compounds, compositions, know-how, processes, algorithms, formulae, information and trade secrets as well as financial information (including sales forecasts, profits, pricing methods and models), research data, clinical data, prospect and supplier lists, investors, employees, business and contractual relationships (including with third parties), and business and marketing plans and any derivatives, improvements and enhancements related to any of the above. Information the Company provides to Danforth or Danforth otherwise acquires regarding third parties as to which the Company has an obligation of confidentiality also constitutes "Confidential Information."

   Danforth acknowledges that the Confidential Information or any part thereof is the exclusive property of the Company and shall be used by Danforth solely in connection with the performance of the Services. Danforth agrees not to disclose Confidential Information to any third party without first obtaining the written consent of the Company. Danforth further agrees to take all practical steps to ensure that the Confidential Information, and any part thereof, shall not be disclosed or issued to its Authorized Representatives, except to the extent such Authorized Representatives have a need to know such Confidential Information to perform the Services and such Authorized Representatives are subject to like terms of confidentiality and nonuse. Consultant shall be responsible for the breach of this Agreement by its Authorized Representatives as if such breach were by Consultant itself.

   The above provisions of confidentiality and nonuse set forth herein shall survive for a period of three (3) years after the termination of this Agreement.

   Consultant will not disclose or otherwise make available to the Company in any manner any confidential information received by Consultant under obligations of confidentiality from a third party.

8. Intellectual Property. Danforth agrees that all ideas, inventions, works of authorship, work product, discoveries, creations, manuscripts, properties, innovations, improvements, know-how, designs, developments, apparatus, techniques, methods, and formulae that

Danforth conceives, makes, develops or improves as a result of performing the Services or which is derived from Confidential Information, whether or not reduced to practice and whether or not patentable, alone or in conjunction with any other party and whether or not at the request or upon the suggestion of the Company (all of the foregoing being hereinafter collectively referred to as the "Inventions"), shall be the sole and exclusive property of the Company.

Danforth hereby agrees in consideration of the Company's agreement to engage Danforth and pay compensation for the Services rendered to the Company and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged that Danforth shall not, without the prior written consent of the Company, directly or indirectly, consult for, or become an employee of, any company which conducts business in the Field of Interest anywhere in the world. As used herein, the term "Field of Interest" shall mean the research, development, manufacture and/or sale of the products resulting from the Company's technology, intellectual property or other rights owned or controlled by the Company. The limitations on competition contained in this Section 8 shall continue during the time that Danforth performs any Services for the Company, and for a period of six (6) months following the termination of any such Services that Danforth performs for the Company. If any part of this section should be determined by a court of competent jurisdiction to be unreasonable in duration, geographic area, or scope, then this Section 8 is intended to and shall extend only for such period of time, in such area and with respect to such activity as is determined to be reasonable. Except as expressly provided herein, nothing in this Agreement shall preclude Danforth from consulting for or being employed by any other person or entity.

9. Non Solicitation. All personnel representing Danforth are employees or contracted agents of Danforth. Accordingly, they are not retainable as employees or contractors by the Company and the Company hereby agrees not to solicit, hire or retain their services for so long as they are employees or contracted agents of Danforth and for two (2) years thereafter. Should the Company violate this restriction, it agrees to pay Danforth liquidated damages equal to thirty percent (30%) of the employee's starting annual base salary and target annual bonus for each Danforth contracted agent hired by the Company in violation of this Agreement, plus Danforth's reasonable attorneys' fees and costs incurred in enforcing this agreement should the Company fail or refuse to pay the liquidated damages amount in full within thirty (30) days following its violation.

10. Placement Services. In the event that Danforth refers a potential employee to the Company and that individual is hired, Danforth shall receive a fee equal to twenty percent (20%) of the employee's starting annual base salary and target annual bonus. This fee is due and owing whether an individual is hired, directly or indirectly on a permanent basis or on a contract or consulting basis by the Company, as a result of Danforth's efforts within one (1) year of the date applicant(s) are submitted to the Company. Such payment is due within thirty (30) days of the employee's start date.

11. No Implied Warranty. Except for any express warranties stated herein, the Services are provided on an "as is" basis, and the Company disclaims any and all other warranties, conditions, or representations (express, implied, oral or written), relating to the Services

or any part thereof. Further, in performing the Services Danforth is not engaged to disclose illegal acts, including fraud or defalcations, which may have taken place. The foregoing notwithstanding, Danforth will promptly notify the Company if Danforth becomes aware of any such illegal acts during the performance of the Services. Because the Services do not constitute an examination in accordance with standards established by the American Institute of Certified Public Accountants (the "AICPA"), Danforth is precluded from expressing an opinion as to whether financial statements provided by the Company are in conformity with generally accepted accounting principles or any other standards or guidelines promulgated by the AICPA, or whether the underlying financial and other data provide a reasonable basis for the statements.

12. Indemnification. Each Party hereto agrees to indemnify and hold the other Party hereto, its directors, officers, agents and employees harmless against any third party claim based upon circumstances alleged to be inconsistent with such representations and/or warranties contained in this Agreement. Further, the Company shall indemnify and hold harmless Danforth against any third party claims, losses, damages or liabilities (or actions in respect thereof) that arise out of or are based on the Services performed hereunder, except for any such claims, losses, damages or liabilities arising out of the gross negligence or willful misconduct of Danforth. The Company will endeavor to add Danforth to its insurance policies as an additional insured. Furthermore, during the Term of this Agreement, Company shall maintain a Crime and Cyber Insurance Policy that includes coverage for "Social Engineering" claims and extends coverage to Danforth.

13. Independent Contractor. Danforth is not, nor shall Danforth be deemed to be at any time during the term of this Agreement, an employee of the Company, and therefore Danforth shall not be entitled to any benefits provided by the Company to its employees, if applicable. Danforth's status and relationship with the Company shall be that of an independent contractor and consultant. Danforth shall not state or imply, directly or indirectly, that Danforth is empowered to bind the Company without the Company's prior written consent. Nothing herein shall create, expressly or by implication, a partnership, joint venture or other association between the parties. Danforth will be solely responsible for payment of all charges and taxes arising from its relationship to the Company as a consultant.

14. Records. Upon termination of Danforth's relationship with the Company, Danforth shall deliver to the Company all Confidential Information and any other property of the Company which may be in its possession including products, project plans, materials, memoranda, notes, records, reports, laboratory notebooks, or other documents including work product from the Services and all photocopies of the same and any such information stored using electronic medium.

15. Notices. Any notice under this Agreement shall be in writing (except in the case of verbal communications, emails and teleconferences updating either Party as to the status of work hereunder) and shall be deemed delivered upon personal delivery, one day after being sent via a reputable nationwide overnight courier service or two days after deposit in the mail or on the next business day following transmittal via facsimile. Notices under this Agreement shall be sent to the following representatives of the Parties:

If to the Company:

Name:	Jean-Pierre Sommadossi
Title:	CEO and President
Address:	Atea Pharmaceuticals, Inc.
	125 Summer Street, Suit 1675
	Boston, MA 02110
Phone:	857-284-8891
E-mail:	Sommadossi.jp@ateapharma.com

If to Danforth:

Name:	Gregg Beloff
Title:	Managing Director
Address:	91 Middle Road Southborough, MA 01772
Phone:	(617) 686-7679
E-mail:	gbeloff@danforthadvisors.com

16. Assignment and Successors. This Agreement may not be assigned by a Party without the consent of the other which consent shall not be unreasonably withheld, except that each Party may assign this Agreement and the rights, obligations and interests of such Party, in whole or in part, to any of its Affiliates, to any purchaser of all or substantially all of its assets or to any successor corporation resulting from any merger or consolidation of such Party with or into such corporation.

17. Force Majeure. Neither Party shall be liable for failure of or delay in performing obligations set forth in this Agreement, and neither shall be deemed in breach of its obligations, if such failure or delay is due to natural disasters or any causes beyond the reasonable control of either Party. In the event of such force majeure, the Party affected thereby shall use reasonable efforts to cure or overcome the same and resume performance of its obligations hereunder.

18. Headings. The Section headings are intended for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

19. Integration; Severability. This Agreement is the sole agreement with respect to the subject matter hereof and shall supersede all other agreements and understandings between the Parties with respect to the same. Notwithstanding the foregoing, the Confidentiality Agreement dated as of June 28, 2019 by and between the Parties shall survive with respect to the information provided pursuant thereto prior to the date of this Agreement. If any provision of this Agreement is or becomes invalid or is ruled invalid by any court of competent jurisdiction or is deemed unenforceable, it is the intention of the Parties that the remainder of the Agreement shall not be affected.

20. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts, excluding choice of law principles.

The Parties agree that any action or proceeding arising out of or related in any way to this Agreement shall be brought solely in a Federal or State court of competent jurisdiction sitting in the Commonwealth of Massachusetts.

21. Counterparts. This Agreement may be executed in counterparts, each of which will be deemed an original, but all of which together will constitute one agreement.

If you are in agreement with the foregoing, please sign where indicated below, whereupon this Agreement shall become effective as of the Effective Date.

DANFORTH ADVISORS, LLC		ATEA PHARMACEUTICALS, INC.	
By:	/s/ Daniel Geffken	By:	/s/ Andrea Corcoran
Print Name:	Daniel Geffken	Print Name:	Andrea Corcoran
Title:	Managing Director	Title:	Exec. VP, Legal Administration
Date:	August 5, 2019	Date:	August 5, 2019

SUBSIDIARIES OF ATEA PHARMACEUTICALS, INC.

Legal Name of Subsidiary	Jurisdiction of Organization
Atea Pharmaceuticals Securities Corporation	Massachusetts

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors

Atea Pharmaceuticals, Inc.:

We consent to the use of our report included herein and to the reference to our firm under the heading “Experts” in the prospectus.

/s/ KPMG LLP

Boston, Massachusetts
October 9, 2020