Verastem, Inc.
Form 424B5
October 11, 2018

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Filed Pursuant to Rule 424(b)(5)
Registration No. 333-226322

The information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement is not an offer to sell, nor a solicitation of an offer to buy, the notes in any jurisdiction where the offer or sale is not permitted.

Subject to Completion, dated October 11, 2018

PRELIMINARY PROSPECTUS SUPPLEMENT
TO PROSPECTUS DATED AUGUST 3, 2018

$150,000,000

% Convertible Senior Notes due 2048

We are offering $150,000,000 aggregate principal amount of our % convertible senior notes due 2048.

We will pay interest on the notes at an annual rate of %, payable semi-annually in arrears on May 1 and November 1 of each year, beginning on May 1, 2019. The notes will mature on November 1, 2048, unless earlier converted or redeemed or repurchased by us.

At any time before the close of business on the scheduled trading day immediately before the maturity date, noteholders may convert their notes at their option into shares of our common stock, together, if applicable, with cash in lieu of any fractional share, at the then-applicable conversion rate, subject to certain restrictions described in this prospectus supplement. In addition, we will have the right, exercisable at our election, to cause all notes then outstanding to be automatically converted in certain circumstances, but only if the "daily VWAP" (as defined in this prospectus supplement) per share of our common stock equals or exceeds 130% of the conversion price on each of at least 20 "VWAP trading days" (as defined in this prospectus supplement), whether or not consecutive, during any 30 consecutive VWAP trading day period commencing on or after the date we first issue the notes. The initial conversion rate is shares per $1,000 principal amount of notes, which represents an initial conversion price of approximately $ per share, and is subject to adjustment as described in this prospectus supplement. If a "make-whole fundamental change" (as defined in this prospectus supplement) occurs on or before November 1, 2022, then we will in certain circumstances increase the conversion rate for a specified period of time.

The notes will be redeemable, in whole or in part, at our option at any time, and from time to time, on or after November 1, 2022, at a cash redemption price equal to the principal amount of the notes to be redeemed, plus accrued and unpaid interest, if any.

If a "fundamental change" (as defined in this prospectus supplement) occurs, then noteholders may require us to repurchase their notes at a cash repurchase price equal to the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any. In addition, unless we have previously called all outstanding notes for redemption, noteholders may require us to repurchase their notes on each of November 1, 2023, November 1, 2028, November 1, 2033, November 1, 2038 and November 1, 2043 (or, if any such date is not a business day, on the next business day), at a cash repurchase price equal to the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any.

The notes will be our senior, unsecured obligations and will be senior in right of payment to our future indebtedness that is expressly subordinated in right of payment to the notes, equal in right of payment with our existing and future indebtedness that is not so subordinated and effectively subordinated to our existing and future secured indebtedness, to the extent of the value of the collateral securing such indebtedness. The notes will be structurally subordinated to all existing and future indebtedness and other liabilities, including trade payables, and (to the extent we are not a holder thereof) preferred equity, if any, of our subsidiaries.

No public market currently exists for the notes, and we do not intend to apply to list the notes on any securities exchange or for quotation on any inter-dealer quotation system. Our common stock is listed on The Nasdaq Global Market under the symbol "VSTM." On October 10, 2018, the last reported sale price of our common stock was $6.26 per share.

We have retained Lazard Frères & Co. LLC as the placement agent for this offering. The placement agent is not purchasing or selling any of the notes offered hereby, and it has agreed to use its reasonable best efforts to solicit offers to purchase notes.

	Per note	Total
Offering price	$	$
Placement agent fees	$	$
Proceeds, before expenses, to us	$	$

An investment in the notes involves risks. See "Risk Factors" beginning on page S-8.

Neither the Securities and Exchange Commission nor any state or foreign securities commission or regulatory authority has approved or disapproved of the notes or the shares of our common stock issuable upon the conversion of the notes or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

We expect to deliver the notes in book-entry form through the facilities of The Depository Trust Company on or about , 2018.

Sole Placement Agent

Lazard Frères & Co.

Prospectus supplement dated October , 2018.

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Prospectus Supplement

Prospectus

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document consists of two parts. The first part is the prospectus supplement, which describes specific terms of this offering of notes and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus, gives more general information, some of which may not apply to this offering. If information in this prospectus supplement, or the information incorporated by reference into this prospectus supplement and the accompanying prospectus after the date of the accompanying prospectus, is inconsistent with the accompanying prospectus, this prospectus supplement or such information incorporated by reference into this prospectus supplement and the accompanying prospectus will apply and will supersede that information in the accompanying prospectus.

In deciding whether to purchase the notes, you should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and any related free writing prospectus filed with the SEC. Neither we nor the placement agent has authorized anyone to provide you with additional or different information. If anyone provides you with additional or different information, you should not rely on it.

You should not assume that the information included or incorporated by reference in this prospectus supplement or the accompanying prospectus is accurate as of any date other than the respective dates of the documents in which the information is contained. Our business, financial condition, results of operations and prospects could have changed since those dates.

You should not consider any information included or incorporated by reference in this prospectus supplement or the accompanying prospectus to be legal, tax or investment advice. You should consult your own counsel, accountant and other advisors for legal, tax, business, financial and related advice regarding any purchase of the notes. Neither we nor the placement agent makes any representation regarding the legality of an investment in the notes by any person under applicable investment or similar laws.

This prospectus supplement and the accompanying prospectus do not constitute an offer to sell or the solicitation of an offer to purchase any notes in any jurisdiction or to any person where the offer or solicitation is not permitted.

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PROSPECTUS SUPPLEMENT SUMMARY

Company Overview

We are a biopharmaceutical company focused on developing and commercializing medicines to improve the survival and quality of life of cancer patients. Both our marketed product, COPIKTRA (duvelisib) capsules, and most advanced product candidate, defactinib, utilize a multi-faceted approach designed to treat cancers originating either in the blood or major organ systems. We are currently developing our product candidates in both preclinical and clinical studies as potential therapies for certain cancers, including leukemia, lymphoma, lung cancer, ovarian cancer, mesothelioma, and pancreatic cancer. We believe that these compounds may be beneficial as therapeutics either as single agents or when used in combination with immuno-oncology agents or other current and emerging standard of care treatments in aggressive cancers that are poorly served by currently available therapies.

COPIKTRA is an oral inhibitor of phosphoinositide 3-kinase, or PI3K, and the first approved dual inhibitor of PI3K-delta and PI3K-gamma, two enzymes known to help support the growth and survival of malignant B-cells and T-cells. PI3K signaling may lead to the proliferation of malignant B-cells and is thought to play a role in the formation and maintenance of the supportive tumor microenvironment. COPIKTRA is indicated for the treatment of adult patients with relapsed or refractory chronic lymphocytic leukemia/small lymphocytic lymphoma, or CLL/SLL, after at least two prior therapies and relapsed or refractory follicular lymphoma, or FL, after at least two prior systemic therapies. The indication in FL is approved under accelerated approval based on overall response rate. Continued approval for this indication may be contingent upon verification and description of clinical benefits in confirmatory trials. COPIKTRA is also being developed by us for the treatment of peripheral T-cell lymphoma, or PTCL, which has Fast Track status with the U.S. Food and Drug Administration, or the FDA, and is being investigated in combination with other agents through investigator-sponsored studies, or ISTs. During 2019, we plan to continue to advance our development of COPIKTRA through the initiation of a confirmatory study of patients with FL and other sponsored trials, and the expansion of our study in patients with PTCL. Furthermore, we plan to report interim data for several ongoing ISTs and to enter into additional partnerships or collaborations for the potential commercialization of COPIKTRA outside of the United States.

Defactinib is a targeted inhibitor of the Focal Adhesion Kinase, or FAK, signaling pathway. FAK is a non-receptor tyrosine kinase encoded by the Protein Tyrosine Kinase-2, or PTK-2, gene that is involved in cellular adhesion and, in cancer, metastatic capability. Similar to COPIKTRA, defactinib is also delivered orally and designed to be a potential therapy for patients to take at home under the advice of their physician. Defactinib is currently being investigated in combination with immunotherapeutic and other agents through ISTs. During 2019, we plan to report the results from several ongoing dose escalation combination studies.

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. The American Cancer Society estimated that in the United States in 2018, approximately 1.7 million new cases of cancer will be diagnosed and approximately 610,000 people will die from the disease. Current treatments for cancer include surgery, radiation therapy, chemotherapy, hormonal therapy, immunotherapy, and targeted therapy. Despite years of intensive research and clinical use, current treatments often fail to cure cancer. Cancer remains one of the world's most serious health problems and is the second most common cause of death in the United States after heart disease.

With the application of new technologies and key discoveries, we believe that we are now entering an era of cancer research characterized by a more sophisticated understanding of the biology of cancer. We believe that the potential of oral, targeted therapies, along with the rapidly advancing field of immunotherapy, or using the body's immune system to fight cancer, are important new insights that present the opportunity to develop more effective cancer treatments. Our goal is to develop targeted

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agents that both specifically kill cancer cells and disrupt the tumor microenvironment to enhance the efficacy of cancer treatment.

Corporate Information

We were incorporated under the laws of the State of Delaware in August 2010. We are headquartered in Needham, Massachusetts, and our principal offices are located at 117 Kendrick Street, Suite 500, Needham, Massachusetts and our telephone number is (781) 292-4200.

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THE OFFERING

The summary below describes the principal terms of the notes. Certain of the terms of the notes described below are subject to important limitations and exceptions that are described in more detail under the caption "Description of Notes." As used in this prospectus supplement, the "Company," "we," "our" and "us" refer to Verastem, Inc. and not to our subsidiary.

Issuer	Verastem, Inc.
Notes	$150,000,000 aggregate principal amount of % convertible senior notes due 2048.
Settlement	We expect that delivery of the notes will be made to investors on or about , 2018, which will be the th business day after the date of this prospectus supplement. Currently, trades in the secondary market for convertible notes ordinarily settle two business days after the date of execution, unless the parties to the trade agree otherwise. Accordingly, investors in this offering who wish to sell their notes before the second business day preceding the delivery of the notes in this offering must specify an alternate settlement arrangement at the time of the trade to prevent a failed settlement. Those investors should consult their advisors.
Ranking	The notes will be our senior, unsecured obligations and will be: senior in right of payment to our future indebtedness that is expressly subordinated in right of payment to the notes; equal in right of payment with our existing and future indebtedness that is not so subordinated; effectively subordinated to our existing and future secured indebtedness, to the extent of the value of the collateral securing such indebtedness; and structurally subordinated to all existing and future indebtedness and other liabilities, including trade payables, and (to the extent we are not a holder thereof) preferred equity, if any, of our subsidiary.

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	As of June 30, 2018, we had $25.0 million principal amount of consolidated indebtedness under our Loan and Security Agreement, dated March 21, 2017 (as amended), between us and Hercules Funding II, LLC, certain other lenders party thereto and Hercules Capital, Inc. After giving effect to the issuance of the notes and the use of proceeds therefrom, the principal amount of our total consolidated indebtedness would have been $175.0 million. The indenture governing the notes will not limit the amount of debt that we or our subsidiary may incur.
Maturity	November 1, 2048, unless earlier repurchased, redeemed or converted.
Interest	% per annum, payable semi-annually in arrears on May 1 and November 1 of each year, beginning on May 1, 2019. In addition, special interest will accrue on the notes in the circumstances described under the caption "Description of Notes Events of Default Special Interest as Sole Remedy for Certain Reporting Defaults."
Conversion Rights	At any time before the close of business on the scheduled trading day immediately before the maturity date, noteholders may convert their notes at their option into shares of our common stock, together, if applicable, with cash in lieu of any fractional share, at the then-applicable conversion rate. However, until the "authorized share effective date" (as defined in this prospectus supplement), we may be required to cash settle a portion of our conversion obligation. Upon conversion, we will pay accrued and unpaid interest, if any, on the notes to be converted. We will have the right, exercisable at our election, to cause all notes then outstanding to be automatically converted in certain circumstances, but only if the "daily VWAP" per share of our common stock equals or exceeds 130% of the conversion price on each of at least 20 "VWAP trading days" (each, as defined in this prospectus supplement), whether or not consecutive, during any 30 consecutive VWAP trading day period commencing on or after the date we first issue the notes.

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	The initial conversion rate is shares per $1,000 principal amount of notes, which represents an initial conversion price of approximately $ per share, and is subject to adjustment as described in this prospectus supplement. If a "make-whole fundamental change" (as defined in this prospectus supplement) occurs before November 1, 2022, then we will in certain circumstances increase the conversion rate for a specified period of time. See "Description of Notes Conversion Rights."
Optional Redemption	The notes will be redeemable, in whole or in part, at our option at any time, and from time to time, on or after November 1, 2022, at a cash redemption price equal to the principal amount of the notes to be redeemed, plus accrued and unpaid interest, if any, to, but excluding, the redemption date. See "Description of Notes Redemption and Repurchase Right to Redeem."
Repurchase at the Option of Noteholders Upon Specified Dates	Unless we have previously called all outstanding notes for redemption, noteholders may require us to repurchase their notes on each of November 1, 2023, November 1, 2028, November 1, 2033, November 1, 2038 and November 1, 2043 (or, if any such date is not a business day, on the next business day), at a cash repurchase price equal to the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any, to, but excluding, the repurchase date. See "Description of Notes Redemption and Repurchase Repurchase at Option of Noteholders Upon Specified Dates."
Repurchase at the Option of the Noteholders after a Fundamental Change	If a "fundamental change" (as defined in this prospectus supplement) occurs, then noteholders may require us to repurchase their notes at a cash repurchase price equal to the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date. See "Description of Notes Redemption and Repurchase Repurchase at Option of Noteholders Upon a Fundamental Change."
Trustee, Paying Agent and Conversion Agent	Wilmington Trust, National Association.

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No Public Market	The notes are a new class of securities for which no public market currently exists. We do not intend to apply to list the notes on any securities exchange or for quotation on any inter-dealer quotation system. Accordingly, a liquid market for the notes may never develop.
The Nasdaq Global Market Symbol	Our common stock is listed on The Nasdaq Global Market under the symbol "VSTM." On October 10, 2018, the last reported sale price of our common stock was $6.26 per share.
Use of Proceeds	We estimate that the net proceeds to us from this offering will be approximately $ million, after deducting estimated fees and our estimated offering expenses. We intend to use the net proceeds from this offering for the continued clinical development of COPIKTRA and our other lead product candidates, and the balance to fund working capital, capital expenditures and other general corporate purposes, which may include the acquisition or in-license of additional compounds, product candidates or technology. See "Use of Proceeds."
Risk Factors	Investing in the notes involves risks. See "Risk Factors."
Certain U.S. Federal Income Tax Considerations	For a description of material U.S. federal income tax consequences of purchasing, owning and disposing of the notes and owning and disposing of shares of our common stock issuable upon the conversion of the notes, see "Certain U.S. Federal Income Tax Considerations."
Book-Entry Form	We will initially issue the notes in the form of one or more global notes registered in the name of Cede & Co., as nominee of The Depository Trust Company, or DTC, without interest coupons, which we will deposit with the trustee as custodian for DTC. Beneficial interests in global notes will be shown on, and transfers of global notes will be effected only through, the records maintained by DTC. Except in limited circumstances, we will not issue certificated notes. See "Description of Notes Book-Entry, Settlement and Clearance."

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RATIO OF EARNINGS TO FIXED CHARGES

The following table sets forth, for each of the periods presented, our ratio of earnings to fixed charges. You should read this table in conjunction with the financial statements and notes incorporated by reference in this prospectus supplement.

	Six Months Ended June 30, 2018	December 31, 2017	December 31, 2016	December 31, 2015	December 31, 2014	December 31, 2013
Ratio of earnings to fixed charges	N/A	N/A	N/A	N/A	N/A	N/A

For purposes of calculating the ratio above, earnings consist of income before income taxes plus fixed charges. Fixed charges include interest expense, non-cash interest expense, and an estimate of the interest expense within rental expense.

We did not record earnings for the six months ended June 30, 2018 or for any of the years ended December 31, 2017, 2016, 2015, 2014 or 2013. Accordingly, our earnings were insufficient to cover fixed charges for such periods and we are unable to disclose a ratio of earnings to fixed charges for such periods. The dollar amount of the deficiency in earnings available for fixed charges for the six months ended June 30, 2018 and for the year ended December 31, 2017, the year ended December 31, 2016, the year ended December 31, 2015, the year ended December 31, 2014, and the year ended December 31, 2013 was approximately $39.4 million, $67.8 million, $36.4 million, $57.9 million, $53.4 million and $41.2 million, respectively.

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RISK FACTORS

Investing in the notes involves a high degree of risk. In addition to the other information included and incorporated by reference in this prospectus supplement and the accompanying prospectus, you should carefully consider the risks described or referred to below before deciding to purchase the notes. The occurrence of any of these risks may materially harm our business, results of operations and financial condition. As a result, the trading price of the notes and our common stock may decline, and you might lose part or all of your investment.

Risks Related to the Commercialization of COPIKTRA and Development of Our Product Candidates

We are dependent on the commercial success of COPIKTRA.

A majority of our time, resources and effort are focused on the commercialization of COPIKTRA in the United States. While we expect to continue to expend significant time, resources and effort on the development of our other product candidates, they are in earlier stages of development and subject to the risks of failure inherent in developing drug products.

Our ability to successfully commercialize COPIKTRA will depend on, among other things, our ability to:

- maintain commercial manufacturing arrangements with third-party manufacturers;
- produce, through a validated process, sufficiently large quantities and inventory of COPIKTRA to meet demand;
- build and maintain internal sales, distribution and marketing capabilities sufficient to generate commercial sales of COPIKTRA;
- secure widespread acceptance of our product from physicians, health care payors, patients and the medical community;
- properly price and obtain coverage and adequate reimbursement of COPIKTRA by governmental authorities, private health insurers, managed care organizations and other third-party payors;
- maintain compliance with ongoing FDA labeling, packaging, storage, advertising, promotion, recordkeeping, safety and other post-market requirements;
- manage our growth and spending as costs and expenses increase due to commercialization; and
- establish and maintain collaborations with third parties for the commercialization of COPIKTRA in countries outside the United States, and such collaborators' ability to obtain regulatory and reimbursement approvals in such countries.

There are no guarantees that we will be successful in completing these tasks. In addition, we have begun, and will need to continue investing substantial financial and management resources to build out our commercial infrastructure and to recruit and train sufficient additional qualified marketing, sales and other personnel in support of our sales of COPIKTRA.

Sales of COPIKTRA may be slow or limited for a variety of reasons including competing therapies or safety issues. If COPIKTRA is not successful in gaining broad commercial acceptance, our business would be harmed.

Any sales of COPIKTRA will be dependent on several factors including our ability to educate and increase physician awareness of the benefits and cost-effectiveness of COPIKTRA relative to competing

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therapies. The degree of market acceptance of COPIKTRA among physicians, patients, health care payors and the medical community will depend on a number of factors, including:

- acceptable evidence of safety and efficacy;
- relative convenience and ease of administration;
- prevalence and severity of any adverse side effects;
- availability of alternative treatments;
- pricing and cost effectiveness;
- effectiveness of our sales and marketing capability and strategies;
- ability to obtain sufficient third-party coverage and reimbursement;
- changes in the standard of care for the targeted indications for COPIKTRA;
- warnings and limitations, including the boxed warning related to the risks of infections, diarrhea or colitis, cutaneous reactions, and pneumonitis, contained in the approved labeling for COPIKTRA;
- safety concerns with similar products marketed by others;
- the prevalence and severity of any side effects as a result of treatment with COPIKTRA;
- our ability to comply with FDA post-marketing requirements imposed upon COPIKTRA, including conducting and completing a confirmatory clinical trial in patients with relapsed or refractory follicular lymphoma that verifies and isolates the benefits of COPIKTRA; and
- the actual market-size for COPIKTRA, which may be larger or smaller than expected.

In addition, COPIKTRA will be subject to continual review by the FDA, and we cannot assure you that newly discovered or developed safety issues will not arise. With the use of any newly marketed drug by a wider patient population, serious adverse events may occur from time to time that initially do not appear to relate to the drug itself. Any safety issues could cause us to suspend or cease marketing COPIKTRA, cause us to modify how we market COPIKTRA, subject us to substantial liabilities and adversely affect our revenues and financial condition. In the event of a withdrawal of COPIKTRA from the market, our revenues would decline significantly and our business would be seriously harmed and could fail. We additionally may experience significant fluctuations in sales of COPIKTRA from period to period and, ultimately, we may never generate sufficient revenues from COPIKTRA to reach or maintain profitability or sustain our anticipated operations.

Preclinical testing and clinical trials of our product candidates may not be successful. In the near term, we are dependent on the success of our PI3K inhibitor program, including COPIKTRA. If we are unable to obtain marketing approval for or successfully commercialize any of our other product candidates, or if we experience significant delays in doing so, our business will be materially harmed.

We have invested a significant portion of our efforts and financial resources in the research and development of our product candidates, including COPIKTRA, for which we are conducting clinical trials in multiple indications. We received FDA approval for COPIKTRA for the treatment of adult patients with relapsed or refractory chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL) after at least two prior therapies and were granted accelerated approval of COPIKTRA for the treatment of adult patients with relapsed or refractory follicular lymphoma (FL) after at least two prior systemic therapies. Our ability to generate product revenues will depend heavily on the successful

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commercialization of COPIKTRA and development of our other product candidates. The success of our product candidates will depend on several factors, including the following:

- initiation and successful enrollment and completion of our clinical trials;
- receipt of marketing approvals from the FDA and other regulatory authorities for our future product candidates, including pricing approvals where required;
- establishing and maintaining commercial manufacturing capabilities or making arrangements with third-party manufacturers;
- obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our product candidates;
- establishing and maintaining commercial capabilities, including hiring and training a sales force, and launching commercial sales of the products, if and when approved, whether alone or in collaboration with others;
- acceptance of the products, if and when approved, by patients, the medical community and third-party payors;
- securing and maintaining coverage and adequate reimbursement for our products from third party payors;
- effectively competing with other therapies; and
- a continued acceptable safety and efficacy profile of the products following approval.

Many of these factors are beyond our control, including clinical development, the regulatory submission process, potential threats to our intellectual property rights and the manufacturing, marketing and sales efforts of any collaborator. If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize our product candidates, which would materially harm our business.

If clinical trials of our product candidates fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

Before obtaining marketing approval from regulatory authorities for the sale of our product candidates, we must complete extensive clinical trials to demonstrate the safety and efficacy of our product candidates in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of testing. The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and interim results of a clinical trial do not necessarily predict final results. For example, a further review and analysis of this data may change the conclusions drawn from this unaudited data indicating less promising results than we currently anticipate.

In some instances, there can be significant variability in safety and/or efficacy results between different trials of the same product candidate due to numerous factors, including changes in trial protocols, differences in size and type of the patient populations, adherence to the dosing regimen and other trial protocols and the rate of dropout among clinical trial participants. There also may be significant variability in the safety results obtained through the long-term follow-up of patients from ongoing studies. We do not know whether any clinical trial we may conduct or follow-up data we collect will demonstrate consistent or adequate efficacy and/or safety sufficient to obtain regulatory approval to market our product candidates.

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In addition, the design of a clinical trial may determine whether its results will support approval of a product and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced. 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 products.

A failure of one or more clinical trials could indicate a higher likelihood that subsequent clinical trials of the same product candidate in the same or other indications or subsequent clinical trials of other related product candidates will be unsuccessful for the same reasons as the unsuccessful clinical trials.

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

- regulators or institutional review boards may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- we may have delays in reaching or fail to reach agreement on clinical trial contracts or clinical trial protocols with prospective trial sites;
- clinical trials of our product candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development programs;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate or participants may drop out of these clinical trials at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- regulators or institutional review boards may require that we or our investigators suspend or terminate clinical trials for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials of our product candidates may be greater than we anticipate;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate; and
- our product candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators, regulators or institutional review boards to suspend or terminate the trials.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our product candidates or other testing, if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, we may:

- be delayed in obtaining or not obtain marketing approval for our product candidates;

obtain approval for indications or patient populations that are not as broad as intended or desired;

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obtain approval with labeling that includes significant use or distribution restrictions including imposition of a Risk Evaluation and Mitigation Strategy (REMS), or safety warnings, including boxed warnings;

be subject to additional post marketing testing requirements; or

have the product removed from the market after obtaining marketing approval.

The FDA and foreign regulatory authorities may determine that the results from our ongoing and future trials do not support regulatory approval and may require us to conduct an additional clinical trial or trials. If these agencies take such a position, the costs of development of our product candidates could increase materially and their potential market introduction could be delayed. The regulatory agencies could also require that we conduct additional clinical, nonclinical or manufacturing validation studies and submit that data before it will consider an NDA. Our product development costs will also increase if we experience delays in clinical testing or marketing approvals. We do not know whether any clinical trials will begin as planned, will need to be restructured or will be completed on schedule, or at all. Significant clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do and impair our ability to successfully commercialize our product candidates and may harm our business and results of operations.

If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. In addition, there are a number of ongoing clinical trials being conducted by other companies for product candidates treating cancer. Patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates, particularly if they view such treatments to be more conventional and established.

Patient enrollment is affected by other factors including:

the size and nature of the patient population;

severity of the disease under investigation;

eligibility criteria for the study in question;

perceived risks and benefits of the product candidate under study in relation to other available treatments including any new treatments that may be approved for the indications we are investigating;

efforts to facilitate timely enrollment in clinical trials;

patient referral practices of physicians;

the ability to monitor patients adequately during and after treatment; and

proximity and availability of clinical trial sites for prospective patients.

Furthermore, enrolled patients may drop out of a clinical trial, which could impair the validity or statistical significance of the clinical trial. A number of factors can influence the patient discontinuation rate, including, but not limited to:

the inclusion of a placebo arm in a trial;

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possible inactivity or low activity of the product candidate being tested at one or more of the dose levels being tested;

the occurrence of adverse side effects, whether or not related to the product candidate; and

the availability of numerous alternative treatment options, including clinical trials evaluating competing product candidates, that may induce patients to discontinue their participation in the trial.

Our inability to enroll a sufficient number of patients for our clinical trials would result in significant delays or may require us to abandon one or more clinical trials altogether. Enrollment delays in our clinical trials may result in increased development costs for our product candidates, which would cause the value of our company to decline and limit our ability to obtain additional financing.

If serious adverse or unexpected side effects are identified during the commercialization of COPIKTRA or development of our other product candidates, we may need to abandon or limit the commercialization of COPIKTRA and abandon or limit our development of some of our other product candidates.

The FDA approved COPIKTRA with labeling that includes a boxed warning for four fatal and/or serious toxicities: infections, diarrhea or colitis, cutaneous reactions, and pneumonitis. As a requirement of the FDA's approval, we are implementing an informational REMS to provide appropriate dosing and safety information to better support physicians in managing their patients on COPIKTRA. In addition to the boxed warning, use of COPIKTRA is also associated with adverse reactions, which may require dose reduction, treatment delay or discontinuation of COPIKTRA. Warnings and precautions are provided for infections, diarrhea or colitis, cutaneous reactions, pneumonitis, hepatotoxicity, neutropenia, and embryo-fetal toxicity. The most common adverse reactions (reported in ≥ 20% of patients) were diarrhea or colitis, neutropenia, rash, fatigue, pyrexia, cough, nausea, upper respiratory infection, pneumonia, musculoskeletal pain, and anemia.

Our other product candidates are in various stages of clinical development and their risk of failure is high. It is impossible to predict when or if our other product candidates will prove effective or safe in humans or will receive marketing approval. If our product candidates are associated with undesirable side effects or have characteristics that are unexpected, we may need to abandon their development or limit development to certain uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk benefit perspective. Patients in our clinical trials have experienced serious adverse events, deemed by us and the clinical investigator to be related to our product candidates. Serious adverse events generally refer to adverse events, that result in death, are life threatening, require hospitalization or prolonging of hospitalization, or cause a significant and permanent disruption of normal life functions, congenital anomalies or birth defects, or require intervention to prevent such outcomes.

Defactinib is in our Phase 1 and Phase 2 clinical trials and the development program continues to progress. The toxicities reported thus far are consistent with other drugs in this class.

As a result of adverse events observed to date, or further safety or toxicity issues that we may experience in our clinical trials in the future, we may not receive approval to market any product candidates, which could prevent us from ever generating revenue from the sale of products or achieving profitability. Results of our trials could reveal an unacceptably high severity and prevalence of side effects. In such an event, our trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of or deny approval of our products candidates for any or all targeted indications. Many compounds that initially showed promise in early stage testing for treating cancer have later been found to cause side effects that prevented further development of the compound. In addition, while we and our clinical trial investigators currently determine if serious adverse or unacceptable side effects are drug related, the FDA or other

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non-U.S. regulatory authorities may disagree with our or our clinical trial investigators' interpretation of data from clinical trials and the conclusion that a serious adverse effect or unacceptable side effect was not drug related.

For COPIKTRA, if we or others identify previously unknown side effects or if known side effects are more frequent or severe than in the past, then:

- sales of COPIKTRA may be modest;
- regulatory approvals for COPIKTRA may be restricted or withdrawn;
- we may decide to, or be required to, send product warning letters or field alerts to physicians, pharmacists and hospitals;
- additional non-clinical or clinical studies, changes in labeling or changes to manufacturing processes, specifications and/or facilities may be required; and
- government investigations or lawsuits, including class action suits, may be brought against us.

Any of the above occurrences would harm or prevent sales of COPIKTRA, increase our expenses and impair our ability to successfully commercialize COPIKTRA. Furthermore, as COPIKTRA is commercially available, it may be used in a wider population and in a less rigorously controlled environment than in clinical studies. As a result, regulatory authorities, healthcare practitioners, third-party payors or patients may perceive or conclude that the use of COPIKTRA is associated with previously unknown serious adverse effects, undermining our commercialization efforts.

Preclinical studies and preliminary and interim data from clinical trials of our product candidates are not necessarily predictive of the results or success of ongoing or later clinical trials of our product candidates. If we cannot replicate the results from our preclinical studies and clinical trials of our product candidates, we may be unable to successfully develop, obtain regulatory approval for and commercialize our product candidates.

Preclinical studies and any positive preliminary and interim data from our clinical trials of our product candidates may not necessarily be predictive of the results of ongoing or later clinical trials. Even if we are able to complete our planned clinical trials of our product candidates according to our current development timeline, the positive results from clinical trials of our product candidates may not be replicated in subsequent clinical trial results. Also, our later stage clinical trials could differ in significant ways from earlier stage clinical trials, which could cause the outcome of the later stage trials to differ from our earlier stage clinical trials. For example, these differences may include changes to inclusion and exclusion criteria, efficacy endpoints and statistical design. Many companies in the pharmaceutical and biotechnology industries, including us, have suffered significant setbacks in late stage clinical trials after achieving positive results in an earlier stage of development. If we fail to produce positive results in our planned clinical trials of any of our product candidates, the development timeline and regulatory approval and commercialization prospects for our product candidates, and, correspondingly, our business and financial prospects, would be materially adversely affected.

Our approach to the treatment of cancer through the killing of cancer cells and disruption of the tumor microenvironment is relatively unproven, and we do not know whether we will be able to develop any products of significant commercial value.

We are commercializing COPIKTRA and developing duvelisib in other indications and other product candidates to treat cancer by using targeted agents to kill cancer cells or disrupt the tumor microenvironment and thereby thwart their growth and proliferation of cancer cells.

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Research on the use of small molecules to inhibit PI3K and FAK signaling pathways and disrupt the tumor microenvironment is an emerging field and, consequently, there is still uncertainty about whether COPIKTRA and defactinib are effective in improving outcomes for patients with cancer. With respect to our FAK inhibition program, there is some debate in the scientific community regarding cancer stem cells (CSCs), the existence of these cells, the defining characteristics of these cells, as well as whether targeting such cells is an effective approach to treating cancer. Some believe that targeting CSCs as part of our multi-faceted approach should be sufficient for a positive clinical outcome, while others believe that, at times or always, the use of FAK inhibitors that reduce CSCs should be coupled with conventional chemotherapies for a positive clinical outcome.

Any products that we develop may not effectively target cancer cells, enhance anti-tumor immunity, or modulate the local tumor microenvironment. While we are currently commercializing COPIKTRA and conducting clinical trials for other product candidates that we believe will attack cancer cells through the inhibition of the PI3K or FAK signaling pathways and potentially disrupt the tumor microenvironment, we may not ultimately be successful in demonstrating their efficacy, alone or in combination with other treatments.

The approval of our product candidates as part of a combination therapy for the treatment of certain cancers may be more costly than our prior clinical trials, may take longer to achieve regulatory approval, may be associated with new, more severe or serious and unanticipated adverse events, and may have a smaller market opportunity.

Part of our current business model involves conducting clinical trials to study the effects of combining our product candidates with other approved and investigational targeted therapies, chemotherapies, and immunotherapies to treat patients with cancer. Regulatory approval for a combination treatment generally requires clinical trials to evaluate the activity of each component of the combination treatment. As a result, it may be more difficult and costly to obtain regulatory approval of our product candidates for use as part of a combination treatment than obtaining regulatory approval of our product candidates alone. In addition, we also risk losing the supply of any approved or investigational product being combined with our product candidate in these clinical trials. Furthermore, the potential market opportunity for our product candidates is difficult to estimate precisely. For instance, if one of our product candidates receives regulatory approval from a combination study, it may be approved solely for use in combination with the approved or investigational product in a particular indication and the market opportunity our product candidate would be dependent upon the continued use and availability of the approved or investigational product. In addition, because physicians, patients and third-party payors may be sensitive to the addition of the cost of our product candidates to the cost of treatment with the other products, we may experience downward pressure on the price that we can charge for our product candidates if they receive regulatory approval. Further, we cannot be sure that physicians will view our product candidates, if approved as part of a combination treatment, as sufficiently superior to a treatment regimen consisting of only the approved or investigational product. Additionally, the adverse side effects of our product candidates may be enhanced when combined with other products. If such adverse side effects are experienced, we could be required to conduct additional pre-clinical and clinical studies and if such adverse side effects are severe, we may not be able to continue the clinical trials of the combination therapy because the risks may outweigh the therapeutic benefit of the combination.

We may not be successful in obtaining necessary rights to compounds and product candidates for our development pipeline through acquisitions and in-licenses.

We may seek to acquire new compounds and product candidates from other pharmaceutical and biotechnology companies, academic scientists and other researchers, such as our exclusive in- license from Infinity Pharmaceuticals, Inc., or Infinity, to research, develop, commercialize, and manufacture

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products in oncology indications containing duvelisib. The success of this strategy depends partly upon our ability to identify, select, discover and acquire promising pharmaceutical product candidates and products. The process of proposing, negotiating and implementing a license or acquisition of a product candidate or approved product is lengthy and complex. Other companies, including some with substantially greater financial, marketing and sales resources, may compete with us for the license or acquisition of product candidates and approved products. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We have limited resources to identify and execute the acquisition or in-licensing of third-party products, businesses and technologies and integrate them into our current infrastructure. Moreover, we may devote resources to potential acquisitions or in-licensing opportunities that are never completed, or we may fail to realize the anticipated benefits of such efforts. We also may be unable to license or acquire the relevant compound or product candidate on terms that would allow us to make an appropriate return on our investment. Any product candidate that we acquire may require additional development efforts prior to commercial sale, including manufacturing, pre-clinical testing, extensive clinical testing and approval by the FDA and applicable foreign regulatory authorities. All product candidates are prone to risks of failure typical of pharmaceutical product development.

In addition, future product or business acquisitions may entail numerous operational and financial risks, including:

- exposure to unknown liabilities;
- disruption of our business and diversion of our management's time and attention to develop acquired products, product candidates or technologies;
- higher than expected acquisition and integration costs;
- increased amortization expenses; and
- incurrence of substantial debt, dilutive issuances of securities or depletion of cash to pay for acquisitions.

Future business acquisitions may also entail certain additional risks, such as:

- difficulty in combining the operations and personnel of any acquired businesses with our operations and personnel;
- impairment of relationships with key suppliers or customers of any acquired businesses due to changes in management and ownership; and
- inability to motivate key employees of any acquired businesses.

If we fail to obtain regulatory approval in jurisdictions outside the United States, we will not be able to market our products in those jurisdictions.

We intend to seek regulatory approval for our product candidates, including COPIKTRA, in a number of countries outside of the United States and expect that these countries will be important markets for our products, if approved. Marketing our products in these countries will require separate regulatory approvals in each market and compliance with numerous and varying regulatory requirements. The regulations that apply to the conduct of clinical trials and approval procedures vary from country to country and may require additional testing. Moreover, the time required to obtain approval may differ from that required to obtain FDA approval. In addition, in many countries outside the United States, a drug must be approved for reimbursement before it can be approved for sale in that country. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other foreign countries or by the FDA. Failure to obtain regulatory approval in

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one country may have a negative effect on the regulatory approval process in others. The foreign regulatory approval process may include all of the risks associated with obtaining FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. We may not be able to file for regulatory approvals and may not receive necessary approvals to commercialize our products in any foreign market.

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

Because we have limited financial and managerial resources, we focus on research programs and product candidates that we identify for specific indications. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products.

We face substantial competition, which may result in others developing or commercializing products before or more successfully than we do.

The development and commercialization of new drug products is highly competitive. We face competition with respect to COPIKTRA and our other product candidates and will face competition with respect to any product candidates that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of products for the treatment of the disease indications for which we are developing COPIKTRA and our product candidates, including Gilead Sciences, Inc., Abbvie, Pharmacyclics LLC, Roche, Celgene Corporation, AstraZeneca, Incyte Corporation, TG Therapeutics, Inc., Novartis and others. Some of these competitive products and therapies are based on scientific approaches that are the same as or similar to our approach, and others are based on entirely different approaches. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

We are commercializing COPIKTRA and developing our other product candidates for the treatment of cancer. There are a variety of available therapies marketed for cancer. In many cases, these drugs are administered in combination to enhance efficacy. Some of these drugs are branded and subject to patent protection, and others are available on a generic basis. Many of these approved drugs are well established therapies and are widely accepted by physicians, patients and third-party payors. Insurers and other third-party payors may also encourage the use of generic products. We expect that COPIKTRA and our other product candidates, if approved, will be priced at a significant premium over competitive generic products.

Many of our competitors have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and

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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.

In addition, to the extent that products or product candidates of our competitors demonstrate serious adverse side effects or are determined to be ineffective in clinical trials, the commercialization of COPIKTRA and the development of our other product candidates could be negatively impacted.

COPIKTRA and any future product candidates that we commercialize may become subject to unfavorable pricing regulations or third-party coverage and reimbursement policies, which would harm our business.

In both domestic and foreign markets, sales of COPIKTRA and any product candidates that may receive marketing approval in the future will depend, in part, on favorable pricing as well as the availability of coverage and amount of reimbursement by third party payors, including governments and private health plans. Substantial uncertainty exists regarding coverage and reimbursement by third party payors of newly approved health care products.

Outside the United States, some countries require approval of the sale price of a drug before the product can be marketed. In many such countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in COPIKTRA and other product candidates, even if those product candidates obtain marketing approval.

Cost containment is a key trend in the United States and elsewhere. Third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We cannot be sure that coverage and reimbursement will be available for COPIKTRA or any other product that we commercialize and, if reimbursement is available, the level of reimbursement. Coverage and reimbursement may impact the demand for, or the price of, COPIKTRA or any other product candidate for which we obtain marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we may not be able to successfully commercialize COPIKTRA or any other product candidate for which we may obtain marketing approval.

If we participate in and then fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate Program or other governmental pricing programs in the U.S., we could be subject to additional reimbursement requirements, penalties, sanctions and fines which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

With the approval of COPIKTRA, we anticipate that we will need to participate in the Medicaid Drug Rebate Program, Medicare Coverage Gap Discount Program and a number of other federal and state government pricing programs in the U.S. in order to obtain coverage for the product by certain government healthcare programs. These programs would generally require us to pay rebates or provide discounts to certain private purchasers or government payers in connection with our products when dispensed to beneficiaries of these programs. In some cases, such as with the Medicaid Drug Rebate Program, the rebates are based on pricing and rebate calculations that we report on a monthly and quarterly basis to the government agencies that administer the programs. The terms, scope and complexity of these government pricing programs change frequently. We may also have reimbursement obligations or be subject to penalties if we fail to provide timely and accurate information to the government, pay the correct rebates or offer the correct discounted pricing. Changes to the price

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reporting or rebate requirements of these programs would affect our obligations to pay rebates or offer discounts. Responding to current and future changes may increase our costs and the complexity of compliance, will be time-consuming, and could have a material adverse effect on our results of operations.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any products that we may develop, including COPIKTRA.

We face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical trials and will face an even greater risk from any sales of COPIKTRA or if we commercially sell any other products we may develop. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

decreased demand for COPIKTRA or any other product candidates or products that we may develop;

injury to our reputation and significant negative media attention;

withdrawal of clinical trial participants;

significant costs to defend the related litigation;

substantial monetary awards to trial participants or patients;

loss of revenue; and

the inability to commercialize any products that we may develop.

We currently hold $10.0 million in product liability insurance coverage in the aggregate, with a per incident limit of $10.0 million, which may not be adequate to cover all liabilities that we may incur. We may need to increase our insurance coverage as we commercialize COPIKTRA and any future product candidates or if we initiate additional clinical trials in the United States and around the world. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

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

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations

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may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Risks Related to Our License Agreement with Infinity

If we do not realize the anticipated benefits of our license agreement with Infinity for the COPIKTRA program, our business could be adversely affected.

Our license agreement with Infinity for COPIKTRA may fail to further our business strategy as anticipated or to achieve anticipated benefits and success. We may make or have made assumptions relating to the impact of the acquisition of COPIKTRA on our financial results relating to numerous matters, including:

- the cost of development and commercialization of COPIKTRA; and
- other financial and strategic risks related to the license agreement with Infinity.

Further, we may incur higher than expected operating and transaction costs, and we may encounter general economic and business conditions that adversely affect us relating to our license agreement with Infinity. If one or more of these assumptions are incorrect, it could have an adverse effect on our business and operating results, and the benefits from our license agreement with Infinity for COPIKTRA may not be realized or be of the magnitude expected.

Risks Related to Our Financial Position and Need for Additional Capital

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

Since inception, we have incurred significant operating losses. As of June 30, 2018, we had an accumulated deficit of $342.6 million. To date, we have not generated any product revenues and have financed our operations through private placements of our preferred stock, public offerings of our common stock, sales of our common stock pursuant to our at-the-market equity offering programs, and our loan and security agreement with Hercules Capital Inc. (Hercules). As of June 30, 2018, there was $25.0 million available to borrow under the amended term loan facility with Hercules, subject to certain conditions of funding. We have devoted substantially all of our efforts to research and development. We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. The net losses we incur may fluctuate significantly from quarter to quarter. We anticipate that our expenses will increase substantially if and as we:

- commercialize COPIKTRA;
- continue our ongoing clinical trials with our product candidates, including with COPIKTRA and defactinib;
- initiate additional clinical trials for our product candidates;
- maintain, expand and protect our intellectual property portfolio;
- acquire or in-license other products and technologies;
- hire additional clinical, development and scientific personnel;

add operational, financial and management information systems and personnel, including personnel to support our product development and commercialization efforts; and

establish and maintain a sales, marketing and distribution infrastructure to commercialize COPIKTRA or any products for which we obtain marketing approval.

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

We will continue to need substantial additional funding. If we are unable to raise capital when needed, we would be forced to delay, reduce or eliminate our product development programs or commercialization efforts, including for COPIKTRA.

We expect our expenses to increase in connection with our ongoing activities, particularly as we commercialize COPIKTRA and continue the clinical development of our other product candidates. We expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution of COPIKTRA. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations, including for our clinical development programs and any commercialization efforts for COPIKTRA.

We expect our cash, cash equivalents and investments at June 30, 2018 will enable us to fund our current operating plan and capital expenditure requirements beyond the next 12 months. Our future capital requirements will depend on many factors, including:

- the costs and timing of commercialization activities for COPIKTRA and the product candidates for which we expect to receive marketing approval;
- the scope, progress and results of our ongoing and potential future clinical trials;
- the extent to which we acquire or in-license other product candidates and technologies;
- the costs, timing and outcome of regulatory review of our product candidates (including our efforts to seek approval and fund the preparation and filing of regulatory submissions);
- Revenue received from commercial sales of COPIKTRA and our product candidates, should any of our other product candidates also receive marketing approval;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property related claims; and
- our ability to establish collaborations or partnerships on favorable terms, if at all.

Conducting clinical trials is a time consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval of any of our other product candidates. Even though the FDA approved COPIKTRA, it may not achieve commercial success. Our commercial revenues will be derived from sales of products, such as COPIKTRA. Accordingly, even though we received regulatory approval for COPIKTRA, it will take several years to achieve peak sales, and we will need to continue to rely on additional financing to further our clinical development objectives. Adequate additional financing may not be available to us on acceptable terms, or at all.

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Raising additional capital or entering into certain licensing arrangements may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to COPIKTRA and our other product candidates.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, grants and government funding, strategic alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt, the ownership interest of our existing stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing stockholders. To the extent that we enter into certain licensing arrangements, the ownership interest of our existing stockholders may be diluted if we elect to make certain payments in shares of our common stock. For example, pursuant to the terms of our license agreement with Infinity, we may elect to make certain milestone payments in shares of common stock in lieu of cash, according to a formula set forth in the license agreement. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. For example, see our risk factors under the heading "Risks Related to Our Indebtedness."

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

Risks Related to Our Indebtedness

Our level of indebtedness and debt service obligations could adversely affect our financial condition, and may make it more difficult for us to fund our operations.

In March 2017, we entered into a Loan and Security Agreement with Hercules, which was subsequently amended in January, March and October 2018. Under the Loan and Security Agreement, as amended (the Amended Loan Agreement), Hercules will provide access to term loans with an aggregate principal amount of up to $50.0 million and permit this offering and issuance of notes. As of June 30, 2018, there was $25.0 million available to borrow under the Amended Loan Agreement, subject to certain conditions of financing.

All obligations under the Amended Loan Agreement are secured by substantially all of our existing property and assets, excluding our intellectual property. This indebtedness may create additional financing risk for us, particularly if our business or prevailing financial market conditions are not conducive to paying off or refinancing our outstanding debt obligations at maturity. This indebtedness could also have important negative consequences, including:

- we will need to repay our indebtedness by making payments of interest and principal, which will reduce the amount of money available to finance our operations, our research and development efforts and other general corporate activities; and

- our failure to comply with the restrictive covenants in the Amended Loan Agreement could result in an event of default that, if not cured or waived, would accelerate our obligation to repay this indebtedness, and Hercules could seek to enforce their security interest in the assets securing such indebtedness.

To the extent additional debt is added to our current debt levels, the risks described above could increase.

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We may not have cash available in an amount sufficient to enable us to make interest or principal payments on our indebtedness when due.

Failure to satisfy our current and future debt obligations under the Amended Loan Agreement, or breaching any covenants under the Amended Loan Agreement, subject to specified cure periods with respect to certain breaches, could result in an event of default and, as a result, Hercules could accelerate all of the amounts due. In the event of an acceleration of amounts due under the Amended Loan Agreement as a result of an event of default, we may not have enough available cash or be able to raise additional funds through equity or debt financings to repay such indebtedness at the time of such acceleration. In that case, we may be required to delay, limit, reduce or terminate our COPIKTRA commercialization efforts, other product candidate development or grant to others the rights to develop and market COPIKTRA and our other product candidates that we would otherwise prefer to develop and market internally. Hercules could also exercise its rights as collateral agent to take possession and dispose of the collateral securing the term loans for its benefit, which collateral includes substantially all of our property other than our intellectual property. Our business, financial condition and results of operations could be materially adversely affected as a result of any of these events. We are subject to certain restrictive covenants which, if breached, could have a material adverse effect on our business and prospects.

The Amended Loan Agreement imposes operating and other restrictions on us. Such restrictions will affect, and in many respects limit or prohibit, our ability and the ability of any future subsidiary to, among other things:

dispose of certain assets;

change our lines of business;

engage in mergers, acquisitions or consolidations;

incur additional indebtedness;

create liens on assets;

pay dividends and make distributions or repurchase our capital stock; and

engage in certain transactions with affiliates.

Risks Related to Our Dependence on Third Parties

We rely in part on third parties to conduct our clinical trials and preclinical testing, and if they do not properly and successfully perform their obligations to us, we may not be able to commercialize COPIKTRA or obtain regulatory approvals for and commercialize any of our other product candidates.

We rely on third parties, such as contract research organizations (CROs), clinical data management organizations, medical institutions and clinical investigators, to conduct, provide monitors for and manage data from all of our clinical trials. We compete with many other companies for the resources of these third parties.

Any of these third parties may terminate their engagements with us at any time. If we need to enter into alternative arrangements, it would delay our product development activities and ultimately the commercialization of our product candidates.

Our reliance on these third parties for research and development activities will reduce our control over these activities but will not relieve us of our responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA and other regulatory agencies require us to comply with standards, commonly referred to as Good Clinical Practices (GCP) for

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conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs fail to comply with applicable GCP requirements, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or other 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 comply with GCP requirements. We also are required to register ongoing clinical trials and post the results of completed clinical trials on government-sponsored databases, such as ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions.

If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, marketing approvals for some of our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize COPIKTRA and our other product candidates.

We intend to rely on third parties to conduct investigator sponsored clinical trials of our product candidates. Any failure by a third party to meet its obligations with respect to the clinical development of our product candidates may delay or impair our ability to obtain regulatory approval for our product candidates.

We intend to rely on academic and private non-academic institutions to conduct and sponsor clinical trials relating to our product candidates. We will not control the design or conduct of the investigator sponsored trials, and it is possible that the FDA or non-U.S. regulatory authorities will not view these investigator-sponsored trials as providing adequate support for future clinical trials, whether controlled by us or third parties, for any one or more reasons, including elements of the design or execution of the trials or safety concerns or other trial results.

Such arrangements will provide us certain information rights with respect to the investigator sponsored trials, including access to and the ability to use and reference the data, including for our own regulatory filings, resulting from the investigator sponsored trials. However, we do not have control over the timing and reporting of the data from investigator sponsored trials, nor do we own the data from the investigator sponsored trials. If we are unable to confirm or replicate the results from the investigator sponsored trials or if negative results are obtained, we would likely be further delayed or prevented from advancing further clinical development of our product candidates. Further, if investigators or institutions breach their obligations with respect to the clinical development of our product candidates, or if the data proves to be inadequate compared to the firsthand knowledge we might have gained had the investigator sponsored trials been sponsored and conducted by us, then our ability to design and conduct any future clinical trials ourselves may be adversely affected.

Additionally, the FDA or non-U.S. regulatory authorities may disagree with the sufficiency of our right of reference to the preclinical, manufacturing or clinical data generated by these investigator-sponsored trials, or our interpretation of preclinical, manufacturing or clinical data from these investigator-sponsored trials. If so, the FDA or other non-U.S. regulatory authorities may require us to obtain and submit additional preclinical, manufacturing, or clinical data before we may initiate our planned trials and/or may not accept such additional data as adequate to initiate our planned trials.

We contract with third parties for the manufacture of our product candidates, including COPIKTRA, and for compound formulation research, and these third parties may not perform satisfactorily.

We do not have any manufacturing facilities or personnel. We currently obtain all of our supply of COPIKTRA and our other product candidates for clinical development from third-party manufacturers

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or third-party collaborators, and we expect to continue to rely on third parties for the manufacture of clinical quantities of our product candidates and commercial quantities of COPIKTRA. In addition, we currently rely on third parties for the development of various formulations of COPIKTRA and our other product candidates. This reliance on third parties increases the risk that we will not have sufficient quantities of COPIKTRA or our product candidates or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts.

Any of these third parties may terminate their engagement with us at any time. We do not currently have arrangements in place for redundant supply or a second source for bulk drug substance. Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party, including the misappropriation of our proprietary information, trade secrets and know how;
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us; and
- disruptions to the operations of our manufacturers or suppliers caused by conditions unrelated to our business or operations, including the bankruptcy of the manufacturer or supplier or a catastrophic event affecting our manufacturers or suppliers.

Third-party manufacturers may not be able to comply with current good manufacturing practices (cGMP) regulations or similar regulatory requirements outside the United States. 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 products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products and harm our business and results of operations.

Any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us. Any interruption of the development or operation of the manufacturing facilities due to, among other reasons, events such as order delays for equipment or materials, equipment malfunction, quality control and quality assurance issues, regulatory delays and possible negative effects of such delays on supply chains and expected timelines for product availability, production yield issues, shortages of qualified personnel, discontinuation of a facility or business or failure or damage to a facility by natural disasters, could result in the cancellation of shipments, loss of product in the manufacturing process or a shortfall in available COPIKTRA, other product candidates or materials.

If our current contract manufacturers cannot perform as agreed or these parties cease to provide quality manufacturing and related services to us, we may be required to replace that manufacturer. If we are not able to engage appropriate replacements in a timely manner, our ability to manufacture COPIKTRA or our other product candidates in sufficient quality and quantity required for commercial use of COPIKTRA and/or for planned pre-clinical testing, clinical trials and potential commercial use of our product candidates would be adversely affected. Although we believe that there are several potential alternative manufacturers who could manufacture our product candidates, we may incur added costs and delays in identifying and qualifying any such replacement, as well as producing the drug product and obtaining regulatory approvals for the new manufacturer. In addition, we have to enter into technical transfer agreements and share our know-how with the third-party manufacturers, which can be time consuming and may result in delays. In light of the lead time needed to manufacture COPIKTRA and our other product candidates, and the availability of underlying materials, we may not

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be able to, in a timely manner or at all, establish or maintain sufficient commercial manufacturing arrangements on commercially reasonable terms necessary to provide adequate supply of COPIKTRA to meet demands that exceed our commercial assumptions or to provide adequate supply of our other product candidates to meet demands that exceed our clinical assumptions. Furthermore, we may not be able to obtain the significant financial capital that may be required in connection with such arrangements. Even after successfully engaging third parties to execute the manufacturing process for COPIKTRA and our other product candidates, such parties may not comply with the terms and timelines they have agreed to for various reasons, some of which may be out of their or our control, which could impact our ability to execute our business plans on expected or required timelines in connection with the commercialization of COPIKTRA and the continued development of our other product candidates. We may also be required to enter into long-term manufacturing agreements that contain exclusivity provisions and/or substantial termination penalties, which could have a material adverse effect on our business prior to and after commercialization.

Our current and anticipated future dependence upon others for the manufacture of our other product candidates or products may adversely affect our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

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

Our drug development programs and the potential commercialization of our product candidates will require substantial additional cash to fund expenses. For some of our product candidates, we may decide to collaborate with pharmaceutical and biotechnology companies for the development and potential commercialization of those 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 similar 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 certain product candidates, reduce or delay our development programs, delay 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.

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We may depend on collaborations with third parties for the commercialization of COPIKTRA and the development and commercialization of our other product candidates. If those collaborations are not successful, we may not be able to capitalize on the market potential of COPIKTRA or any other product candidates.

We may seek third-party collaborators for the development and commercialization of our product candidates. For instance, we have entered into agreements for the development and commercialization of COPIKTRA in China, Hong Kong, Macau and Taiwan with CSPC Pharmaceutical Group Limited and in Japan with Yakult Honsha Co., Ltd. We anticipate that we may seek to enter into a collaboration for marketing and commercialization of our product candidates in certain territories worldwide at the appropriate time in the future. Our likely collaborators for any collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. If we do enter into any such arrangements with any third parties, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenues from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving our product candidates would pose the following risks to us:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not pursue development and commercialization of our product candidates 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 program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products or 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;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to the marketing and distribution of such product or products;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation;
- disputes may arise between the collaborators and us that result in the delay or termination of the research, development or commercialization of our products or product candidates or that result in costly litigation or arbitration that diverts management attention and resources; and
- 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.

Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. If a future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program could be delayed, diminished or terminated.

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If we are unable to maintain our agreements with third parties to distribute COPIKTRA to patients, our results of operations and business could be adversely affected.

We will rely on third parties to commercially distribute COPIKTRA to patients. We have contracted with a third-party logistics company to warehouse COPIKTRA and to process and ship customer orders, and with specialty pharmacies and specialty distributors to sell and distribute COPIKTRA. The specialty pharmacies sell COPIKTRA directly to patients and provide patient education and ongoing management. The specialty distributors sell COPIKTRA to community oncologists with in-office dispensaries, hospital-owned practices, local offices with onsite pharmacies, retail pharmacies, and other institutional customers. We have also contracted with a third-party patient services hub to help us with some or all of the following: reimbursement adjudication, patient financial support, patient assistance programs and ongoing compliance support. This distribution network will require significant coordination with our sales and marketing and finance organizations. In addition, failure to coordinate financial systems could negatively impact our ability to accurately report product revenue from COPIKTRA. If we are unable to effectively manage the distribution process, the commercial launch and sales of COPIKTRA, as well as any future products we may commercialize, sales could be delayed or severely compromised and our results of operations may be harmed.

In addition, the use of specialty pharmacies, specialty distributors and a call center involves certain risks, including, but not limited to, risks that these organizations will:

not provide us with accurate or timely information regarding their inventories, the number of patients who are using COPIKTRA or serious adverse reactions, events and/or product complaints regarding COPIKTRA;

not effectively sell or support COPIKTRA, or communicate publicly concerning COPIKTRA in a manner that is contrary to FDA rules and regulations;

reduce or discontinue their efforts to sell or support COPIKTRA;

not devote the resources necessary to sell COPIKTRA in the volumes and within the time frame we expect;

be unable to satisfy financial obligations to us or others; or

cease operations.

Any such events may result in decreased product sales and lower product revenue, which would harm our results of operations and business.

Risks Related to Our Intellectual Property

If we fail to comply with our obligations under our intellectual property licenses with third parties, we could lose license rights that are important to our business.

We are a party to a number of intellectual property license agreements with third parties, including Infinity and Pfizer Inc., or Pfizer, and expect to enter into additional license agreements in the future. Our existing license agreements impose, and we expect that future license agreements will impose, various diligence, milestone payment, royalty, insurance and other obligations on us. For example, under our license agreements with Infinity and Pfizer, we are required to use diligent or commercially reasonable efforts to develop and commercialize licensed products under the agreement and to satisfy other specified obligations. If we fail to comply with our obligations under these licenses, our licensors may have the right to terminate these license agreements, in which event we might not be able to market any product that is covered by these agreements, or to convert the exclusive licenses to non-exclusive licenses, which could materially adversely affect the value of COPIKTRA or the product candidate being developed under these license agreements. Termination of these license agreements or

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reduction or elimination of our licensed rights may result in our having to negotiate new or reinstated licenses with less favorable terms, which may not be possible. If Pfizer were to terminate its license agreement with us for any reason, we would lose our rights to defactinib. If Infinity were to terminate its license agreement with us for any reason, we would lose our rights to COPIKTRA.

If we are unable to obtain and maintain patent protection for our products, or if our licensors are unable to obtain and maintain patent protection for the products that we license from them, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our products may be adversely affected.

Our success depends in large part on our and our licensors' ability to obtain and maintain patent protection in the United States and other countries with respect to our products. We and our licensors seek to protect our proprietary position by filing patent applications in the United States and abroad related to our products that are important to our business. We cannot be certain that any patents will issue with claims that cover COPIKTRA or our other product candidates.

The patent prosecution process is expensive and time consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, in some circumstances, we do not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering products that we license from third parties and are reliant on our licensors. Therefore, we cannot be certain that these patents and applications will be prosecuted and enforced in a manner consistent with the best interests of our business. If such licensors fail to maintain such patents, or lose rights to those patents, the rights we have licensed may be reduced or eliminated.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our and our licensors' patent rights are highly uncertain. Our and our licensors' pending and future patent applications may not result in patents being issued which protect our products or which effectively prevent others from commercializing competitive products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection.

The laws of foreign countries may not protect our rights to the same extent as the laws of the United States. 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, or in some cases not at all. Therefore, we cannot be certain that we or our licensors were the first to make the inventions claimed in our owned or licensed patents or pending patent applications, or that we or our licensors were the first to file for patent protection of such inventions.

Assuming the other requirements for patentability are met, in the United States, for patents that have an effective filing date prior to March 15, 2013, the first to make the claimed invention is entitled to the patent, while outside the United States, the first to file a patent application is entitled to the patent. In March 2013, the United States transitioned to a first inventor to file system in which, assuming the other requirements for patentability are met, the first inventor to file a patent application will be entitled to the patent. We may be subject to a third party pre-issuance submission of prior art to the U.S. Patent and Trademark Office, or become involved in opposition, derivation, reexamination, inter parties review or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the

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scope of, or invalidate, our patent rights, allow third parties to commercialize our products and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights.

Even if our owned and licensed patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our owned or licensed patents by developing similar or alternative technologies or products in a non-infringing manner.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our owned and licensed patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or freedom to operate 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 products, or limit the duration of the patent protection of our products. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

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

Competitors may infringe our patents. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our patents at risk of being invalidated or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, our licensors may have rights to file and prosecute such claims and we are reliant on them.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.

Our commercial success depends upon our ability and the ability of our collaborators to commercialize, develop, manufacture, market and sell COPIKTRA and our other product candidates without infringing the proprietary rights of third parties. We have yet to conduct comprehensive freedom to operate searches to determine whether our use of certain of the patent rights owned by or licensed to us would infringe patents issued to third parties. We may become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to our products, including interference proceedings before the U.S.

Patent and Trademark Office. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future. If we are found to infringe a third party's intellectual property rights, we could be required to obtain a license from such third party to continue developing and marketing our products. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could

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be forced, including by court order, to cease commercializing the infringing product. In addition, we could be found liable for monetary damages. A finding of infringement could prevent us from commercializing COPIKTRA and our other product candidates or force us to cease some of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We may be subject to claims that our employees have wrongfully used or disclosed alleged trade secrets of their former employers.

Many of our employees 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 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 these employees have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee's former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

Intellectual property litigation could cause us to spend substantial resources and distract our personnel from their normal responsibilities.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development, sales, marketing or distribution activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

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

In addition to seeking patents for some of our products, we also rely on trade secrets, including unpatented know how, technology and other proprietary information, to maintain our competitive position. We seek to protect these trade secrets, in part, by entering into non- disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. 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. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them from using that

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technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

Risks Related to Maintaining and Expanding COPIKTRA'S Regulatory Approval, Achieving Regulatory Approval of Our Other Product Candidates and Other Legal Compliance Matters

If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals for our product candidates, we will not be able to commercialize such candidates, and our ability to generate revenue will be materially impaired.

Obtaining approval of an NDA can be a lengthy, expensive and uncertain process. The activities associated with a product candidate's development and commercialization, including its 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 agencies in the United States and by comparable authorities in other countries. Failure to obtain marketing approval for product candidates will prevent us from commercializing such product candidates. We have not received approval to market any of our product candidates from regulatory authorities in any jurisdiction, except for COPIKTRA in the United States. We have only limited experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third-party contract research organizations to assist us in this process. Securing FDA approval requires the submission of extensive preclinical and clinical data and supporting information to the FDA for each therapeutic indication to establish the product candidate's safety and efficacy. Securing FDA approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, the FDA. A product candidate 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.

The process of obtaining marketing approvals, both in the United States and abroad, is expensive, may take many years if additional 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 has substantial discretion in the approval process and may refuse to accept any application or may decide that our data is 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 subject to more limited indications than those we propose 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 a product candidate, its commercial prospects may be harmed and our ability to generate revenues will be materially impaired.

We have received orphan drug designation for COPIKTRA and certain of our product candidates, but there can be no assurance that we will be able to prevent third parties from developing and commercializing products that are competitive to COPIKTRA or these product candidates.

We received orphan drug designation in the United States and the European Union for the use of COPIKTRA in CLL/SLL and FL, in the United States and European Union for the use of defactinib in ovarian cancer, and in the United States, the European Union, and Australia for the use of defactinib in mesothelioma. Orphan drug exclusivity grants seven years of marketing exclusivity under the Federal Food, Drug and Cosmetic Act (FDCA), up to ten years of marketing exclusivity in Europe,

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and five years of marketing exclusivity in Australia. Other companies have received orphan drug designations for compounds other than COPIKTRA or defactinib for the same indications for which we may have received orphan drug designation in corresponding territories. While orphan drug exclusivity for COPIKTRA or defactinib provides market exclusivity against the same active ingredient for the same indication, we would not be able to exclude other companies from manufacturing and/or selling drugs using the same active ingredient for the same indication beyond that timeframe on the basis of orphan drug exclusivity. Furthermore, the marketing exclusivity in Europe can be reduced from ten years to six years if the orphan designation criteria are no longer met or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Even if we are the first to obtain marketing authorization for an orphan drug indication, there are circumstances under which the FDA may approve a competing product for the same indication during the seven-year period of marketing exclusivity, such as if the later product is the same compound as our product but is shown to be clinically superior to our product, or if the later product is a different drug than our product candidate. Further, the seven-year marketing exclusivity would not prevent competitors from obtaining approval of the same compound for other indications or of another compound for the same use as the orphan drug.

We may seek fast track designation for COPIKTRA in additional indications, or for one or more of our other product candidates, but we might not receive such designation, and even if we do, such designation may not actually lead to a faster development or regulatory review or approval process, and it does not ensure that we will receive marketing approval.

The FDA has granted fast track designation for COPIKTRA for the treatment of patients with peripheral T-cell lymphoma who have received at least one prior therapy. Any sponsor may seek fast track designation for a drug if it is intended for the treatment of a serious condition and nonclinical or clinical data demonstrate the potential to address unmet medical need for this condition, a drug sponsor may apply for FDA fast track designation. If we seek fast track designation for a product candidate, we may not receive it from the FDA. However, even if we receive fast track designation, fast track designation does not ensure that we will receive marketing approval or that approval will be granted within any particular timeframe. We may not experience a faster development or regulatory review or approval process with fast track designation compared to conventional FDA procedures. In addition, the FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from our clinical development program. Fast track designation alone does not guarantee qualification for the FDA's priority review procedures.

COPIKTRA and any other product candidate for which we obtain marketing approval could be subject to restrictions or withdrawal from the market and we may be subject to penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with our products.

COPIKTRA and any other product candidate for which we obtain marketing approval, along with the manufacturing processes, post approval clinical data, labeling, advertising and promotional activities for such product, will be subject to continual requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post marketing information and reports, registration and listing requirements, cGMP requirements relating to quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for costly post marketing testing and surveillance to monitor the safety or efficacy of the product, including the imposition of a REMS.

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With respect to COPIKTRA, the indication in FL is approved by the FDA under accelerated approval based on overall response rate observed in clinical trials. Continued approval for this indication may be contingent upon verification and description of clinical benefit in confirmatory trials. The FDA is requiring that we conduct a clinical trial in patients with relapsed or refractory FL that verifies and isolates the benefits of COPIKTRA. Additionally, as a requirement of the FDA's approval, we are implementing an informational REMS that entails a communication plan to provide appropriate dosing and safety information to better support physicians in managing their patients on COPIKTRA.

The FDA closely regulates the post approval marketing and promotion of drugs to ensure drugs are marketed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off label use and if we do not market our products for their approved indications, we may be subject to enforcement action for off label marketing.

In addition, later discovery of previously unknown problems with our products, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may yield various results, including:

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

The FDA's and other regulatory authorities' policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. 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 fail to obtain any marketing approvals, lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

Our relationships with customers and third-party payors will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and earnings.

Healthcare providers, including physicians, and third-party payors play a primary role in the recommendation and prescription of COPIKTRA and any other product candidates for which we obtain marketing approval. Our arrangements with healthcare providers, third-party payors and other parties within the healthcare industry may expose us to broadly applicable fraud and abuse and other

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healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute COPIKTRA and any products for which we obtain marketing approval. Restrictions under applicable federal and state healthcare and regulatory laws and regulations include the following:

- the federal healthcare anti-kickback statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the anti-kickback statute or specific intent to violate it in order to have committed a violation;

- the federal False Claims Act (FCA), which imposes criminal and civil penalties on individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government and actions under the FCA may be brought by private whistleblowers as well as the government. In addition, the government may assert that a claim including items and services resulting from a violation of the federal anti-kickback statute constitutes a false or fraudulent claim for purposes of the FCA;

- 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 federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program and HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, also establishes requirements related to the privacy, security and transmission of individually identifiable health information which apply to many healthcare providers, physicians and third-party payors with whom we interact;

- the federal false statements statute prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services;

- the FDCA, which among other things, strictly regulates drug product and medical device marketing, prohibits manufacturers from marketing such products for off-label use and regulates the distribution of samples;

- federal laws that require pharmaceutical manufacturers to report certain calculated product prices to the government or provide certain discounts or rebates to government authorities or private entities, often as a condition of reimbursement under governmental healthcare programs;

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

- the so-called federal "sunshine law" or Open Payments requires manufacturers of drugs, devices, biologics and medical supplies to report to the Department of Health and Human Services information related to payments and other transfers of value to physicians and teaching hospitals, as well as physician ownership and investment interests; and

- analogous state laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed

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by non- governmental third-party payors, including private insurers, and some state laws regulate interactions between pharmaceutical companies and healthcare providers and require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring drug manufacturers to report information related to payments to physicians and other healthcare providers or marketing expenditures and pricing information. State laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Similar healthcare laws and regulations exist in the European Union and other foreign jurisdictions, including reporting requirements detailing interactions with and payments to healthcare providers and laws governing the privacy and security of certain protected information, such as GDPR, which imposes obligations and restrictions on the collection and use of personal data relating to individuals located in the EU (including health data).

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices, including arrangements we may have with physicians and other healthcare providers, or patient assistance programs, may not comply with current or future statutes, regulations 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 these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, exclusion from government funded healthcare programs, such as Medicare and Medicaid, additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, 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 is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs. 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.

Our employees, independent contractors, principal investigators, CROs, consultants and vendors may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements, which could cause significant liability for us and harm our reputation.

We are exposed to the risk that our employees, independent contractors, principal investigators, CROs, consultants and vendors may engage in fraud or other misconduct, including intentional failures to: comply with FDA regulations or similar regulations of comparable foreign regulatory authorities, provide accurate information to the FDA or comparable foreign regulatory authorities, comply with manufacturing standards we have established, comply with federal and state healthcare fraud and abuse laws and regulations and similar laws and regulations established and enforced by comparable foreign regulatory authorities, report financial information or data accurately or disclose unauthorized activities to us. Such misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and 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 be in compliance with such laws, standards or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our

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rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant fines or other sanctions.

Recently enacted and future legislation may increase the difficulty and cost for us to commercialize COPIKTRA, obtain marketing approval of and commercialize our other product candidates and affect the prices we may obtain.

In the United States and some foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could, among other things, prevent or delay marketing approval of our product candidates, restrict or regulate post approval activities and affect our ability to profitably sell COPIKTRA and any other product candidates for which we obtain marketing approval.

The U.S. healthcare industry generally and U.S. government healthcare programs in particular are highly regulated and subject to frequent and substantial changes. The U.S. government and individual states have been aggressively pursuing healthcare reform. For example, in March 2010, President Obama signed into law the Health Care Reform Act, a sweeping law intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. The law, for example, increased drug rebates under state Medicaid programs for brand name prescription drugs and extended those rebates to Medicaid managed care and assessed a fee on manufacturers and importers of brand name prescription drugs reimbursed under certain government programs, including Medicare and Medicaid.

Since its enactment, there have been ongoing judicial, legislative and administrative efforts to modify, repeal or prevent implementation of various provisions of the Health Care Reform Act. We cannot predict the ultimate content, timing or effect of any federal or state healthcare reform legislation or the impact of potential legislation on us.

In addition, other legislative changes have been proposed and adopted in the U.S. since the Health Care Reform Act was enacted. These changes included aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013 and, due to the Bipartisan Budget Act of 2015, will remain in effect through 2027 unless additional action is taken by Congress. Tax reform legislation enacted at the end of 2017 eliminates the tax penalty for individuals who do not maintain sufficient health insurance coverage beginning in 2019 (the so-called "individual mandate").

Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical product pricing, including price constraints, restrictions on copayment assistance by pharmaceutical manufacturers, marketing cost disclosure and transparency measures, and, in some cases, measures designed to encourage importation from other countries and bulk purchasing. In addition, 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.

We cannot be sure whether additional legislative changes will be enacted, or whether the regulations, guidance or interpretations will be changed, or what the impact of such changes on COPIKTRA or the marketing approvals of our product candidates may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post marketing testing and other requirements.

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Risks Related to Employee Matters and Managing Growth

Our future success depends on our ability to retain our chief executive officer and other key executives and to attract, retain and motivate qualified personnel.

We are highly dependent on Robert Forrester, our President and Chief Executive Officer, Daniel Paterson, our Chief Operating Officer, Robert Gagnon, our Chief Financial Officer, and Joseph Lobacki, our Chief Commercial Officer, as well as the other principal members of our management and scientific teams. Although we have formal employment agreements with Robert Forrester, Daniel Paterson, Robert Gagnon and Joseph Lobacki, these agreements do not prevent them from terminating their employment with us at any time. We do not maintain "key person" insurance for any of our executives or other employees. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

Recruiting and retaining qualified scientific, clinical, manufacturing and sales and marketing personnel will also be critical to our success. We may not be able to attract and retain these personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies, universities and research institutions for similar personnel. Although we have implemented a retention plan for certain key employees, our retention plan may not be successful in incentivizing these employees to continue their employment with us. 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, including our scientific co-founders, may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us.

We may expand our development, regulatory and sales and marketing capabilities over time, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

We may experience significant growth over time in the number of our employees and the scope of our operations, particularly in the areas of drug development, regulatory affairs and sales and marketing. To manage our anticipated future growth, we may 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 when we expand. The physical expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

Our business and operations may be materially adversely affected in the event of computer system breaches or failures.

Despite the implementation of security measures, our internal computer systems, and those of our contract research organizations and other third parties on which we rely, are vulnerable to damage from computer viruses, unauthorized access, natural disasters, fire, terrorism, war and telecommunication and electrical failures. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our key business processes and clinical development programs. For example, the loss of clinical trial data from ongoing or planned clinical 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 results in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could be exposed to liability, which could have a material adverse effect on our

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operating results and financial condition and possibly delay the further development and commercialization of COPIKTRA and our other product candidates.

Risks Related to the Notes

The notes will be effectively subordinated to our existing and future secured indebtedness and structurally subordinated to the liabilities of our subsidiary.

The notes will be our senior, unsecured obligations and will rank senior in right of payment to our future indebtedness that is expressly subordinated in right of payment to the notes, equal in right of payment with our existing and future indebtedness that is not so subordinated and effectively subordinated to our existing and future secured indebtedness, to the extent of the value of the collateral securing such indebtedness. In addition, because our subsidiary will not guarantee the notes, the notes will be structurally subordinated to all existing and future indebtedness and other liabilities, including trade payables, and (to the extent we are not a holder thereof) preferred equity, if any, of our subsidiary. As of June 30, 2018, excluding our subsidiary, we had $25.0 million of indebtedness, all of which was senior, secured indebtedness. The indenture governing the notes will not prohibit us or our subsidiary from incurring additional indebtedness, including senior or secured indebtedness, in the future.

If a bankruptcy, liquidation, dissolution, reorganization or similar proceeding occurs with respect to us, our assets that secure debt will be available to pay obligations on the notes only after such debt has been repaid in full. The remaining assets, if any, would then be allocated pro rata among the holders of our senior, unsecured indebtedness, including the notes. There may be insufficient assets to pay all amounts then due.

If a bankruptcy, liquidation, dissolution, reorganization or similar proceeding occurs with respect to our subsidiary, then we, as a direct or indirect common equity owner of that subsidiary (and, accordingly, holders of our indebtedness, including the notes), will be subject to the prior claims of that subsidiary's creditors, including trade creditors and preferred equity holders. We may never receive any amounts from that subsidiary to satisfy amounts due under the notes.

Our indebtedness and liabilities could limit the cash flow available for our operations, expose us to risks that could adversely affect our business, financial condition and results of operations and impair our ability to satisfy our obligations under the notes.

As of June 30, 2018, we had approximately $25.0 million of consolidated indebtedness. We will incur $150.0 million of additional indebtedness as a result of this offering. We may also incur additional indebtedness to meet future financing needs. Our indebtedness could have significant negative consequences for our security holders and our business, results of operations and financial condition by, among other things:

- increasing our vulnerability to adverse economic and industry conditions;
- limiting our ability to obtain additional financing;
- requiring the dedication of a substantial portion of our cash flow from operations to service our indebtedness, which will reduce the amount of cash available for other purposes;
- limiting our flexibility to plan for, or react to, changes in our business;
- diluting the interests of our existing stockholders as a result of issuing shares of our common stock upon conversion of the notes; and
- placing us at a possible competitive disadvantage with competitors that are less leveraged than us or have better access to capital.

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Our business may not generate sufficient funds, and we may otherwise be unable to maintain sufficient cash reserves, to pay amounts due under our indebtedness, including the notes, and our cash needs may increase in the future. Our borrowings under the Amended Loan Agreement are, and are expected to continue to be, at variable rates of interest and expose us to interest rate risk. If interest rates increase, our debt service obligations on the variable rate indebtedness would increase even though the amount borrowed remained the same, and our net income would decrease. In addition, the Amended Loan Agreement contains, and any future indebtedness that we may incur may contain, financial and other restrictive covenants that limit our ability to operate our business, raise capital or make payments under our other indebtedness. If we fail to comply with these covenants or to make payments under our indebtedness when due, then we would be in default under that indebtedness, which could, in turn, result in that and our other indebtedness becoming immediately payable in full. For a description of our outstanding indebtedness, see "Description of Other Indebtedness."

We may be unable to raise the funds necessary to repurchase the notes for cash following a fundamental change or on the optional repurchase dates, or to pay any cash amounts due upon conversion, and our other indebtedness limits our ability to repurchase the notes.

Noteholders may require us to repurchase their notes following a fundamental change or on each of November 1, 2023, November 1, 2028, November 1, 2033, November 1, 2038 and November 1, 2043 (or, if any such date is not a business day, on the next business day), at a cash repurchase price generally equal to the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any. See "Description of Notes Redemption and Repurchase Repurchase at Option of Noteholders Upon a Fundamental Change" and " Repurchase at Option of Noteholders Upon Specified Dates." In addition, until the "authorized share effective date" (as defined in this prospectus supplement), we may be required to settle a portion of our conversion obligation in cash. See "Description of Notes Conversion Rights Settlement upon Conversion Cash Settlement Requirement."

We may not have enough available cash or be able to obtain financing at the time we are required to repurchase the notes or to pay any cash amounts due upon conversion. In addition, the Amended Loan Agreement restricts our ability to repurchase the notes, and applicable law, regulatory authorities and agreements governing our future indebtedness may restrict our ability to repurchase the notes. Our failure to repurchase notes when required, or to pay any cash amounts due upon conversion, will constitute a default under the indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing our existing and future other indebtedness, which may result in that other indebtedness becoming immediately payable in full. We may not have sufficient funds to satisfy all amounts due under the other indebtedness and the notes.

Not all dilutive events will result in an adjustment to the conversion rate.

We will adjust the conversion rate of the notes for certain events, including:

- certain stock dividends, splits and combinations;
- the issuance of certain rights, options or warrants to holders of our common stock;
- certain distributions of assets, debt securities, capital stock or other property to holders of our common stock;
- cash dividends on our common stock; and
- certain tender or exchange offers.

See "Description of Notes Conversion Rights Conversion Rate Adjustments." We are not required to adjust the conversion rate for other events, such as an issuance of common stock (or

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securities exercisable for, or convertible into, common stock) for cash, which may adversely affect the trading price of the notes and our common stock. An event may occur that adversely affects the noteholders and the trading price of the notes and the underlying shares of our common stock but that does not result in an adjustment to the conversion rate.

Not all significant restructuring transactions will constitute a fundamental change, in which case you will not have the right to require us to repurchase your notes for cash.

If certain corporate events called "fundamental changes" occur, you will have the right to require us to repurchase your notes for cash. See "Description of Notes Redemption and Repurchase Repurchase at Option of Noteholders Upon a Fundamental Change." However, the definition of "fundamental change" is limited to specific corporate events and does not include all events that may adversely affect our financial condition or the trading price of the notes. For example, a leveraged recapitalization, refinancing, restructuring or acquisition by us may not constitute a fundamental change that would require us to repurchase the notes. Nonetheless, these events could significantly increase the amount of our indebtedness, harm our credit rating or adversely affect our capital structure and the trading price of the notes.

The increase to the conversion rate resulting from a make-whole fundamental change may not adequately compensate noteholders for the lost option value of their notes. In addition, a variety of transactions that do not constitute a make-whole fundamental change may significantly reduce the option value of the notes without a corresponding increase to the conversion rate.

If certain corporate events that constitute a "make-whole fundamental change" occur, then we will, in certain circumstances, temporarily increase the conversion rate. See "Description of Notes Conversion Rights Increase in Conversion Rate in Connection with a Make-Whole Fundamental Change." The amount of the increase to the conversion rate will depend on the date on which the make-whole fundamental change becomes effective and the applicable "stock price." While the increase to the conversion rate is designed to compensate noteholders for the lost option value of their notes resulting from a make-whole fundamental change, the increase is only an approximation and may not adequately compensate noteholders for the loss in option value. In addition, if the applicable "stock price" is greater than $ per share or less than $ per share (in each case, subject to adjustment), or if the make-whole fundamental change occurs after November 1, 2022, then we will not increase the conversion rate for the make-whole fundamental change. Moreover, we will not increase the conversion rate pursuant to these provisions to an amount that exceeds shares per $1,000 principal amount of notes, subject to adjustment.

Furthermore, the definition of make-whole fundamental change is limited to certain specific transactions. Accordingly, the make-whole fundamental change provisions of the indenture will not protect noteholders from other transactions that could significantly reduce the option value of the notes. For example, a spin-off or sale of a subsidiary or business division with volatile earnings, or a change in our line of business, could significantly affect the trading characteristics of our common stock and reduce the option value of the notes without constituting a make-whole fundamental change that results in a temporary increase to the conversion rate.

In addition, our obligation to increase the conversion rate in connection with a make-whole fundamental change could be considered a penalty, in which case its enforceability would be subject to general principles of reasonableness and equitable remedies.

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There is currently no trading market for the notes. If an active trading market for the notes does not develop, then noteholders may be unable to resell their notes at desired times or prices, or at all.

The notes are a new class of securities for which no market currently exists. We do not intend to apply to list the notes on any securities exchange or for quotation on any inter-dealer quotation system. Accordingly, an active market for the notes may never develop, and, even if one develops, it may not be maintained. If an active trading market for the notes does not develop or is not maintained, then the market price and liquidity of the notes will be adversely affected and noteholders may not be able to resell their notes at desired times or prices, or at all.

The liquidity of the trading market, if any, and future trading prices of the notes will depend on many factors, including, among other things, the trading price of our common stock, prevailing interest rates, our dividend yield, financial condition, results of operations, business, prospects and credit quality relative to our competitors, the market for similar securities and the overall securities market. Many of these factors are beyond our control. Historically, the market for convertible debt has been volatile. Market volatility could significantly harm the market for the notes, regardless of our financial condition, results of operations, business, prospects or credit quality.

The trading price of our common stock, the condition of the financial markets, prevailing interest rates and other factors could significantly affect the trading price of the notes.

We expect that the trading price of our common stock will significantly affect the trading price of the notes, which could result in greater volatility in the trading price of the notes than would be expected for non-convertible securities. The trading price of our common stock will likely continue to fluctuate in response to the factors described or referred to elsewhere in this section and under the caption "Cautionary Note Regarding Forward-Looking Statements," among others, many of which are beyond our control.

In addition, the condition of the financial markets and changes in prevailing interest rates can have an adverse effect on the trading price of the notes. For example, prevailing interest rates have fluctuated in the past and are likely to fluctuate in the future, and we would expect an increase in prevailing interest rates to depress the trading price of the notes.

The issuance or sale of shares of our common stock, or rights to acquire shares of our common stock, could depress the trading price of our common stock and the notes.

We may conduct future offerings of our common stock, preferred stock or other securities that are convertible into or exercisable for our common stock to finance our operations or fund acquisitions, or for other purposes. In addition, we have reserved 11,390,340 shares of our common stock issuable upon the exercise of stock options outstanding under our equity incentive plans, as of June 30, 2018, at a weighted average price of $4.84 per share; 162,125 shares of our common stock issuable pursuant to unvested restricted stock units outstanding as of June 30, 2018; 644,651 shares of our common stock available for future issuance as of June 30, 2018 under our 2012 equity incentive plan; and 2,483,000 shares of our common stock available for future issuance as of June 30, 2018 under our 2014 Inducement Award Program. The indenture for the notes will not restrict our ability to issue additional equity securities in the future. If we issue additional shares of our common stock or rights to acquire shares of our common stock, if any of our existing stockholders sells a substantial amount of our common stock, or if the market perceives that such issuances or sales may occur, then the trading price of our common stock, and, accordingly, the trading price of the notes may significantly decrease. In addition, our issuance of additional shares of common stock will dilute the ownership interests of our existing common stockholders, including noteholders who have received shares of our common stock upon conversion of their notes.

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We will make only very limited covenants in the indenture, and these limited covenants may not protect your investment.

Many debt instruments contain provisions that are designed to restrict the borrower's activities and operations in a manner that is designed to preserve the borrower's ability to make payments on the related indebtedness when due. These provisions include financial and operating covenants, and restrictions on the payments of dividends, the incurrence of indebtedness or the issuance or repurchase of securities by the borrower or any of its subsidiaries. The indenture for the notes will not contain any of these covenants or restrictions or otherwise place any meaningful restrictions on our ability to operate our business as management deems appropriate. As a result, your investment in the notes may not be as protected as an investment in an instrument that contains some or all of these types of covenants and restrictions.

The accounting method for convertible debt securities that may be required to be settled in cash, such as the notes we are offering, could have a material effect on our reported financial results.

We currently have 100,000,000 authorized shares of common stock, of which 73,725,344 shares were outstanding as of October 5, 2018. After giving effect to the shares reserved for issuance pursuant to our 2012 equity incentive plan and 2014 Inducement Award Program, we would have a total of 11,740,185 authorized but unissued shares available to settle the conversion of the notes we are offering, which will be insufficient to settle the conversion of all the notes we are offering. We will agree in the indenture to use our reasonable best efforts to increase the number of authorized shares of our common stock to an amount that is sufficient to cover the settlement of the conversion of all outstanding notes, as described in this prospectus supplement. However, increasing the number of authorized shares of our common stock will require the approval of our stockholders to amend the related provision of our restated certificate of incorporation, and we may not be able to obtain such stockholder approval. We refer to the first date on which we increase the number of authorized shares of our common stock, and reserve a number of share sufficient to cover conversions, as described in this prospectus supplement as the "authorized share effective date." Until the authorized share effective date, we will, upon conversion, be required to settle any deficiency in cash based on the daily VWAP of our common stock over a specified period of time. See "Description of Notes Conversion Rights Settlement upon Conversion Cash Settlement Requirement."

We expect that, before the authorized share effective date, applicable accounting standards will require us to separately account for the conversion option associated with the notes as an embedded derivative. Under this treatment, the conversion option of the notes will be measured at its fair value and accounted for separately as a liability that is marked-to-market at the end of each reporting period. The initial value allocated to the conversion option will be treated as a debt discount that will be amortized into interest expense over the term of the notes. For each financial statement period after the issuance of the notes until the authorized share effective date, a gain (or loss) will be reported in our statement of operations to the extent the valuation of the conversion option changes from the previous period. This accounting treatment may subject our reported net income (loss) to significant non-cash volatility. In addition, as a result of the amortization of the debt discount, the interest expense associated with the notes will be greater than the coupon rate on the notes, which will result in lower reported net income or higher reported net loss. If the authorized share effective date occurs, then we expect that the conversion option will qualify for equity treatment at that time and will no longer be marked to market at the end of each reporting period. However, the authorized share effective date may never occur.

We have not reached a final determination regarding the accounting treatment for the notes, and the description above is preliminary. Accordingly, we may account for the notes in manner that is significantly different than described above.

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Recent and future regulatory actions and other events may adversely affect the trading price and liquidity of the notes.

We expect that many investors in the notes, including potential purchasers of the notes from investors in this offering, will seek to employ a convertible note arbitrage strategy. Under this strategy, investors typically short sell a certain number of shares of our common stock and adjust their short position over time while they continue to hold the notes. Investors may also implement this type of strategy by entering into swaps on our common stock in lieu of, or in addition to, short selling shares of our common stock.

The SEC and other regulatory authorities have implemented various rules and taken certain actions, and may in the future adopt additional rules and take other actions, that may impact those engaging in short selling activity involving equity securities (including our common stock). These rules and actions include Rule 201 of SEC Regulation SHO, the adoption by the Financial Industry Regulatory Authority, Inc., and the national securities exchanges of a "limit up-limit down" program, the imposition of market-wide circuit breakers that halt trading of securities for certain periods following specific market declines, and the implementation of certain regulatory reforms required by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Any governmental or regulatory action that restricts investors' ability to effect short sales of our common stock or enter into equity swaps on our common stock could depress the trading price of, and the liquidity of the market for, the notes.

In addition, the liquidity of the market for our common stock may decline, which could reduce the number of shares available for lending in connection with short sale transactions and the number of counterparties willing to enter into an equity swap on our common stock with a note investor. If investors and potential purchasers seeking to employ a convertible note arbitrage strategy are unable to borrow or enter into equity swaps on our common stock on commercially reasonable terms, then the trading price of, and the liquidity of the market for, the notes may significantly decline.

You may be subject to tax if we adjust, or fail to adjust, the conversion rate of the notes, even though you will not receive a corresponding cash distribution.

We will adjust the conversion rate of the notes for certain events, including the payment of cash dividends. If we adjust the conversion rate, then you may be deemed, for U.S. federal income tax purposes, to have received a taxable dividend to the extent of our earnings and profits, without the receipt of any cash. In addition, if we do not adjust (or adjust adequately) the conversion rate after an event that increases your proportionate interest in us, then you could be deemed to have received a deemed taxable dividend. If a make-whole fundamental change occurs on or before November 1, 2022, under some circumstances, we will increase the conversion rate for notes converted in connection with the make-whole fundamental change. Such increase may also be treated as a distribution subject to U.S. federal income tax as a dividend. The deemed dividend may be subject to U.S. federal withholding tax or backup withholding, which may be set off against payments on the notes (including upon conversion, repayment or maturity) or our common stock, or from sales proceeds subsequently paid or credited to you, or from your other funds or assets. The U.S. Internal Revenue Service proposed regulations addressing the amount and timing of deemed distributions, obligations of withholding agents and filing and notice obligations of issuers, which, if adopted, could affect the U.S. federal income tax treatment of investors deemed to receive such a distribution. See "Description of Notes Conversion Rights Conversion Rate Adjustments" and "Certain U.S. Federal Income Tax Considerations."

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The U.S. federal income tax treatment of the notes is not entirely clear in certain respects and it is possible that interest on the notes may be subject to U.S. withholding tax and not deductible for income tax purposes.

The tax treatment of certain features of the notes is not entirely clear, including our right, exercisable at our election, to cause all notes then outstanding to be automatically converted in certain circumstances. Such features may result in the Internal Revenue Service, or the IRS, asserting that the notes are treated as equity by us, starting on the issue date, or may otherwise result in interest on the notes not being deductible for income tax purposes pursuant to rules applicable to debt instruments that may be paid in equity of the issuer. If characterization of the notes as equity were to prevail, the U.S. tax treatment for holders described below would be materially different, including that the U.S. withholding tax could apply with respect to interest paid to non-U.S. holders of the notes. If interest on the notes is not deductible, either due to the notes being recharacterized as equity or due to applicability of rules regarding debt instruments payable in equity of the issuer, we may be required to pay a greater amount of income taxes or pay income taxes sooner than if the interest on the notes was deductible.

Prospective investors are urged to consult with their own tax advisers concerning the potential risk of such treatment. See "Certain U.S. Federal Income Tax Considerations" for further discussion.

A rating agency may not rate the notes or may assign a rating that is lower than expected.

We do not intend to seek to have the notes rated by any rating agency. However, if one or more rating agencies rates the notes and assigns a rating that is lower than the rating that investors expect, or reduces their rating in the future, then the trading price of our common stock and the notes could significantly decline.

In addition, market perceptions of our creditworthiness will directly affect the trading price of the notes. Accordingly, if a ratings agency rates any of our indebtedness in the future or downgrades or withdraws the rating, or puts us on credit watch, then the trading price of the notes will likely decline.

Provisions in the indenture could delay or prevent an otherwise beneficial takeover of us.

Certain provisions in the notes and the indenture could make a third-party attempt to acquire us more difficult or expensive. For example, if a takeover constitutes a fundamental change, then noteholders will have the right to require us to repurchase their notes for cash. In addition, if a takeover constitutes a make-whole fundamental change, then we may be required to temporarily increase the conversion rate. In either case, and in other cases, our obligations under the notes and the indenture could increase the cost of acquiring us or otherwise discourage a third party from acquiring us or removing incumbent management, including in a transaction that noteholders or holders of our common stock may view as favorable.

Our management may spend the proceeds of this offering in ways with which you may disagree or that may not be profitable.

We intend to use the net proceeds to us from this offering for the continued clinical development of COPIKTRA and our other lead product candidates and the balance to fund working capital, capital expenditures and other general corporate purposes, which may include the acquisition or in-license of additional compounds, product candidates or technology. However, our management will have broad discretion to apply the net proceeds, and investors will rely on our management's judgment in spending the net proceeds. Our management may use the proceeds in ways that do not earn a profit or otherwise result in the creation of stockholder value. In addition, pending our use of the proceeds, we may invest the proceeds primarily in instruments that do not produce significant income or that may lose value.

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Because the notes will initially be held in book-entry form, noteholders must rely on DTC's procedures to exercise their rights and remedies.

We will initially issue the notes in the form of one or more "global notes" registered in the name of Cede & Co., as nominee of DTC. Beneficial interests in global notes will be shown on, and transfers of global notes will be effected only through, the records maintained by DTC. Except in limited circumstances, we will not issue certificated notes. See "Description of Notes Book-Entry, Settlement and Clearance." Accordingly, if you own a beneficial interest in a global note, then you will not be considered an owner or holder of the notes. Instead, DTC or its nominee will be the sole holder of the notes. Payments of principal, interest and other amounts on global notes will be made to the paying agent, who will remit the payments to DTC. We expect that DTC will then credit those payments to the DTC participant accounts that hold book-entry interests in the global notes and that those participants will credit the payments to indirect DTC participants. Unlike persons who have certificated notes registered in their names, owners of beneficial interests in global notes will not have the direct right to act on our solicitations for consents or requests for waivers or other actions from noteholders. Instead, those beneficial owners will be permitted to act only to the extent that they have received appropriate proxies to do so from DTC or, if applicable, a DTC participant. The applicable procedures for the granting of these proxies may not be sufficient to enable owners of beneficial interests in global notes to vote on any requested actions on a timely basis.

Holding notes will not, in itself, confer any rights with respect to our common stock.

Noteholders will generally not be entitled to any rights with respect to our common stock (including voting rights and rights to receive any dividends or other distributions on our common stock). However, noteholders will be subject to all changes affecting our common stock to the extent the trading price of the notes depends on the market price of our common stock and to the extent they receive shares of our common stock upon conversion of their notes. For example, if we propose an amendment to our charter documents that requires stockholder approval, then a noteholder will not, as such, be entitled to vote on the amendment, although the noteholder will be subject to any changes implemented by that amendment in the powers, preferences or special rights of our common stock.

The price of our common stock historically has been volatile. This volatility may affect the price at which you could sell the common stock you receive upon conversion of your notes, and the sale of substantial amounts of our common stock could adversely affect the price of our common stock and the value of your notes.

For the twelve-month period ending on September 30, 2018, the market price for our common stock has varied between a high of $10.35 on September 4, 2018 and a low of $2.77 on April 3, 2018. This volatility may affect the price at which you could sell the common stock you receive upon conversion of your notes, and the sale of substantial amounts of our common stock could adversely affect the price of our common stock and the value of your notes. Our stock price is likely to continue to be volatile and subject to significant price and volume fluctuations in response to market and other factors; variations in our quarterly operating results from our expectations or those of securities analysts or investors; downward revisions in securities analysts' estimates; certain regulatory decisions; and announcement by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments.

In addition, the sale of substantial amounts of our common stock could adversely impact its price. As of June 30, 2018, we had 73,579,699 shares of our common stock outstanding and 11,552,465 shares of our common stock subject to outstanding stock options and restricted stock units (of which approximately 11,047,340 were exercisable as of that date). The sale or the availability for sale of a large number of shares of our common stock in the public market could cause the price of our common stock, and the value of your notes, to decline.

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Delaware law and our charter documents may impede or discourage a takeover, which could reduce the market price of our common stock and the value of your notes.

We are a Delaware corporation, and the anti-takeover provisions of Delaware law impose various impediments to the ability of a third party to acquire control of us, even if a change in control would be beneficial to our existing stockholders. In addition, our board of directors or a committee thereof has the power, without stockholder approval, to designate the terms of one or more series of preferred stock and issue shares of preferred stock. The ability of our board of directors or a committee thereof to create and issue a new series of preferred stock and certain provisions of Delaware law and our certificate of incorporation and bylaws could impede a merger, takeover or other business combination involving us or discourage a potential acquirer from making a tender offer for our common stock, which, under certain circumstances, could reduce the market price of our common stock and the value of your notes.

Risks Related to Our Common Stock

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

Provisions in our corporate charter and our bylaws may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions 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:

- establish a classified board of directors such that not all members of the board are elected at one time;
- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- limit the manner in which stockholders can remove directors from the board;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to our board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- limit who may call stockholder meetings;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a "poison pill" that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; and
- require the approval of the holders of at least 75% of the votes that all our stockholders would be entitled to cast to amend or repeal certain provisions of our charter or bylaws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years

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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.

The market price of our common stock has been, and may continue to be, highly volatile.

Our stock price has been volatile. Since January 27, 2012, when we became a public company, the price for one share of our common stock has reached a high of $18.82 and a low of $1.05 through September 30, 2018. We cannot predict whether the price of our common stock will rise or fall. The market price for our common stock may be influenced by many factors, including:

- the success of competitive products or technologies;
- results of clinical trials of our product candidates or those of our competitors;
- the success of commercializing COPIKTRA;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- the results of our efforts to discover, develop, acquire or in-license additional product candidates or products;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in this "Risk Factors" section.

In addition, the stock market in general and the market for small pharmaceutical companies and biotechnology companies in particular have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of particular companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. In the past, following periods of volatility in the market, securities class action litigation has often been instituted against

companies. Such litigation, if instituted against us, could result in substantial costs and diversion of management's attention and resources, which could materially and adversely affect our business and financial condition.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be the source of gain for our stockholders.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings to finance the growth and development of our business. In addition, the terms of any current or future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be the sole source of gain for our stockholders for the foreseeable future.

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We have limited experience in marketing and commercializing product candidates. If we are unable to successfully maintain and further develop internal commercialization capabilities, establish sales and marketing capabilities or enter into agreements with third parties to sell and market our product candidates, sales of COPIKTRA may be negatively impacted and we may not be successful in commercializing our other product candidates if and when they are approved.

We have limited experience in the sale, marketing or distribution of pharmaceutical products. To achieve commercial success for any approved product, we must either develop a sales and marketing organization or outsource these functions to third parties.

We have hired a commercial team and implemented the organizational infrastructure we believe we need for a successful commercial launch of COPIKTRA. We will need to commit significant time and financial and managerial resources to maintain and further develop our marketing and sales force to ensure they have the technical expertise required to address any challenges we may face with the commercialization of COPIKTRA. Factors that may inhibit our efforts to maintain and develop our commercialization capabilities include:

- an inability to retain an adequate number of effective commercial personnel;
- an inability to train sales personnel, who may have limited experience with our company or COPIKTRA, to deliver a consistent message regarding COPIKTRA and be effective in persuading physicians to prescribe COPIKTRA;
- an inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe COPIKTRA or any other product candidates;
- an inability of third-parties to manufacture COPIKTRA consistently in commercial quantities, at acceptable costs and on expected timelines;
- a 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;
- an inability to equip sales personnel with effective materials, including medical and sales literature to help them educate physicians and other healthcare providers regarding COPIKTRA; and
- unforeseen costs and expenses associated with maintaining and further developing an independent sales and marketing organization.

If we are not successful in establishing and maintaining an effective sales and marketing infrastructure, we will have difficulty commercializing COPIKTRA, which would adversely affect our business and financial condition.

If we enter into arrangements with third parties to perform sales, marketing and distribution services, our product revenues or the profitability of these product revenues to us are likely to be lower than if we were to market and sell any products that we develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell and market our product candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the accompanying prospectus, including the documents and information incorporated by reference into this prospectus supplement and the accompanying prospectus, contains forward-looking statements about our strategy, future operations, future financial position, future plans and prospects, including statements regarding the development and activity of our lead product COPIKTRA, and our PI3K and FAK programs generally, our intent to commercialize COPIKTRA, the potential commercial success of COPIKTRA, the anticipated adoption of COPIKTRA by patients and physicians, the structure of our planned and pending clinical trials and the timeline and indications for clinical development, regulatory submissions and commercialization activities. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Each forward-looking statement is subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied in such statement. Applicable risks and uncertainties include, among other things, uncertainties regarding the launch timing and commercial success of COPIKTRA in the United States; uncertainties regarding physician and patient adoption of COPIKTRA, including those related to the safety and efficacy of COPIKTRA; the uncertainties inherent in research and development of COPIKTRA, such as negative or unexpected results of clinical trials; whether and when any applications for COPIKTRA may be filed with regulatory authorities in any other jurisdictions; whether and when regulatory authorities in any other jurisdictions may approve any such other applications that may be filed for COPIKTRA, which will depend on the assessment by such regulatory authorities of the benefit-risk profile suggested by the totality of the efficacy and safety information submitted and, if approved, whether COPIKTRA will be commercially successful in such jurisdictions; our ability to obtain, maintain and enforce patent and other intellectual property protection for COPIKTRA and our other product candidates; the scope, timing, and outcome of any legal proceedings; decisions by regulatory authorities regarding labeling and other matters that could affect the availability or commercial potential of COPIKTRA; that regulatory authorities in the U.S. or other jurisdictions, if approved, could withdraw approval; whether preclinical testing of our product candidates and preliminary or interim data from clinical trials will be predictive of the results or success of ongoing or later clinical trials; that the timing, scope and rate of reimbursement for our product candidates is uncertain; the risk that third-party payors (including government agencies) will not reimburse for COPIKTRA; that there may be competitive developments affecting our product candidates; that data may not be available when expected; that enrollment of clinical trials may take longer than expected; that COPIKTRA or our other product candidates will cause unexpected safety events, experience manufacturing or supply interruptions or failures, or result in unmanageable safety profiles as compared to their levels of efficacy; that COPIKTRA will be ineffective at treating patients with lymphoid malignancies; that we will be unable to successfully initiate or complete the clinical development and eventual commercialization of our product candidates; that the development and commercialization of our product candidates will take longer or cost more than planned; that we may not have sufficient cash to fund our contemplated operations; that we or Infinity will fail to fully perform under the duvelisib license agreement; that we may be unable to make additional draws under our debt facility or obtain adequate financing in the future through product licensing, co-promotional arrangements, public or private equity, debt financing or otherwise; that we will not pursue or submit regulatory filings for our product candidates, including for duvelisib in patients with CLL/SLL or FL in other jurisdictions; and that our product candidates will not receive regulatory approval, become commercially successful products, or result in new treatment options being offered to patients.

Forward-looking statements are not guarantees of future performance and our actual results could differ materially from the results discussed in the forward-looking statements we make. In particular, you should consider the numerous risks described in the "Risk Factors" section of this prospectus

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supplement and the accompanying prospectus, in the "Risk Factors" section incorporated by reference to our most recent Annual Report on Form 10-K and in our subsequent filings with the SEC.

As a result of these and other factors, we may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make. The forward-looking statements contained, or incorporated by reference, in this prospectus supplement and the accompanying prospectus reflect our views as of the date hereof. We do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

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USE OF PROCEEDS

We estimate that the net proceeds to us from this offering will be approximately $ million, after deducting estimated fees and our estimated offering expenses. We intend to use the net proceeds from this offering for:

- the continued clinical development of COPIKTRA and our other lead product candidates; and
- the balance to fund working capital, capital expenditures and other general corporate purposes, which may include the acquisition or in-license of additional compounds, product candidates or technology.

We believe that the net proceeds from this offering, together with our existing cash and cash equivalents and investments, will be sufficient to fund our projected operating expenses and capital expenditures beyond the next twelve months. Our expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from clinical trials, 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. 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, investment-grade, interest-bearing instruments and U.S. government securities.

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CAPITALIZATION

The following table presents our cash and cash equivalents and our capitalization as of June 30, 2018:

- on an actual basis; and
- on an as adjusted basis to give effect to the issuance and sale of $150,000,000 aggregate principal amount of the notes we are offering, after deducting estimated fees and our estimated offering expenses.

This table should be read in conjunction with the other information in this prospectus supplement, the accompanying prospectus and the documents that are incorporated by reference herein, including our consolidated financial statements and related notes.

	As of June 30, 2018	
	Actual	As adjusted
	(In thousands, except share and per share data)	
Cash and cash equivalents(1)(2)	$ 168,692	$
Debt:		
Principal amount outstanding under term loans	$ 25,000	$ 25,000
Principal amount of % convertible senior notes due 2048 we are offering(3)		150,000
Total debt	25,000	175,000
Stockholders' equity:		
Preferred stock, $0.0001 par value per share; 5,000,000 shares authorized, no shares outstanding, actual and as adjusted		
Common stock, $0.0001 par value per share; 100,000,000 shares authorized, 73,579,699 shares outstanding, actual and as adjusted(4)	7	7
Additional paid-in capital	469,415	469,415
Accumulated other comprehensive income	4	4
Accumulated deficit	(342,559)	(342,559)
Total stockholders' equity	126,867	126,867
Total capitalization	$ 151,867	$ 301,867

(1) Cash and cash equivalents "as adjusted" include estimated proceeds from the sale of the notes offered hereby, net of estimated fees and our estimated offering expenses. We intend to use the net proceeds from this offering, together with our existing capital resources, for the continued clinical development of COPIKTRA and our other lead product candidates and the balance to fund working capital, capital expenditures and other general corporate purposes, which may include the acquisition or in-license of additional compounds, product candidates or technology.

(2) Cash and cash equivalents do not include the $15.0 million non-refundable upfront payment from CSPC Pharmaceutical Group Limited, or CSPC, owed to us by November 2018 pursuant to an agreement entered into with CSPC in September 2018 or the $22.0 million payment we owe to Infinity pursuant to the terms of our amended and restated license agreement with Infinity, which payment is due within 45 days after the approval of COPIKTRA in the United States by the FDA. The $22.0 million payment may be paid in cash or shares of our common stock.

(3)

The amounts shown in the table above for the notes we are offering represent their principal amount. However, applicable accounting standards may require separate accounting for the debt component and the conversion option the notes. See "Risk Factors The accounting method for

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convertible debt securities that may be required to be settled in cash, such as the notes we are offering, could have a material effect on our reported financial results."

(4)

The number of shares of common stock issued and outstanding in the actual and as adjusted columns in the table above is based on 73,579,699 shares outstanding as of June 30, 2018, and excludes:

- 11,390,340 shares of our common stock issuable upon the exercise of stock options outstanding under our equity incentive plans, as of June 30, 2018, at a weighted average price of $4.84 per share;
- 162,125 shares of our common stock issuable pursuant to unvested restricted stock units outstanding as of June 30, 2018;
- 2,483,000 shares of our common stock available for future issuance as of June 30, 2018 under our 2014 Inducement Award Program;
- 644,651 shares of our common stock available for future issuance as of June 30, 2018 under our 2012 equity incentive plan, plus up to a maximum of 68,571 shares of our common stock subject to outstanding awards under our 2010 equity incentive plan that could expire, be terminated or otherwise be surrendered, cancelled, forfeited or repurchased; and
- the shares of common stock reserved for issuance upon conversion of the notes being offered by us in this offering.

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PRICE RANGE OF COMMON STOCK

Our common stock trades on The Nasdaq Global Market under the symbol "VSTM." The following table sets forth, for the periods indicated, the high and low intraday sales prices of our common stock as reported on The Nasdaq Global Market. On October 10, 2018, the last reported sale price of our common stock was $6.26 per share.

	Common Stock					
	2018		2017		2016	
	High	Low	High	Low	High	Low
First Quarter	$ 4.04	$ 2.81	$ 2.25	$ 1.11	$ 1.89	$ 1.05
Second Quarter	$ 9.07	$ 2.77	$ 2.54	$ 1.61	$ 1.93	$ 1.19
Third Quarter	$ 10.35	$ 6.55	$ 5.71	$ 2.11	$ 1.66	$ 1.27
Fourth Quarter	$ 7.40*	$ 6.25*	$ 4.92	$ 2.95	$ 1.55	$ 1.05

* Through October 10, 2018.

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DIVIDEND POLICY

We do not currently anticipate declaring or paying cash dividends on our capital stock in the foreseeable future. We currently intend to retain all of our future earnings, if any, to fund the development and growth of our business. In addition, our ability to pay dividends is currently restricted by the terms of our term loan facility with Hercules Capital, Inc. Any future determination to declare dividends will be subject to the discretion of our board of directors and will depend on a number of factors, including future earnings, capital requirements, financial conditions, future prospects, contractual restrictions and covenants and other factors that our board of directors may deem relevant.

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DESCRIPTION OF NOTES

We will issue the notes under an indenture (the "base indenture"), to be dated as of the initial closing date of this offering, between us and Wilmington Trust, National Association, as trustee (the "trustee"), as supplemented by a supplemental indenture, to be dated as of the initial closing date of this offering. We refer to the base indenture as so supplemented as the "indenture."

In addition, the indenture and the notes will be deemed to include certain terms that are made a part of the indenture and the notes pursuant to the Trust Indenture Act of 1939, as amended (the "Trust Indenture Act").

The following is a summary of certain provisions of the notes and the indenture. It is only a summary and is not complete. We qualify this summary by referring you to the indenture and the notes, because they, and not this summary, define your rights as a holder of the notes. We will provide you with a copy of the indenture, which includes the form of the notes, as provided under the caption "Where You Can Find Additional Information."

Certain terms used in this summary are defined below under the caption " Definitions." Certain other terms used in this summary are defined in the indenture.

This "Description of Notes" section supplements and, to the extent inconsistent therewith, supersedes the information in the accompanying prospectus under the caption "Description of Debt Securities."

References to "we," "us" and "our" in this section refer to Verastem, Inc. only and not to any of its subsidiaries. References to any "note" in this section refer to any authorized denomination of a note, unless the context requires otherwise.

Generally

The notes will:

- be our general senior, unsecured obligations;
- initially be limited to an aggregate principal amount of $150,000,000;
- bear cash interest from, and including, , 2018, at an annual rate of %, payable semi-annually in arrears on May 1 and November 1 of each year, beginning on May 1, 2019;
- bear special interest in the circumstances described below under the caption " Events of Default Special Interest as Sole Remedy for Certain Reporting Defaults";
- mature on November 1, 2048, unless earlier repurchased, redeemed or converted in accordance with the terms of the notes;
- will be redeemable, in whole or in part, at our option at any time, and from time to time, on or after November 1, 2022, at a cash redemption price equal to the principal amount of the notes to be redeemed, plus accrued and unpaid interest, if any, as described below under the caption " Redemption and Repurchase Right to Redeem";
- be subject to mandatory conversion at our election in the circumstances described below under the caption " Conversion Rights Issuer's Mandatory Conversion Option";
- be subject to repurchase by us at the noteholders' option if a "fundamental change" (as defined below under the caption " Definitions") occurs, at a cash repurchase price equal to the principal amount of the notes to be repurchased, plus accrued

and unpaid interest to, but excluding, the fundamental change repurchase date (subject to the right of noteholders on a record date to receive the related interest payment), as described below under the caption

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" Redemption and Repurchase Repurchase at Option of Noteholders Upon a Fundamental Change";

be subject to repurchase by us at the noteholders' option on each of November 1, 2023, November 1, 2028, November 1, 2033, November 1, 2038 and November 1, 2043 (or, if any such date is not a business day, on the next business day), at a cash repurchase price equal to the principal amount of the notes to be repurchased, plus accrued and unpaid interest to, but excluding, the optional repurchase date (subject to the right of noteholders on a record date to receive the related interest payment), as described below under the caption " Redemption and Repurchase Repurchase at Option of Noteholders Upon Specified Dates";

be convertible, at the noteholders' option, into shares of our common stock (together with cash in lieu of any fractional share, if applicable), at an initial conversion rate of shares per $1,000 principal amount of notes (which represents an initial conversion price of approximately $ per share), under the conditions, and subject to the adjustments, described below under the caption " Conversion Rights";

be issued in principal amount denominations of $1,000 or any integral multiple of $1,000 in excess thereof, which we refer to as an "authorized denomination"; and

initially be represented by one or more registered notes in global form, but may, in certain circumstances, be exchanged for notes in definitive form, as described below under the caption " Book Entry, Settlement and Clearance."

The indenture will not contain any financial covenants and will not limit us or our subsidiaries from incurring additional indebtedness, paying dividends or issuing or repurchasing any securities. Except to the extent described below under the captions " Conversion Rights Increase in Conversion Rate in Connection with a Make-Whole Fundamental Change," " Redemption and Repurchase Repurchase at Option of Noteholders Upon a Fundamental Change" and " Consolidation, Merger and Asset Sale," the indenture will not contain any provisions designed to protect noteholders upon a highly leveraged transaction involving us or a decline in our credit rating as a result of a recapitalization, takeover, highly leveraged transaction or other restructuring involving us.

Without notice to or the consent of any noteholder, we may issue additional notes under the indenture with the same terms as the notes we are offering hereby (except for certain differences, such as the date as of which interest begins to accrue and the first interest payment date for such additional notes) in an unlimited aggregate principal amount. However, such additional notes must be identified by a separate CUSIP number or by no CUSIP number if they are not fungible, for federal income tax or federal securities laws purposes, with other notes we issue under the indenture.

We do not intend to list the notes on any securities exchange or include them in any automated inter-dealer quotation system.

Absent manifest error, a person in whose name a note is registered on the registrar's books will be considered to be the holder of that note for all purposes, and only registered noteholders (which, in the case of notes held through DTC, will initially be DTC's nominee, Cede & Co.) will have rights under the indenture as noteholders.

Subject to applicable law, we or our subsidiaries may directly or indirectly repurchase notes in the open market or otherwise, whether through private or public tender or exchange offers, cash-settled swaps or other cash-settled derivatives. The indenture requires us to promptly deliver to the trustee for cancellation all notes that we or our subsidiaries have purchased or otherwise acquired.

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Payments on the Notes

We will pay (or cause the paying agent to pay) the principal of, and interest on, any global note by wire transfer of immediately available funds. We will pay (or cause the paying agent to pay) the principal of, and interest on, any certificated note as follows:

- if the principal amount of such note is at least $5.0 million (or such lower amount as we may choose in our sole and absolute discretion) and the holder of such note entitled to such payment has delivered to the paying agent or the trustee, no later than the time set forth below, a written request to receive payment by wire transfer to an account of such holder within the United States, by wire transfer of immediately available funds to such account; and

- in all other cases, by check mailed to the address of such holder set forth in the note register.

To be timely, a written request referred to in the first bullet point above must be delivered no later than the "close of business" (as defined below under the caption " Definitions") on the following date: (i) with respect to the payment of any interest due on an interest payment date, the immediately preceding record date; and (ii) with respect to any other payment, the date that is 15 calendar days immediately before the date such payment is due.

If the due date for a payment on a note is not a "business day" (as defined below under the caption " Definitions"), then such payment may be made on the immediately following business day and no interest will accrue on such payment as a result of the related delay. Solely for purposes of the immediately preceding sentence, a day on which the applicable place of payment is authorized or required by law or executive order to close or be closed will be deemed not to be a "business day."

Registrar, Paying Agent and Conversion Agent

We will maintain one or more offices or agencies in the continental United States where notes may be presented for registration of transfer or for exchange, payment and conversion, which we refer to as the "registrar," "paying agent" and "conversion agent," respectively. We have appointed the trustee as the initial registrar, paying agent and conversion agent and its office in the United States as a place where notes may be presented for payment. However, we may change the registrar, paying agent and conversion agent, and we or any of our subsidiaries may choose to act in that capacity as well, without prior notice to the noteholders.

Transfers and Exchanges

For purposes of the notes, the description below under this section titled " Transfers and Exchanges," and the description further below under the caption " Book Entry, Settlement and Clearance," supersede the information in the accompanying prospectus under the captions "Description of Debt Securities Certificated Debt Securities" and " Global Securities."

A noteholder may transfer or exchange its notes at the office of the registrar in accordance with the indenture. We, the trustee and the registrar may require the noteholder to, among other things, deliver appropriate endorsements or transfer instruments, and such certificates or other documentation or evidence as we or they may reasonably require to determine that such transfer or exchange complies with applicable securities laws. No service charge will be imposed by us, the trustee or the registrar for any registration of transfer or exchange of notes, but we may require a noteholder to pay a sum sufficient to cover any transfer tax or other similar governmental charge required by law or permitted by the indenture. We, the trustee and the registrar may refuse to register the transfer or exchange of any note that is subject to conversion, redemption or required repurchase in connection with the exercise of a fundamental change repurchase right or an optional repurchase right.

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We have appointed the trustee's office in the United States as a place where notes may be presented for registration of transfer or for exchange. However, we may change the registrar or act as the registrar ourselves without prior notice to the noteholders.

The registered holder of a note will be treated as its owner for all purposes.

Interest

The notes will bear cash interest at an annual rate of %, payable semi-annually in arrears on May 1 and November 1 of each year, beginning on May 1, 2019, to the noteholders of record of the notes as of the close of business on the immediately preceding April 15 and October 15, respectively (whether or not a business day). Interest will accrue from, and including, the last date to which interest has been paid or duly provided for (or, if no interest has been paid or duly provided for, from, and including, the date the notes are initially issued) to, but excluding, the next interest payment date. Interest on the notes will be computed on the basis of a 360-day year comprised of twelve 30-day months.

In addition to the stated interest on the notes referred to above, special interest will accrue on the notes in the circumstances described below under the caption " Events of Default Special Interest as Sole Remedy for Certain Reporting Defaults." All references in this prospectus supplement to interest on the notes include any special interest payable on the notes, unless the context requires otherwise.

Ranking

The notes will be our senior, unsecured obligations and will be:

- senior in right of payment to our future indebtedness that is expressly subordinated in right of payment to the notes;
- equal in right of payment with our existing and future indebtedness that is not so subordinated;
- effectively subordinated to our existing and future secured indebtedness, to the extent of the value of the collateral securing such indebtedness; and
- structurally subordinated to all existing and future indebtedness and other liabilities, including trade payables, and (to the extent we are not a holder thereof) preferred equity, if any, of our existing or future subsidiaries.

The indenture will not prohibit us from incurring additional indebtedness, including secured indebtedness, which would be effectively senior to the notes to the extent of the value of the collateral securing that indebtedness, or indebtedness that would rank equal in right of payment with the notes. The indenture will also not prohibit our subsidiaries from incurring any additional indebtedness or other liabilities that would be structurally senior to our obligations under the notes.

In the event of our bankruptcy, liquidation, reorganization or other winding up, our assets that secure any indebtedness will not be available to make payments under the notes unless all of that indebtedness is first paid in full. In the event of the bankruptcy, liquidation, reorganization or other winding up of any of our subsidiaries, we, as a common equity holder of that subsidiary, and, therefore, the noteholders, will rank behind that subsidiary's creditors, including that subsidiary's trade creditors, and (to the extent we are not a holder thereof) that subsidiary's preferred equity holders. Even if we were a creditor of any of our subsidiaries, our rights as a creditor would be effectively subordinated to any security interest of others in the assets of that subsidiary, to the extent of the value of those assets, and would be subordinated to any indebtedness of that subsidiary that is senior in right of payment to that held by us.

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Our subsidiaries will have no obligations under the notes. The ability of our subsidiaries to pay dividends or make other payments to us is restricted by, among other things, corporate and other laws and by future agreements to which our subsidiaries may become a party. Accordingly, we may be unable to gain access to the cash flow or assets of our subsidiaries to enable us to make payments on the notes.

As of June 30, 2018, excluding our subsidiaries, we had $25.0 million of indebtedness, all of which was senior, secured indebtedness.

See "Risk Factors The notes will be effectively subordinated to our existing and future secured indebtedness and structurally subordinated to the liabilities of our subsidiary."

Redemption and Repurchase

Right to Redeem

We may not redeem the notes at our option at any time before November 1, 2022. Subject to the terms of the indenture, we have the right, at our election, to redeem all, or any portion in an authorized denomination, of the notes, at any time and from time to time, on a redemption date on or after November 1, 2022, for cash. The redemption date will be a business day of our choosing that is no more than 60, nor less than 30, calendar days after the date we send the related redemption notice, as described below.

The redemption price for any note called for redemption will be the principal amount of such note plus accrued and unpaid interest on such note, if any, to, but excluding, the redemption date. However, if the redemption date is after a regular record date and on or before the next interest payment date, then (i) the holder of such note at the close of business on such regular record date will be entitled, notwithstanding such redemption, to receive, on or, at our election, before such interest payment date, the unpaid interest that would have accrued on such note to, but excluding, such interest payment date; and (ii) the redemption price will not include accrued and unpaid interest on such note to, but excluding, such redemption date.

We will send to each applicable noteholder notice of the redemption containing certain information set forth in the indenture, including the redemption price and the redemption date.

Notes called for redemption must be delivered to the paying agent (in the case of certificated notes) or the "depositary procedures" (as defined below under the caption " Definitions") must be complied with (in the case of global notes) for the holder of those notes to be entitled to receive the redemption price.

If only a portion of a note is subject to redemption and that note is converted in part, then the converted portion of that note will be deemed to be from the portion of that note that was subject to redemption.

Notwithstanding anything to the contrary above, we may not redeem any notes if the principal amount of the notes has been accelerated and such acceleration has not been rescinded on or before the redemption date (including as a result of the payment of the related redemption price and any related interest described above on the redemption date).

Repurchase at Option of Noteholders Upon a Fundamental Change

Generally

If a fundamental change occurs, then each noteholder will have the right (the "fundamental change repurchase right") to require us to repurchase its notes (or any portion thereof in an authorized denomination) for cash on a date (the "fundamental change repurchase date") of our choosing, which

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must be a business day that is no more than 35, nor less than 20, business days after the date we send the related fundamental change notice, as described below.

The repurchase price (the "fundamental change repurchase price") for a note tendered for repurchase will be the principal amount of such note plus accrued and unpaid interest on such note to, but excluding, the fundamental change repurchase date. However, if the fundamental change repurchase date is after a regular record date and on or before the next interest payment date, then (i) the holder of such note at the close of business on such regular record date will be entitled, notwithstanding such repurchase, to receive, on or, at our election, before such interest payment date, the unpaid interest that would have accrued on such note to, but excluding, such interest payment date; and (ii) the fundamental change repurchase price will not include accrued and unpaid interest on such note to, but excluding, the fundamental change repurchase date.

Notwithstanding anything to the contrary above, we may not repurchase any notes if the principal amount of the notes has been accelerated and such acceleration has not been rescinded on or before the fundamental change repurchase date (including as a result of the payment of the related fundamental change repurchase price and any related interest described above on the fundamental change repurchase date).

Notice of Fundamental Change

On or before the 20th calendar day after the occurrence of a fundamental change, we will send to each noteholder (and to any beneficial owner of a global note, if required by applicable law) notice of such fundamental change containing certain information set forth in the indenture, including the fundamental change repurchase date, the fundamental change repurchase price and the procedures noteholders must follow to tender their notes for repurchase. Substantially contemporaneously, we will issue a press release through such national newswire service as we then use (or publish the same through such other widely disseminated public medium as we then use, including our website) containing the information set forth in the fundamental change notice.

Procedures to Exercise the Fundamental Change Repurchase Right

To exercise its fundamental change repurchase right with respect to a note, the holder thereof must deliver a notice (a "fundamental change repurchase notice") to the paying agent before the close of business on the business day immediately before the related fundamental change repurchase date (or such later time as may be required by law).

The fundamental change repurchase notice must contain certain information set forth in the indenture, including the certificate number of any physical notes to be repurchased, or must otherwise comply with the depositary procedures in the case of a global note.

A noteholder that has delivered a fundamental change repurchase notice with respect to a note may withdraw that notice by delivering a withdrawal notice to the paying agent at any time before the close of business on the business day immediately before the fundamental change repurchase date. The withdrawal notice must contain certain information set forth in the indenture, including the certificate number of any physical notes with respect to which the withdrawal notice is being delivered, or must otherwise comply with the depositary procedures in the case of a global note.

Notes to be repurchased must be delivered to the paying agent (in the case of certificated notes) or the depositary procedures must be complied with (in the case of global notes) for the holder of those notes to be entitled to receive the fundamental change repurchase price.

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Compliance with Securities Laws

We will comply with all federal and state securities laws in connection with a repurchase following a fundamental change (including complying with Rules 13e-4 and 14e-1 under the Exchange Act and filing any required Schedule TO, to the extent applicable) so as to permit effecting such repurchase in the manner described above.

Repurchase at Option of Noteholders Upon Specified Dates

Each noteholder will have the right (the "optional repurchase right") to require us to repurchase such noteholder's notes (or any portion thereof in an authorized denomination) on each of November 1, 2023, November 1, 2028, November 1, 2033, November 1, 2038 and November 1, 2043 (or, if any such date is not a business day, on the next business day) (each, an "optional repurchase date," and, together, the "optional repurchase dates") for cash (the "optional repurchase price") in an amount equal to the principal amount of such notes to be repurchased plus accrued and unpaid interest on such notes to, but excluding, the applicable optional repurchase date. However, if such optional repurchase date is after a regular record date and on or before the next interest payment date, then (i) the holder of such notes at the close of business on such regular record date will be entitled, notwithstanding such repurchase, to receive, on or, at our election, before such interest payment date, the unpaid interest that would have accrued on such notes to, but excluding, such interest payment date; and (ii) the optional repurchase price will not include accrued and unpaid interest on such notes to, but excluding, such optional repurchase date. However, we will not be required to offer to repurchase any notes pursuant to the optional repurchase right, and noteholders may not exercise their optional repurchase right, if we have called all then-outstanding notes for redemption prior to the applicable optional repurchase date.

Notwithstanding anything to the contrary above, we may not repurchase any notes if the principal amount of the notes has been accelerated and such acceleration has not been rescinded on or before the optional repurchase date (including as a result of the payment of the related optional repurchase price and any related interest described above on the optional repurchase date).

Notice of Optional Repurchase

No later than 20 business days before each optional repurchase date, we will send to each noteholder notice of such optional repurchase right containing certain information set forth in the indenture, including the optional repurchase date, the optional repurchase price and the procedures noteholders must follow to tender their notes for repurchase. Substantially contemporaneously, we will issue a press release through such national newswire service as we then use (or publish the same through such other widely disseminated public medium as we then use, including our website) containing the information set forth in the notice.

Procedures to Require the Company to Repurchase Notes

To exercise its optional repurchase right with respect to a note, the holder thereof must deliver a notice (an "optional repurchase notice") to the paying agent before the close of business on the business day immediately before the applicable optional repurchase date (or such later time as may be required by law).

The optional repurchase notice must contain certain information set forth in the indenture, including the certificate number of any physical notes to be repurchased, or must otherwise comply with the depositary procedures in the case of a global note.

A noteholder that has delivered an optional repurchase notice with respect to a note may withdraw that notice by delivering a withdrawal notice to the paying agent at any time before the close of

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business on the business day immediately before the applicable optional repurchase date. The withdrawal notice must contain certain information set forth in the indenture, including the certificate number of any physical notes with respect to which the withdrawal notice is being delivered, or must otherwise comply with the depositary procedures in the case of a global note.

Notes to be repurchased must be delivered to the paying agent (in the case of certificated notes) or the depositary procedures must be complied with (in the case of global notes) for the holder of those notes to be entitled to receive the optional repurchase price.

Compliance with Securities Laws

We will comply with all federal and state securities laws in connection with an optional repurchase (including complying with Rules 13e-4 and 14e-1 under the Exchange Act and filing any required Schedule TO, to the extent applicable) so as to permit effecting such repurchase in the manner described above.

Conversion Rights

Generally

The notes (or any portion of a note in an authorized denomination) will be convertible, at the noteholders' option, into shares of our common stock (together with cash in lieu of any fractional share, if applicable), at an initial conversion rate of shares per $1,000 principal amount of notes (which represents an initial conversion price of approximately $ per share).

Noteholders may convert their notes at any time until the close of business on the "scheduled trading day" (as defined below under the caption " Definitions") immediately before the maturity date.

Treatment of Interest upon Conversion

We will not adjust the conversion rate to account for any accrued and unpaid interest on any note being converted. Instead, we will pay interest on notes surrendered for conversion in accordance with the provisions described below under the caption " Settlement upon Conversion Settlement upon Conversion Generally."

Conversion Procedures

To convert a beneficial interest in a global note, the owner of the beneficial interest must:

comply with the depositary procedures for converting the beneficial interest (at which time such conversion will become irrevocable);

if applicable, pay any interest payable on the next interest payment date, as described above under the caption " Treatment of Interest upon Conversion"; and

if applicable, pay any documentary or other taxes as described below.

To convert all or a portion of a physical note, the holder of such note must:

complete, manually sign and deliver to the conversion agent the conversion notice attached to such note or a facsimile of such conversion notice;

deliver such note to the conversion agent (at which time such conversion will become irrevocable);

furnish any endorsements and transfer documents that we or the conversion agent may require;

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if applicable, pay any interest payable on the next interest payment date, as described above under the caption " Treatment of Interest upon Conversion"; and

if applicable, pay any documentary or other taxes as described below.

Notes may be surrendered for conversion only after the "open of business" (as defined below under the caption " Definitions") and before the close of business on a day that is a business day.

We will pay any documentary, stamp or similar issue or transfer tax or duty due on the issue of any shares of our common stock upon conversion, except any tax or duty that is due because the converting noteholder requests those shares to be registered in a name other than the noteholder's name.

We refer to the first business day on which the requirements described above to convert a note are satisfied as the "conversion date."

If a noteholder has validly delivered a "fundamental change repurchase notice" (as defined above under the caption " Redemption and Repurchase Repurchase at Option of Noteholders Upon a Fundamental Change") or an "optional repurchase notice" (as defined above under the caption " Redemption and Repurchase Repurchase at Option of Noteholders Upon Specified Dates") with respect to a note, then such note may not be converted, except to the extent (i) such notice is withdrawn in accordance with the procedures described below; or (ii) we fail to pay the related fundamental change repurchase price or optional repurchase price, as applicable, for such note.

Settlement upon Conversion

Generally

Subject to the provisions described below under the caption " Settlement upon Conversion Cash Settlement Requirement," upon conversion of any note, we will deliver the following to converting holders:

for each $1,000 principal amount of such note being converted, a number of shares of our common stock equal to the conversion rate in effect on the conversion date for such conversion; and

a cash amount equal to unpaid interest that has accrued on such note to, but excluding, the date we settle such conversion (unless such conversion date is after a regular record date and before the next interest payment date, in which case (i) the holder of such note at the close of business on such regular record date will be entitled, notwithstanding such conversion, to receive, on or, at our election, before such interest payment date, the unpaid interest that would have accrued on such note to, but excluding, such interest payment date; and (ii) we will not pay any separate cash amount for interest as part of the consideration due upon such conversion);

provided, *however*, that, in lieu of delivering any fractional share of common stock otherwise due upon conversion, we will pay cash based on the "daily VWAP" (as defined below under the caption " Definitions") per share of our common stock on the conversion date for such conversion (or, if such conversion date is not a "VWAP trading day" (as defined below under the caption " Definitions"), the immediately preceding VWAP trading day).

Except as described below under the caption " Conversion Rate Adjustments," we will pay or deliver, as applicable, the consideration due upon conversion on or before the second business day immediately after the conversion date for such conversion.

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Cash Settlement Requirement

We currently have 100,000,000 authorized shares of common stock, of which 73,725,344 shares were outstanding as of October 5, 2018. After giving effect to the shares reserved for issuance pursuant to our 2012 equity incentive plan and 2014 Inducement Award Program, we would have a total of 11,740,185 authorized but unissued shares available to settle the conversion of the notes we are offering, which will be insufficient to settle the conversion of all the notes we are offering. We will agree in the indenture to use our reasonable best efforts to increase the number of authorized shares of our common stock to an amount that is sufficient to cover the settlement of the conversion of all outstanding notes (assuming, for these purposes, that the maximum number of additional shares referred to under the caption " Increase in Conversion Rate in Connection with a Make-Whole Fundamental Change" below is added to the conversion rate). Increasing the number of authorized shares of our common stock will require the approval of our stockholders to amend the related provision of our restated certificate of incorporation. The indenture will require that we seek such approval, if not previously obtained, at each of the next three regular annual meetings of our stockholders and that we endorse such approval in the related proxy materials. We refer to the first date on which we increase the number of authorized shares of our common stock as described above, and reserve a number of shares sufficient to cover conversions as described above, as the "authorized share effective date." We will notify noteholders of the authorized share effective date promptly after it occurs.

Notwithstanding anything to the contrary, if:

- the conversion date for any note occurs before the authorized share effective date; and
- the conversion rate in effect on such conversion date exceeds the "authorized share capped conversion rate" (as defined below under the caption " Definitions") in effect on such conversion date,

then we will settle such conversion in the manner (and no later than the date) described above under the caption " Generally" as if the conversion rate applicable to such conversion were instead equal to such authorized share capped conversion rate. However, in addition to the consideration deliverable pursuant to the preceding sentence, we will also deliver, in settlement of such conversion, cash (the "cash settlement amount") in an amount, per $1,000 principal amount of such note to be converted, equal to the sum of the "daily cash settlement amounts" for each VWAP trading day in the "cash settlement amount observation period" (each as defined below under the caption " Definitions") for such conversion. Except as described below under the caption " Conversion Rate Adjustments," we will deliver the cash settlement amount no later than the second business day immediately after the last VWAP trading day of such cash settlement amount observation period.

We refer to a conversion that is settled in accordance with the provisions described in the preceding paragraph as a "capped conversion."

When Converting Noteholders Become Stockholders of Record

The person in whose name any share of common stock is issuable upon conversion of any note will be deemed to become the holder of record of that share as of the close of business on the conversion date for such conversion.

Conversion Rate Adjustments

Generally

The conversion rate will be adjusted, without duplication, for the events described below. However, we are not required to adjust the conversion rate for these events (other than a stock split or

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combination or a tender or exchange offer) if each noteholder participates, at the same time and on the same terms as holders of our common stock, and solely by virtue of being a holder of notes, in such transaction or event without having to convert such noteholder's notes and as if such noteholder held a number of shares of our common stock equal to the product of (i) the conversion rate in effect on the related record date, effective date or expiration date, as applicable; and (ii) the aggregate principal amount (expressed in thousands) of notes held by such noteholder on such date.

(1) *Stock Dividends, Splits and Combinations*. If we issue solely shares of our common stock as a dividend or distribution on all or substantially all shares of our common stock, or if we effect a stock split or a stock combination of our common stock (in each case excluding an issuance solely pursuant to a common stock change event, as to which the provisions described below under the caption " Effect of Common Stock Change Event" will apply), then the conversion rate will be adjusted based on the following formula:

where:

CR_0 = the conversion rate in effect immediately before the open of business on the ex-dividend date for such dividend or distribution, or immediately before the open of business on the effective date of such stock split or stock combination, as applicable;

CR_1 = the conversion rate in effect immediately after the open of business on such ex-dividend date or the open of business on such effective date, as applicable;

OS_0 = the number of shares of our common stock outstanding immediately before the open of business on such ex-dividend date or effective date, as applicable, without giving effect to such dividend, distribution, stock split or stock combination; and

OS_1 = the number of shares of our common stock outstanding immediately after giving effect to such dividend, distribution, stock split or stock combination.

For the avoidance of doubt, an adjustment made pursuant to this clause (1) will become effective at the time set forth in the definition of CR_1 above. If any dividend, distribution, stock split or stock combination of the type described in this paragraph (1) is declared or announced, but not so paid or made, then the conversion rate will be readjusted, effective as of the date our board of directors determines not to pay such dividend or distribution or to effect such stock split or stock combination, to the conversion rate that would then be in effect had such dividend, distribution, stock split or stock combination not been declared or announced.

(2) *Rights, Options and Warrants*. If we distribute, to all or substantially all holders of our common stock, rights, options or warrants (other than rights issued or otherwise distributed pursuant to a stockholder rights plan, as to which the provisions described below in paragraph (3)(a) and under the caption " Stockholder Rights Plans" will apply) entitling such holders, for a period of not more than 45 calendar days after the record date of such distribution, to subscribe for or purchase shares of our common stock at a price per share that is less than the average of the last reported sale prices per share of our common stock for the 10 consecutive "trading days" (as defined below under the caption " Definitions") ending on, and including, the trading day immediately before

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the date such distribution is announced, then the conversion rate will be increased based on the following formula:

where:

CR_0	=	the conversion rate in effect immediately before the open of business on the ex-dividend date for such distribution;
CR_1	=	the conversion rate in effect immediately after the open of business on such ex-dividend date;
OS	=	the number of shares of our common stock outstanding immediately before the open of business on such ex-dividend date;
X	=	the total number of shares of our common stock issuable pursuant to such rights, options or warrants; and
Y	=	a number of shares of our common stock obtained by dividing (x) the aggregate price payable to exercise such rights, options or warrants by (y) the average of the last reported sale prices per share of our common stock for the 10 consecutive trading days ending on, and including, the trading day immediately before the date such distribution is announced.

For the avoidance of doubt, an adjustment made pursuant to this clause (2) will become effective at the time set forth in the definition of CR_1 above. To the extent that shares of our common stock are not delivered after the expiration of such rights, options or warrants (including as a result of such rights, options or warrants not being exercised), the conversion rate will be readjusted to the conversion rate that would then be in effect had the increase to the conversion rate for such distribution been made on the basis of delivery of only the number of shares of our common stock actually delivered upon exercise of such rights, option or warrants. To the extent such rights, options or warrants are not so distributed, the conversion rate will be readjusted to the conversion rate that would then be in effect had the ex-dividend date for the distribution of such rights, options or warrants not occurred.

For purposes of this paragraph (2), in determining whether any rights, options or warrants entitle holders of our common stock to subscribe for or purchase shares of our common stock at a price per share that is less than the average of the last reported sale prices per share of our common stock for the 10 consecutive trading days ending on, and including, the trading day immediately before the date of the distribution of such rights, options or warrants is announced, and in determining the aggregate price payable to exercise such rights, options or warrants, there will be taken into account any consideration we receive for such rights, options or warrants and any amount payable on exercise thereof, with the value of such consideration, if not cash, to be determined by our board of directors.

(3)

Spin-Offs and Other Distributed Property.

(a)

Distributions Other than Spin-Offs. If we distribute shares of our "capital stock" (as defined below under the caption " Definitions"), evidences of our indebtedness or other assets or

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property of ours, or rights, options or warrants to acquire our capital stock or other securities, to all or substantially all holders of our common stock, excluding:

- dividends, distributions, rights, options or warrants for which an adjustment to the conversion rate is required pursuant to paragraph (1) or (2) above;
- dividends or distributions paid exclusively in cash for which an adjustment to the conversion rate is required pursuant to paragraph (4) below;
- rights issued or otherwise distributed pursuant to a stockholder rights plan, except to the extent provided below under the caption " Stockholder Rights Plans";
- spin-offs for which an adjustment to the conversion rate is required pursuant to paragraph (3)(b) below; and
- a distribution solely pursuant to a common stock change event, as to which the provisions described below under the caption " Effect of Common Stock Change Event" will apply,

then the conversion rate will be increased based on the following formula:

where:

CR_0 = the conversion rate in effect immediately before the open of business on the ex-dividend date for such distribution;

CR_1 = the conversion rate in effect immediately after the open of business on such ex-dividend date;

SP = the average of the last reported sale prices per share of our common stock for the 10 consecutive trading days ending on, and including, the trading day immediately before such ex-dividend date; and

FMV = the fair market value (as determined by our board of directors), as of such ex-dividend date, of the shares of capital stock, evidences of indebtedness, assets, property, rights, options or warrants distributed per share of our common stock pursuant to such distribution.

However, if *FMV* is equal to or greater than *SP*, then, in lieu of the foregoing adjustment to the conversion rate, each noteholder will receive, for each $1,000 principal amount of notes held by such noteholder on the record date for such distribution, at the same time and on the same terms as holders of our common stock, the amount and kind of shares of capital stock, evidences of indebtedness, assets, property, rights, options or warrants that such noteholder would have received if such noteholder had owned, on such record date, a number of shares of our common stock equal to the conversion rate in effect on such record date.

For the avoidance of doubt, an adjustment made pursuant to this paragraph (3)(a) will become effective at the time set forth in the definition of CR_1 above. To the extent such distribution is not so paid or made, or such rights, options or warrants are not exercised before their expiration (including as a result of being redeemed or terminated), the conversion rate will be readjusted to the conversion rate that would then be in effect had the adjustment been made on the basis of only the distribution, if any, actually made or paid or on the basis of the distribution of only such rights, options or warrants, if any, that were actually exercised, if at all.

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(b) *Spin-Offs*. If we distribute or dividend shares of capital stock of any class or series, or similar equity interest, of or relating to an "affiliate" or "subsidiary" (as those terms are defined below under the caption " Definitions") or other business unit of ours to all or substantially all holders of our common stock (other than solely pursuant to a common stock change event, as to which the provisions described below under the caption " Effect of Common Stock Change Event" will apply), and such capital stock or equity interest is listed or quoted (or will be listed or quoted upon the consummation of the transaction) on a U.S. national securities exchange (a "spin-off"), then the conversion rate will be increased based on the following formula:

where:

CR_0 = the conversion rate in effect immediately before the open of business on the ex-dividend date for such spin-off;

CR_1 = the conversion rate in effect immediately after the open of business on such ex-dividend date;

FMV = the product of (x) the average of the last reported sale prices per share or unit of the capital stock or equity interests distributed in such spin-off over the 10 consecutive trading day period (the "spin-off valuation period") beginning on, and including, such ex-dividend date (such average to be determined as if references to our common stock in the definitions of "last reported sale price" and "trading day" were instead references to such capital stock or equity interests); and (y) the number of shares or units of such capital stock or equity interests distributed per share of our common stock in such spin-off; and

SP = the average of the last reported sale prices per share of our common stock for each trading day in the spin-off valuation period.

The adjustment to the conversion rate pursuant to this paragraph (3)(b) will be calculated as of the last trading day of the spin-off valuation period but will be given effect immediately after the open of business on the ex-dividend date for the spin-off, with retroactive effect. If a note is converted and the conversion date (or, in the case of a capped conversion, any VWAP trading day within the related cash settlement amount observation period) occurs during the spin-off valuation period, then, notwithstanding anything to the contrary, we will, if necessary, delay the settlement of such conversion (or, in the case of a capped conversion, settlement of the related cash settlement amount) until the second business day after the last day of the spin-off valuation period.

To the extent any dividend or distribution of the type described above in this paragraph (3)(b) is declared but not made or paid, the conversion rate will be readjusted to the conversion rate that would then be in effect had the adjustment been made on the basis of only the dividend or distribution, if any, actually made or paid.

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(4) *Cash Dividends or Distributions*. If any cash dividend or distribution is made to all or substantially all holders of our common stock, then the conversion rate will be increased based on the following formula:

where:

CR_0 = the conversion rate in effect immediately before the open of business on the ex-dividend date for such dividend or distribution;

CR_1 = the conversion rate in effect immediately after the open of business on such ex-dividend date;

SP = the last reported sale price per share of our common stock on the trading day immediately before such ex-dividend date; and

D = the cash amount distributed per share of our common stock in such dividend or distribution.

For the avoidance of doubt, an adjustment made pursuant to this clause (4) will become effective at the time set forth in the definition of CR_1 above. However, if D is equal to or greater than SP, then, in lieu of the foregoing adjustment to the conversion rate, each noteholder will receive, for each $1,000 principal amount of notes held by such noteholder on the record date for such dividend or distribution, at the same time and on the same terms as holders of our common stock, the amount of cash that such noteholder would have received if such noteholder had owned, on such record date, a number of shares of our common stock equal to the conversion rate in effect on such record date. To the extent such dividend or distribution is declared but not made or paid, the conversion rate will be readjusted to the conversion rate that would then be in effect had the adjustment been made on the basis of only the dividend or distribution, if any, actually made or paid.

(5) *Tender Offers or Exchange Offers*. If we or any of our subsidiaries makes a payment in respect of a tender offer or exchange offer for shares of our common stock, and the value (determined as of the expiration time by our board of directors) of the cash and other consideration paid per share of our common stock in such tender or exchange offer exceeds the last reported sale price per share of our common stock on the trading day immediately after the last date (the "expiration date") on which tenders or exchanges may be made pursuant to such tender or exchange offer (as it may be amended), then the conversion rate will be increased based on the following formula:

where:

CR_0 = the conversion rate in effect immediately before the time (the "expiration time") such tender or exchange offer expires;

CR_1 = the conversion rate in effect immediately after the expiration time;

AC = the aggregate value (determined as of the expiration time by our board of directors) of all cash and other consideration paid or payable for shares of our common stock purchased in such tender or exchange offer;

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OS_0 = the number of shares of our common stock outstanding immediately before the expiration time (before giving effect to the purchase of all shares of our common stock accepted for purchase or exchange in such tender or exchange offer);

OS_1 = the number of shares of our common stock outstanding immediately after the expiration time (excluding all shares of our common stock accepted for purchase or exchange in such tender or exchange offer); and

SP = the average of the last reported sale prices per share of our common stock over the 10 consecutive trading day period (the "tender/exchange offer valuation period") beginning on, and including, the trading day immediately after the expiration date;

provided, *however*, that the conversion rate will in no event be adjusted down pursuant to the provisions described in this paragraph (5), except to the extent provided in the immediately following paragraph. The adjustment to the conversion rate pursuant to this paragraph (5) will be calculated as of the close of business on the last trading day of the tender/exchange offer valuation period but will be given effect immediately after the expiration time, with retroactive effect. If a note is converted and the conversion date (or, in the case of a capped conversion, any VWAP trading day within the related cash settlement amount observation period) occurs on the expiration date or during the tender/exchange offer valuation period, then, notwithstanding anything to the contrary, we will, if necessary, delay the settlement of such conversion (or, in the case of a capped conversion, settlement of the related cash settlement amount) until the second business day after the last day of the tender/exchange offer valuation period.

To the extent such tender or exchange offer is announced but not consummated (including as a result of being precluded from consummating such tender or exchange offer under applicable law), or any purchases or exchanges of shares of common stock in such tender or exchange offer are rescinded, the conversion rate will be readjusted to the conversion rate that would then be in effect had the adjustment been made on the basis of only the purchases or exchanges of shares of common stock, if any, actually made, and not rescinded, in such tender or exchange offer.

We will not be required to adjust the conversion rate except as described above or below under the caption " Increase in Conversion Rate in Connection with a Make-Whole Fundamental Change." Without limiting the foregoing, we will not be required to adjust the conversion rate on account of:

except as described above, the sale of shares of our common stock for a purchase price that is less than the market price per share of our common stock or less than the conversion price;

the issuance of any shares of our common stock pursuant to any present or future plan providing for the reinvestment of dividends or interest payable on our securities and the investment of additional optional amounts in shares of our common stock under any such plan;

the issuance of any shares of our common stock or options or rights to purchase shares of our common stock pursuant to any present or future employee, director or consultant benefit plan or program of, or assumed by, us or any of our subsidiaries;

the issuance of any shares of our common stock pursuant to any option, warrant, right or convertible or exchangeable security of ours not described in the preceding bullet and outstanding as of the date we first issue the notes;

solely a change in the par value of our common stock; or

accrued and unpaid interest on the notes.

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Notice of Conversion Rate Adjustments

Upon the effectiveness of any adjustment to the conversion rate pursuant to the provisions described above under the caption " Conversion Rate Adjustments Generally," we will promptly send notice to the noteholders containing (i) a brief description of the transaction or other event on account of which such adjustment was made; (ii) the conversion rate in effect immediately after such adjustment; and (iii) the effective time of such adjustment.

Voluntary Conversion Rate Increases

To the extent permitted by law and applicable stock exchange rules, we, from time to time, may (but are not required to) increase the conversion rate by any amount if (i) our board of directors determines that such increase is in our best interest or that such increase is advisable to avoid or diminish any income tax imposed on holders of our common stock or rights to purchase our common stock as a result of any dividend or distribution of shares (or rights to acquire shares) of our common stock or any similar event; (ii) such increase is in effect for a period of at least 20 business days; and (iii) such increase is irrevocable during such period.

Tax Considerations

A noteholder may, in some circumstances, including a cash distribution or dividend on our common stock, be deemed to have received a distribution that is subject to U.S. federal income tax as a result of an adjustment or the non-occurrence of an adjustment to the conversion rate. Applicable withholding taxes (including backup withholding) may be withheld from interest and payments upon conversion, repurchase, redemption or maturity of the notes. In addition, if any withholding taxes (including backup withholding) are paid on behalf of a noteholder, then those withholding taxes may be set off against payments of cash or the delivery of shares of common stock in respect of the notes (or, in some circumstances, any payments on our common stock) or sales proceeds received by, or other funds or assets of, that noteholder. For a discussion of the U.S. federal income tax treatment of an adjustment to the conversion rate, see "Certain U.S. Federal Income Tax Considerations."

Special Provisions for Adjustments that Are Not Yet Effective and Where Converting Noteholders Participate in the Relevant Transaction or Event

Notwithstanding anything to the contrary, if:

a note is to be converted;

the record date, effective date or expiration time for any event that requires an adjustment to the conversion rate pursuant to the provisions described above under the caption " Conversion Rate Adjustments Generally" has occurred on or before the conversion date for such conversion, but an adjustment to the conversion rate for such event has not yet become effective as of such conversion date;

the consideration due upon such conversion includes any whole shares of our common stock; and

such shares are not entitled to participate in such event (because they were not held on the related record date or otherwise),

then, solely for purposes of such conversion, we will, without duplication, give effect to such adjustment on such conversion date (and, for the avoidance of doubt, the shares issuable upon such conversion will not be entitled to participate in such event). In such case, if the date we are otherwise required to deliver the consideration due upon such conversion is before the first date on which the amount of

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such adjustment can be determined, then we will delay the settlement of such conversion until the second business day after such first date.

Notwithstanding anything to the contrary in the indenture or the notes, if:

a conversion rate adjustment for any dividend or distribution becomes effective on any ex-dividend date pursuant to the provisions described above under the caption " Conversion Rate Adjustments Generally";

a note is to be converted;

the conversion date for such conversion occurs on or after such ex-dividend date and on or before the related record date;

the consideration due upon such conversion includes any whole shares of our common stock based on a conversion rate that is adjusted for such dividend or distribution; and

such shares would be entitled to participate in such dividend or distribution,

then (x) such conversion rate adjustment will not be given effect for such conversion; and (y) the shares of common stock issuable upon such conversion based on such unadjusted conversion rate will be entitled to participate in such dividend or distribution.

Stockholder Rights Plans

If any shares of our common stock are to be issued upon conversion of any note and, at the time of such conversion, we have in effect any stockholder rights plan, then the holder of that note will be entitled to receive, in addition to, and concurrently with the delivery of, the consideration otherwise due upon such conversion, the rights set forth in such stockholder rights plan, unless such rights have separated from our common stock at such time, in which case, and only in such case, the conversion rate will be adjusted pursuant to the provisions described above in paragraph (3)(a) under the caption " Conversion Rate Adjustments Generally" on account of such separation as if, at the time of such separation, we had made a distribution of the type referred to in such paragraph to all holders of our common stock, subject to readjustment as described above if such rights expire, terminate or are redeemed. We do not currently have a stockholder rights plan.

Issuer's Mandatory Conversion Option

If, at any time prior to the maturity date, the daily VWAP per share of our common stock equals or exceeds 130% of the "conversion price" (as defined below under the caption " Definitions") on each of at least 20 VWAP trading days, whether or not consecutive, during any 30 consecutive VWAP trading day period commencing on or after the date we first issue the notes, then we will have the right (the "issuer mandatory conversion right"), exercisable at our election, to cause all (and not less than all) notes then outstanding to be automatically converted (any such conversion, a "mandatory conversion"). To exercise the issuer mandatory conversion right, we must send notice of our election (a "mandatory conversion notice") to noteholders no later than the fifth business day after the last VWAP trading day of such 30 consecutive VWAP trading day period. The notice will contain certain information set forth in the indenture, including the conversion date for the mandatory conversion, which will be a business day of our choosing that is no more than 30, nor less than 10, business days after the date we send the notice.

Notwithstanding anything to the contrary described above, we may not exercise the issuer mandatory conversion right at any time during the period beginning on the effective date of a fundamental change or make-whole fundamental change and ending on the 35th trading day after such effective date (or, in the case of a fundamental change, ending on the related fundamental change repurchase date).

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In addition, notwithstanding anything to the contrary described above, we may not exercise our issuer mandatory conversion right unless all of the following conditions (collectively, the "equity conditions") are satisfied on each day from, and including, the date we send the mandatory conversion notice to, and including, the conversion date for the mandatory conversion (as set forth in such notice):

- either (i) all shares of our common stock issuable upon mandatory conversion will be eligible for resale, by a person that is not an affiliate of ours, without registration under any applicable federal or state securities laws; or (ii) a shelf registration statement registering the resale of the shares of our common stock issuable upon conversion of the notes is effective under the Securities Act and available for use by the persons to whom such shares are to be issued, and we expect such shelf registration statement to remain effective and so available for use from the date we send such mandatory conversion notice through the date that is 30 days following such conversion date;

- our common stock is listed on any of The New York Stock Exchange, The Nasdaq Global Market or The Nasdaq Global Select Market (or any of their respective successors) (each, an "eligible market") and has not been suspended from trading on such eligible market (other than suspensions of not more than two trading days and occurring prior to the applicable date of determination due to business announcements by us);

- the delisting or suspension of our common stock is not pending and has not been threatened in writing by the applicable eligible market, and we are not then in violation of the then effective minimum listing maintenance requirements of such eligible market;

- all shares of common stock issuable upon mandatory conversion may be issued in full without violating the listing rules of The Nasdaq Global Market or any other applicable eligible market on which our common stock is then listed or trading; and

- we have not defaulted on our obligation to convert any note before the date we send the mandatory conversion notice, and no default or event of default has occurred and is continuing.

If any of the equity conditions ceases to be satisfied at any time after we send a mandatory conversion notice, we will promptly (and no later than the scheduled conversion date for the mandatory conversion) notify noteholders of the same, specifying that the mandatory conversion ceases to apply. Except as described in the preceding sentence, our issuance of a mandatory conversion notice will be irrevocable.

Increase in Conversion Rate in Connection with a Make-Whole Fundamental Change

Generally

If a make-whole fundamental change occurs on or before November 1, 2022 and the conversion date for the conversion of a note occurs during the related "make-whole fundamental change conversion period" (as defined below under the caption " Definitions"), then, subject to the provisions described below, the conversion rate applicable to such conversion will be increased by a number of shares (the "additional shares") set forth in the table below corresponding (after

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interpolation as described below) to the effective date and the "stock price" (as defined below under the caption " Definitions") of such make-whole fundamental change:

	Stock Price						
Effective Date	**$**	**$**	**$**	**$**	**$**	**$**	**$**
, 2018							
November 1, 2019							
November 1, 2020							
November 1, 2021							
November 1, 2022							

If such effective date or stock price is not set forth in the table above, then:

- if such stock price is between two stock prices in the table above or the effective date is between two effective dates in the table above, then the number of additional shares will be determined by a straight-line interpolation between the numbers of additional shares set forth for the higher and lower stock prices in the table and the earlier and later effective dates in the table above, as applicable, based on a 365- or 366-day year, as applicable; and

- if the stock price is greater than $ (subject to adjustment in the same manner as the stock prices set forth in the column headings of the table above are adjusted, as described below under the caption " Adjustment of Stock Prices and Number of Additional Shares"), or less than $ (subject to adjustment in the same manner), per share, then no additional shares will be added to the conversion rate.

Notwithstanding anything to the contrary, in no event will the conversion rate be increased to an amount that exceeds shares of our common stock per $1,000 principal amount of notes, which amount is subject to adjustment in the same manner as, and at the same time and for the same events for which, the conversion rate is required to be adjusted pursuant to the provisions described above under the caption " Conversion Rate Adjustments Generally."

Adjustment of Stock Prices and Number of Additional Shares

The stock prices in the first row (*i.e.*, the column headers) of the table above will be adjusted in the same manner as, and at the same time and for the same events for which, the conversion price is adjusted as a result of the operation of the provisions described above under the caption " Conversion Rate Adjustments Generally." The numbers of additional shares in the table above will be adjusted in the same manner as, and at the same time and for the same events for which, the conversion rate is adjusted pursuant to the provisions described above under the caption " Conversion Rate Adjustments Generally."

Notice of Make-Whole Fundamental Change

If a make-whole fundamental change occurs, then, promptly and in no event later than five business days after the effective date of such make-whole fundamental change, we will notify the trustee and the noteholders of the occurrence of such make-whole fundamental change and of such effective date.

Enforceability

Our obligation to increase the conversion rate as described above in connection with a make-whole fundamental change could be considered a penalty, in which case its enforceability would be subject to general principles of reasonableness and equitable remedies.