Filed Pursuant to Rule 424(b)(5)
Registration No. 333-221382

PROSPECTUS SUPPLEMENT
(To Prospectus dated January 31, 2018)

Up to 60,000,000 Shares of Common Stock
Up to 4,500 Shares of Series X Convertible Preferred Stock

We are conducting a rights offering pursuant to which we are distributing to holders of our common stock and our Series O Convertible Preferred Stock (the "Series O Preferred"), at no charge, non-transferable subscription rights to purchase shares of our common stock and/or our Series X Convertible Preferred Stock (the "Series X Preferred") with an aggregate offering value of $60,000,000. For each share of common stock (including shares of common stock issuable upon conversion of the Company's outstanding shares of Series O Preferred) for which you are the holder of record as of 5:00 p.m., New York Time on February 13, 2020, you will receive 0.90412 rights to purchase shares of our common stock (subject to the aggregate offering threshold and certain ownership limitations) or, as described below, an equivalent value of shares of Series X Preferred. Each whole subscription right will allow you to subscribe for one share of common stock (or an equivalent value of shares of Series X Preferred) on the terms described in this prospectus supplement.

The total number of subscription rights issued to each stockholder will be rounded down to the nearest whole number. Each whole subscription right will entitle you to purchase one share of our common stock at a subscription price of $1.00 per share (the "Subscription Price") (or a portion of one share of Series X Preferred on the terms described below).

Any participant in the rights offering that, following exercise of such participant's subscription right would be or become a holder of greater than 9.9% of the outstanding number of shares of our common stock following the offering may elect to instead purchase Series X Preferred at a purchase price of $10,000 per share (ratably adjusted for fractional shares), and any such holder so electing would have a right to purchase 1/10,000th of a share of Series X Preferred for each share of common stock it had a right to purchase pursuant to its subscription rights. Each share of Series X Preferred will be convertible into 10,000 shares of common stock at the election of the holder, subject to beneficial ownership conversion limits applicable to the Series X Preferred. The Series X Preferred will generally have no voting rights, except as required by law, and will participate *pari passu* (on an as-converted basis) with any distribution of proceeds to holders of common stock and Series O Preferred, in the event of the Company's liquidation, dissolution or winding up or the payment of a dividend on shares of our common stock.

The subscription rights may be exercised at any time during the subscription period, which will commence on February 14, 2020. The subscription rights will expire if they are not exercised by 5:00 p.m., New York time, on March 2, 2020, unless we extend the rights offering period. We reserve the right to extend the rights offering period at our sole discretion, subject to certain limitations described herein. You should carefully consider whether to exercise your subscription rights before the expiration of the rights offering period. All exercises of subscription rights are irrevocable. Our Board of Directors is making no recommendation regarding your exercise of the subscription rights. The subscription rights may not be sold, transferred or assigned to anyone else and will not be listed for trading on any stock exchange or market.

The shares of common stock and Series X Preferred are being offered directly by us without the services of an underwriter or selling agent.

Following the expiration of the offering period, we will offer certain of our current investors or funds managed by such investors (our "Investors"), and/or their respective transferee(s) or assignee(s), the opportunity to subscribe for the remaining portion (if any) of shares offered but not sold hereunder (the "Remaining Shares"), with the total gross offering proceeds not to exceed $60,000,000. A member of our Board of Directors, Matthew Perry, is president of BVF Partners L.P. ("BVF"), one of the Investors. See the section titled "Description of the Rights Offering—The Subscription Rights" for additional information.

We have separately entered into an Investment Agreement pursuant to which the Investors have agreed to purchase from us a number of shares of common stock or Series X Preferred, as applicable, with an aggregate face value equal to the unsubscribed portion (if any) that remains following the expiration of the offering period and following the expiration of the Investors' right to purchase some or all of the Remaining Shares. See the section titled "Description of the Backstop Commitment" for additional information.

We reserve the right to cancel the rights offering at any time for any reason. If we cancel the rights offering, all subscription payments received by the subscription agent, who is our transfer agent, will be returned, without interest or penalty, as soon as practicable.

Our common stock is traded on The Nasdaq Capital Market under the symbol "CTIC." On February 13, 2020, the last reported sales price of our common stock on The Nasdaq Capital Market was $1.32 per share.

The exercise of your subscription rights for shares of our common stock and/or Series X Preferred involves risks. You should carefully consider all of the information set forth in this prospectus supplement and the accompanying prospectus, including the risk factors beginning on page S-14 of this prospectus supplement as well as the risk factors and other information in any documents we incorporate by reference into this prospectus supplement and the accompanying prospectus before exercising your subscription rights. See "Where You Can Find Additional Information" and "Incorporation by Certain Information by Reference."

If you have any questions or need further information about this rights offering, please call Georgeson LLC, our information agent for this rights offering, at (888) 613-9988 (toll-free).

An investment in our common stock and/or our Series X Preferred involves risks. Before making an investment decision, you should carefully review the information under "Risk Factors" beginning on page S-14 of this prospectus supplement and in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and our Quarterly Reports on Form 10-Q for the quarterly periods ended subsequent to our filing of such Annual Report, each of which has been filed with the Securities and Exchange Commission and each of which is incorporated by reference in this prospectus supplement and the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is February 14, 2020

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is the prospectus supplement, including the documents incorporated by reference, which describes the specific terms of this rights offering. The second part, the accompanying prospectus, including the documents incorporated by reference, provides more general information. Generally, when we refer to this prospectus supplement, we are referring to both parts of this document combined. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, as well as the additional information described under "Where You Can Find Additional Information" on page S-65 of this prospectus supplement. These documents contain information that you should consider when making your investment decision. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent that any statement that we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference therein.

We have not authorized anyone to provide you with information that is different from that contained in this prospectus supplement, the accompanying prospectus or in any documents incorporated by reference herein or therein. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are offering to sell, and seeking offers to buy, shares of our common stock and Series X Convertible Preferred Stock (the "Series X Preferred") only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the offering of any securities offered by this prospectus supplement in certain jurisdictions may be restricted by law. Persons outside of the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of any securities offered by this prospectus supplement and the distribution of this prospectus supplement outside the United States. This prospectus supplement does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

In this prospectus supplement, the terms "CTI," "Company," "we," "us," "our" and similar terms refer to CTI BioPharma Corp., a Delaware corporation, and its subsidiaries, unless the context otherwise requires. We use "CTI" and other marks as trademarks within the United States and other countries. This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein contain references to our trademarks as well as third-party trademarks. Solely for convenience, trademarks and trade names, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use of third-party trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

QUESTIONS AND ANSWERS RELATING TO THE RIGHTS OFFERING

What is being offered in this rights offering?

We are conducting a rights offering pursuant to which we are distributing at no charge to holders of our common stock and our Series O Convertible Preferred Stock (the "Series O Preferred"), non-transferable subscription rights to purchase shares of our common stock and/or our Series X Preferred with an aggregate offering value of $60,000,000. For each share of common stock (including shares of common stock issuable upon conversion of the Company's outstanding shares of Series O Preferred) for which you are the holder of record as of 5:00 p.m., New York Time on February 13, 2020, you will receive 0.90412 rights to purchase shares of our common stock (subject to the aggregate offering threshold and certain ownership limitations, as applicable) or, as described below, an equivalent value of shares of Series X Preferred. Each whole subscription right will allow you to subscribe for one share of common stock (or an equivalent value of shares of Series X Preferred) on the terms described in this prospectus supplement. The subscription rights entitle the holders to purchase up to an aggregate of approximately 60,000,000 shares of common stock (or an equivalent value of shares of Series X Preferred). The subscription rights will be evidenced by subscription rights certificates.

The total number of subscription rights issued to each stockholder will be rounded down to the nearest whole number. Each whole subscription right will entitle you to purchase one share of our common stock at a subscription price equal to $1.00 per share (the "Subscription Price") (or a portion of one share of Series X Preferred for the consideration described elsewhere in this prospectus supplement). Because the total number of subscription rights issued to each security holder will be rounded down to the nearest whole number, we may not issue the full number of shares of common stock and Series X Preferred authorized for issuance in connection with this rights offering. Any excess subscription payments received by the subscription agent will be returned, without interest or penalty, as soon as practicable.

What are the subscription rights?

For each whole subscription right that you own, you will have the right to buy from us one share of our common stock at the Subscription Price (or a portion of one share of Series X Preferred for $10,000 per share of Series X Preferred). You may exercise some or all of your subscription rights, or you may choose not to exercise any subscription rights.

For example, if you owned 11,061 shares of our common stock as of 5:00 p.m., New York time, on the record date, you would receive subscription rights representing the right to purchase 10,000 shares of common stock for $1.00 per share (or 1 share of Series X Preferred for $10,000 per such share).

Why are we conducting the rights offering?

We are conducting the rights offering in order to raise additional capital and to improve and strengthen our financial position. We currently plan to use the net proceeds from the rights offering to conduct our ongoing PACIFICA Phase 3 trial, as well as for working capital and other general corporate purposes. See "Use of Proceeds."

In authorizing the rights offering, our Board of Directors considered and evaluated a number of factors, including:

- our current capital resources and our future need for additional liquidity and capital;
- the size and timing of the rights offering;
- the potential dilution to our current stockholders if they choose not to participate in the rights offering;
- alternatives available for raising capital, including debt and other forms of equity raises;
- the potential impact of the rights offering on the public float for our common stock;

- the Investors' willingness to backstop the rights offering;
- that applicable Nasdaq marketplace rules do not require stockholder approval of the rights offering or the Backstop Commitment; and
- the fact that existing stockholders would have the opportunity to participate on a *pro rata* basis to purchase additional shares of common stock or Series X Preferred.

How was the subscription price for the rights offering determined?

Our Board of Directors considered a number of factors in determining the price for the rights offering, including:

- the price per share at which the Investors are willing to backstop the rights offering;
- "pass through" savings as a result of conducting the rights offering with no investment banking support;
- the price at which our stockholders might be willing to participate in the rights offering;
- historical and current trading prices for our common stock, including on a volume weighted average share price basis over certain periods; and
- the desire to provide an opportunity to our stockholders to participate in the rights offering on a *pro rata* basis.

What is the role of the Investors in this offering?

Following the expiration of the offering period, we will offer certain of our current investors or funds managed by such investors (our "Investors"), the opportunity to subscribe for the remaining portion (if any) of shares offered but not sold hereunder (the "Remaining Shares"), with the total gross offering proceeds not to exceed $60,000,000.

Separately, the Investors have agreed to purchase a number of shares of common stock (or Series X Preferred) with a face value equal to the remaining unsubscribed portion of the securities offered by this prospectus supplement. This purchase commitment is set forth in a separate Investment Agreement, which would provide for the purchase of these shares (if applicable) in a private placement that is exempt from registration under Section 4(a)(2) of the Securities Act of 1933, as amended (the "Backstop Commitment"). The purchase of the shares under the Backstop Commitment would be at the same prices at which securities are offered hereunder. The Investors will not receive any fees in connection with the Backstop Commitment.

Am I required to exercise the rights I receive in the rights offering?

No. You may exercise any number of your subscription rights, or you may choose not to exercise any subscription rights. However, if you choose not to fully exercise your rights and other stockholders fully exercise their subscription rights and/or the Investors acquire the Remaining Shares hereunder or acquire shares of common stock or Series X Preferred pursuant to the Backstop Commitment, the percentage of our common stock owned by other stockholders will increase, the relative percentage of our common stock that you own will decrease, and your voting and other rights may be diluted.

Has our Board of Directors made a recommendation to our stockholders regarding the rights offering?

Our Board of Directors is making no recommendations regarding your exercise of the subscription rights. Stockholders who exercise subscription rights risk investment loss on new money invested. We cannot assure you that the trading price for our common stock will be above the subscription price at the time of exercise or at the expiration of the rights offering period or that anyone purchasing securities at their respective subscription prices will be able to sell those securities in the future at the same price or a higher price. You are urged to make your own decision whether or not to exercise your subscription rights based on your own assessment of our business and the rights offering. See "Risk Factors" in this prospectus supplement and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.

Who may participate in the rights offering?

All stockholders of record, including holders of Series O Preferred on an as-converted basis, on the close of business on February 13, 2020, the record date approved by our Board of Directors for this rights offering, are entitled to receive rights and purchase shares in this rights offering.

Will our directors, executive officers or significant stockholders participate in the rights offering?

Our directors and executive officers who own shares of common stock and/or Series O Preferred, as well as other significant stockholders, are permitted, but not required, to participate in the rights offering on the same terms and conditions applicable to all stockholders. Certain of our directors, executive officers and significant stockholders may participate in the rights offering. In fact, subject to the terms and conditions of the rights offering, (i) certain members of our Board of Directors and our management have expressed their intention to purchase their respective *pro rata* shares of the subscription rights, and (ii) each of the Investors has expressed its intention to purchase its *pro rata* share in the rights offering and has also committed to purchase shares of our common stock or Series X Preferred in an amount equal to the aggregate value of the shares of common stock (if any) not subscribed for in the rights offering, pursuant to the Backstop Commitment. Despite the indication of interest by our directors and management, and by the Investors, there is no assurance that any of such parties will purchase shares in the rights offering, other than, with respect to the Investors, shares (if any) purchased by the Investors under the Backstop Commitment.

How soon must I act to exercise my subscription rights?

The subscription rights may be exercised at any time during the subscription period, which commences on February 14, 2020, through the expiration date for the rights offering, which is 5:00 p.m., New York time, on March 2, 2020. If you elect to exercise any subscription rights, the subscription agent must actually receive all required documents and payments from you at or prior to the expiration date. Although we have the option of extending the expiration date of the subscription period at our sole discretion, we currently do not intend to do so.

May I transfer my subscription rights?

No, the rights are exercisable only by holders of record of our common stock and Series O Preferred as of the record date, and you may not sell, transfer or assign your subscription rights to anyone else.

Are there any limits on the number of shares of common stock I may own as a result of the exercise of subscription rights under the rights offering?

Yes. You may only purchase the number of whole shares of common stock purchasable upon exercise of the rights distributed to you in the rights offering. Accordingly, the number of shares of common stock that you may purchase in the rights offering is limited by the number of our shares of common stock you held (including any shares of common stock issuable upon the conversion of Series O Preferred) on the record date. Additionally, if, immediately following the exercise of your subscriptions rights, you would beneficially own more than 9.9% of the total number of shares of the Company's common stock issued and outstanding immediately after the issuance of such shares, you may elect to receive shares of Series X Preferred (at a subscription price of $10,000 per whole share of Series X Preferred) rather than shares of common stock. We reserve the right to reject any or all subscriptions not properly submitted or the acceptance of which would, in the opinion of our counsel, be unlawful.

Are we requiring a minimum subscription to complete the rights offering?

No. Any shares not subscribed for in the rights offering may be purchased by the Investors as part of their right to purchase the Remaining Shares. To the extent that the total subscriptions in the rights offering (including through the Investors' purchase of any portion of the Remaining Shares) does not equal $60 million, then such shortfall will be purchased by the Investors pursuant to the Backstop Commitment as shares of common stock or Series X Preferred.

Are there any other conditions to the completion of the rights offering?

Yes. The completion of the rights offering is subject to the conditions described under "Description of the Rights Offering – Amendment, Withdrawal and Termination."

Can the rights offering be canceled?

Yes. We reserve the right to cancel the rights offering at any time for any reason. If the rights offering is canceled, all subscription payments received by the subscription agent will be returned, without interest or penalty, as soon as practicable to those persons who subscribed for shares in the rights offering.

How do I exercise my subscription rights if I am a record holder of shares of common stock or Series O Preferred?

If you wish to participate in the rights offering, you must properly complete the subscription rights certificate distributed by the subscription agent and deliver it, along with the full subscription price, to the subscription agent before 5:00 p.m., New York time, on March 2, 2020. If you use the mail, we recommend that you use insured, registered mail, return receipt requested.

If you send a payment that is insufficient to purchase the number of shares you requested, or if the number of shares you requested is not specified in the forms, the payment received will be applied to exercise your subscription rights to the fullest extent possible based on the amount of the payment received. If the payment exceeds the subscription price for the full exercise of your subscription rights, then the excess will be returned to you as soon as practicable. You will not receive interest on any payments refunded to you under the rights offering.

What should I do if I want to participate in the rights offering, but my shares are held in the name of my broker, dealer, custodian bank or other nominee?

If you hold your shares of common stock in "street name" through a broker, dealer, custodian bank or other nominee, you will not receive an actual subscription rights certificate. Instead, as described in this prospectus supplement, you must instruct your broker, dealer, custodian bank or other nominee whether or not to exercise rights on your behalf. We will ask your broker, dealer, custodian bank or other nominee to notify you of the rights offering.

If you wish to participate in the rights offering, you should complete and return to your nominee the form entitled "Beneficial Owner Election Form." You should receive this form from your nominee with the other rights offering materials. If your shares are held in the name of a broker, dealer or other nominee, then you should send your subscription payment to that nominee as well pursuant to their instructions. You must act timely to ensure that your broker, dealer, custodian bank or other nominee acts for you and that all required forms and payments are actually received by the subscription agent prior to the expiration of the rights offering period.

If the rights offering is not completed, will my subscription payment be refunded to me?

Yes. The subscription agent will hold all funds it receives in a segregated bank account until completion of the rights offering. If the rights offering is not completed, the subscription agent will return, without interest or penalty, as soon as practicable, all subscription payments. If you own shares in "street name," it may take longer for you to receive payment because the payments will be returned through your nominee.

Must I pay the subscription price in cash?

Yes. You must timely pay the full subscription price for the full number of shares of common stock (or Series X Preferred) you wish to acquire in the rights offering by personal check that clears before the expiration date of the rights offering.

Will the shares of common stock (or Series X Preferred) I acquire in the rights offering be subject to any stockholder agreement restricting my ability to sell or transfer my new shares of common stock?

No. You will not be subject to any stockholder agreement that restricts your ability to sell or transfer any new shares of common stock (or Series X Preferred) acquired by you in the rights offering. However, under federal securities laws, our affiliates will be subject to restrictions on their ability to transfer shares of our common stock (or Series X Preferred) by virtue of their status as "affiliates" of us. An "affiliate" is generally defined as a person that directly, or indirectly through one or more intermediaries, controls or is controlled by, or is under common control with, us.

After I exercise my subscription rights, may I change my mind?

No. All exercises of subscription rights are irrevocable by the stockholders, even if you later learn information about us that you consider unfavorable or our stock price declines. You should not exercise your subscription rights unless you are certain that you wish to purchase the shares of common stock (or Series X Preferred) offered pursuant to this rights offering. However, we may cancel, extend or otherwise amend the rights offering at any time prior to the expiration date.

Does exercising my subscription rights involve risk?

Yes. The exercise of your subscription rights involves risks. Exercising your subscription rights involves the purchase of additional shares of our common stock (or Series X Preferred) and should be considered as carefully as you would consider other equity investments. Among other things, you should carefully consider the risks described under the heading "Risk Factors" in this prospectus supplement and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.

What fees or charges apply if I exercise my subscription rights?

We are not charging any fees or sales commissions to issue subscription rights to you or to issue shares of common stock (or Series X Preferred) to you if you exercise your subscription rights. If you exercise your subscription rights through a broker or other record holder of your shares, you are responsible for paying any fees that person or entity may charge.

When will I receive my new shares of common stock (or Series X Preferred)?

Unless otherwise requested, all shares that you purchase in the rights offering will be issued in book-entry, or uncertificated, form. All shares of Series X Preferred will be certificated. When issued, the shares will be registered in the name of the subscription rights holder of record. As soon as practicable after the expiration of the rights offering, the subscription agent will arrange for the issuance of the shares of purchased pursuant in the rights offering. Subject to state securities laws and regulations, we have the discretion to delay distribution of any shares you may have elected to purchase by exercise of your subscription rights in order to comply with state securities laws.

What happens if I choose not to exercise my subscription rights?

You are not required to exercise your subscription rights or otherwise take any action in response to this rights offering. If you do not exercise your subscription rights, and the rights offering is completed, the number of shares of our common stock you own will not change but, due to the fact that shares of common stock will be purchased by other stockholders (or the Investors) in the rights offering, your percentage ownership of our total outstanding common stock will decrease, and your voting and other rights will be diluted.

How many shares of common stock will be outstanding after the rights offering?

As of the record date, there were 57,979,725 shares of our common stock outstanding. We will issue up to a maximum of 60,000,000 shares of common stock in the rights offering and/or pursuant to the Backstop Commitment (or a lesser amount if stockholders choose to purchase shares of Series X Preferred). Based on the number of shares issued and outstanding as of the record date, if we issue all 60,000,000 shares of common stock available in this rights offering, we would have 117,979,725 shares of common stock issued and outstanding following the completion of the rights offering.

How much money will we receive from the rights offering and related financing?

Upon issuance of all 60,000,000 shares of common stock (or an equivalent value of shares of Series X Preferred) available in this rights offering, we will receive gross proceeds of $60,000,000. The net proceeds to us, after deducting estimated offering expenses, will be approximately $59.3 million. We estimate that the expenses of the rights offering will be approximately $0.7 million. We are conducting the rights offering in order to raise additional capital and to improve and strengthen our financial position. If any portion of the securities offered herein is not purchased in the rights offering, then the Investors have committed to purchase a number of shares of common stock (or Series X Preferred) with an aggregate face value equal to such shortfall.

We intend to use the net proceeds from the rights offering to conduct our ongoing PACIFICA Phase 3 trial, as well as for working capital and other general corporate purposes. See “Use of Proceeds.”

Who should I contact if I have more questions?

If you have other questions or need assistance, please contact the information agent for this rights offering, Georgeson LLC, at (888) 613-9988.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights the information contained elsewhere in or incorporated by reference into this prospectus supplement and the accompanying prospectus. This summary does not contain all of the information that you should consider before deciding whether to exercise your subscription rights. You should carefully read this entire prospectus supplement, including the information under the heading "Risk Factors," and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus, which are described under the headings "Where You Can Find More Information" and "Incorporation by Reference."

This summary highlights selected information about us, this rights offering and information appearing elsewhere in this prospectus supplement, in the accompanying prospectus and in the documents we incorporated by reference herein and therein. This summary is not complete and does not contain all the information that you should consider before deciding whether to exercise your subscription rights. To fully understand this rights offering and its consequences to you, you should carefully read this entire prospectus supplement and the accompanying prospectus, including "Risk Factors" beginning on page S-14 of this prospectus supplement, the financial statements and related notes and the other information that we incorporated by reference herein, including our most recent Annual Report on Form 10-K and each subsequent Quarterly Report on Form 10-Q.

CTI BioPharma Corp.

Overview

We are a biopharmaceutical company focused on the acquisition, development and commercialization of novel targeted therapies for blood-related cancers that offer a unique benefit to patients and their healthcare providers. Our goal is to build a profitable company by generating income from products we develop and commercialize, either alone or with partners. We concentrate our efforts on treatments that target blood-related cancers where there is an unmet medical need. In particular, we are focused on evaluating pacritinib, our sole product candidate currently in active development, for the treatment of adult patients with myelofibrosis.

Pacritinib

Pacritinib is an investigational oral kinase inhibitor with specificity for JAK2, FLT3, IRAK1 and CSF1R. The JAK family of enzymes is a central component in signal transduction pathways, which are critical to normal blood cell growth and development, as well as inflammatory cytokine expression and immune responses. Mutations in these kinases have been shown to be directly related to the development of a variety of blood-related cancers, including myeloproliferative neoplasms, leukemia and lymphoma. In addition to myelofibrosis, the kinase profile of pacritinib suggests its potential therapeutic utility in conditions such as acute myeloid leukemia, or AML, myelodysplastic syndrome, or MDS, chronic myelomonocytic leukemia, or CMML, and chronic lymphocytic leukemia, or CLL, due to its inhibition of c-fms, IRAK1, JAK2 and FLT3. We believe pacritinib has the potential to be delivered as a single agent or in combination therapy regimens.

In May 2019, our independent data monitoring committee, or IDMC, for the dose-exploration clinical trial of pacritinib, which we refer to as the PAC203 Phase 2 trial, completed its planned fourth and final interim safety review and recommended that the trial continue without modification. We intend to report final results from the Phase 2 trial to the IDMC by providing them with the final study report. We also expect to report safety and efficacy data from the PAC203 Phase 2 trial at a scientific conference before the end of 2019. In July 2019, we met with the FDA for a Type B, End-of-Phase 2a meeting regarding the continued development of pacritinib and, in September 2019, we initiated patient enrollment in a Phase 3 clinical trial, which we refer to as the PACIFICA Phase 3 trial. The current PACIFICA Phase 3 trial protocol provides for the comparison of the safety and efficacy of 200mg of pacritinib administered twice daily to physician's choice in adult patients with myelofibrosis and severe thrombocytopenia (platelet counts of less than 50,000 per microliter) who are treatment-naïve or intolerant to ruxolitinib. The current PACIFICA Phase 3 protocol provides for the evaluation of 180 adult patients. Based on a trial of the size provided for in the current PACIFICA Phase 3 trial protocol, we would anticipate topline

data from the PACIFICA Phase 3 trial in mid-2021. We previously submitted to the FDA a proposed protocol amendment, which allowed a rapid transition to the PACIFICA Phase 3 trial. Additionally, in July 2019 we announced our decision to undertake an expanded access program, or EAP, for pacritinib for patients in the PAC203 Phase 2 trial. As a result, we extended the PAC203 Phase 2 trial to enable the patients to continue receiving pacritinib through the launch of the EAP. We expect the PACIFICA Phase 3 trial to be conducted at more than 100 sites worldwide with patients randomized in a ratio of 2:1 between pacritinib and physician's choice. Under the current protocol for the PACIFICA Phase 3 trial, the primary endpoint is the percentage of patients who achieve at least 35% reduction in spleen volume at week 24 and secondary endpoints include the efficacy of pacritinib versus physician's choice therapy as assessed by the proportion of patients achieving at least a 50% reduction in total symptom score between baseline and week 24, the overall survival of patients treated with pacritinib versus physician's choice therapy and the percentage of patients treated with pacritinib who self-assess improvement compared to other patients treated with physician's choice therapy.

On February 3, we announced that following a meeting with the FDA, we reached agreement on final design changes to the Phase 3 study that would allow for an accelerated approval pathway for pacritinib for the treatment of myelofibrosis patients with severe thrombocytopenia. We will be amending the PACIFICA pivotal Phase 3 trial protocol to allow for the primary analysis of SVR rates on the first 168 patients, with an end-of-study analysis of TSS and OS following the full enrollment of 348 patients. If the primary endpoint of SVR is met following the planned review of data from the first 168 patients, CTI intends to submit a New Drug Application ("NDA") under the FDA's subpart H regulations, subject to review of all available efficacy and safety data. Conversion to a regular approval of pacritinib would be anticipated following the successful end-of-study assessment of the secondary efficacy endpoints, and the completion of post-marketing requirements.

Based on the new trial design, we expect to report primary SVR data by the end of 2021, with a potential NDA filing in early 2022 if the SVR data is positive. Final study efficacy data is expected in 2023.

Additional Company Information

We were incorporated in the State of Washington in 1991. On January 24, 2018, we changed our state of incorporation from the State of Washington to the State of Delaware. Shares of our common stock trade on The Nasdaq Capital Market under the symbol "CTIC." Our principal executive offices are located at 3101 Western Avenue, Suite 800, Seattle, Washington 98121, and our phone number is (206) 282-7100. Our website is located at *www.ctibiopharma.com*; however, the information in, or that can be accessed through, our website is not part of or incorporated by reference into this prospectus supplement, the accompanying prospectus or any other filings we make with the United States Securities and Exchange Commission (the "SEC").

The Rights Offering

Securities Offered	We are distributing at no charge non-transferable subscription rights for each share of common stock (including shares of common stock issuable upon conversion of our outstanding shares of Series O Preferred) outstanding as of 5:00 p.m., New York time, on February 13, 2020. The total number of subscription rights issued to each holder will be rounded down to the nearest whole number. As a result, we may not issue the full number of shares authorized for issuance in connection with the rights offering. Any participant in the rights offering that, immediately following exercise of its subscription right would be or become a holder of greater than 9.9% of the outstanding number of shares of our common stock following the offering may elect to instead purchase shares of our Series X Preferred. We intend to sell the Series X Preferred at $10,000 per share, and any such holder so electing would have a right to purchase 1/10,000th of a share of Series X Preferred for each share of common stock it had a right to purchase under the subscription rights. Each share of Series X Preferred will, subject to certain limitations, be convertible into 10,000 shares of common stock at the election of the holder. The Series X Preferred will generally have no voting rights, except as required by law, and will participate *pari passu* with any distribution of proceeds to holders of common stock and Series O Preferred in the event of our liquidation, dissolution or winding up or the payment of a dividend on the common stock.
Subscription Right	For each share of common stock (including shares of common stock issuable upon conversion of the Company's outstanding shares of Series O Preferred), we will distribute 0.90412 rights to purchase shares of our common stock (subject to the aggregate offering threshold and certain ownership limitations). The total number of subscription rights issued will be rounded down to the nearest whole number. Each whole subscription right will allow its holder to subscribe for one share of common stock at the subscription price (or an equivalent value of shares of Series X Preferred on the terms described in this prospectus supplement). Holders may exercise some or all of their subscription rights, or may choose not to exercise their subscription rights.
Subscription Price	The subscription price per share of common stock is $1.00 (or $10,000 per share of Series X Preferred). To be effective, any payment related to the exercise of a subscription right must be received and must clear prior to the expiration of the rights offering period.
Record Date	February 13, 2020.
Use of Proceeds	We intend to use the net proceeds from the rights offering to conduct our ongoing PACIFICA Phase 3 trial, as well as for working capital and other general corporate purposes. See "Use of Proceeds."
Procedure for Exercising Subscription Rights	The subscription rights may be exercised at any time during the subscription period, which commences on February 14, 2020. If you are a holder of record, to exercise your subscription rights, you must properly complete the subscription rights certificate distributed by the subscription agent and deliver it, along with the full subscription

	price, to the subscription agent, Computershare Trust Company, N.A. before 5:00 p.m., New York time, on March 2, 2020, unless the expiration date is extended. If your shares are held in the name of a broker, dealer, custodian bank or other nominee, you must provide instructions to that broker, dealer, custodian bank or other nominee.
Payment Adjustments	If you send a payment that is insufficient to purchase the number of shares requested, or if the number of shares requested is not specified in the subscription rights certificate, the payment received will be applied to exercise your subscription rights to the extent of the payment. If the payment exceeds the amount necessary for the full exercise of your subscription rights, the excess will be returned to you as soon as practicable. You will not receive interest or any penalty on any payments refunded to you under the rights offering.
Shares of Common Stock Issued and Outstanding Before the Rights Offering, Eligible to Participate in the Rights Offering and Outstanding After Completion of the Rights Offering	As of the record date, there were 57,979,725 shares of our common stock outstanding and 12,575 shares of our Series O Preferred outstanding. We will issue up to a maximum of approximately 60,000,000 shares of common stock (or a number of shares of Series X Preferred which may be converted into that number of shares of common stock). To the extent that this number of shares (on an actual or as-converted basis) is not issued in the rights offering, then we expect that the shortfall would be issued to the Investors pursuant to the Backstop Commitment. Based on the number of shares outstanding as of the record date, if we issue all 60,000,000 shares of common stock (or an equivalent value of shares of Series X Preferred) available in this rights offering and/or pursuant to the Backstop Commitment, we would have 117,979,725 shares of common stock (measured on an as-converted basis) issued and outstanding following the completion of the rights offering.
Subscription Ratio	Based on an aggregate of 66,363,058 shares outstanding as of the record date or deemed to be outstanding (assuming conversion of all Series O Preferred) and eligible to participate in the rights offering, each share of common stock (including common stock issuable upon the conversion of Series O Preferred) held of record (or deemed to be held) as of the record date will receive 0.90412 rights to purchase shares of our common stock (subject to the aggregate offering threshold and certain ownership limitations). Each whole subscription right will allow its holder to subscribe for one share of common stock at the subscription price (or an equivalent value of shares of Series X Preferred on the terms described in this prospectus supplement). To the extent that any portion of the rights remain unexercised following the expiration of the offering period, the Investors will have the right to purchase up to the full amount of the unsubscribed shares.
Non-transferability of Subscription Rights	The subscription rights may not be sold, transferred or assigned to anyone else.
Backstop Commitment	We have entered into an Investment Agreement with the Investors, pursuant to which the Investors have agreed to purchase from us, subject to certain conditions, shares of common stock (or Series X Preferred) in an amount equal to the aggregate value of the shares of common stock not subscribed for in the rights offering, at a price per

	share of common stock equal to $1.00 (or $10,000 per share of Series X Preferred) (the "Backstop Commitment"). The Investors will not receive any fees in connection with the Backstop Commitment. A member of our Board of Directors, Matthew Perry, is President of BVF, one of the Investors.
No Revocation of Exercise by Stockholders	All exercises of subscription rights are irrevocable, even if you later learn information about us that you consider unfavorable or our stock price declines. You should not exercise your subscription rights unless you are certain that you wish to purchase the shares of common stock (or Series X Preferred) offered pursuant to this rights offering.
Conditions to the Rights Offering	The completion of the rights offering is subject to the conditions described under "Description of the Rights Offering—Amendment, Withdrawal and Termination."
Amendment; Cancellation	We may amend the terms of the rights offering or extend the rights offering period and we reserve the right to cancel the rights offering at any time prior to the expiration date for any reason. If the rights offering is cancelled, all subscription payments received by the subscription agent will be returned, without interest or penalty, as soon as practicable, to those persons who subscribed for shares in the rights offering. We will notify you of any amendments or modifications to the terms of the rights offering, or if the rights offering is cancelled, by issuing a press release.
No Board Recommendation	Our Board of Directors is making no recommendations regarding your exercise of the subscription rights. You are urged to make your own decision whether or not to exercise your subscription rights based on your own assessment of our business and the rights offering. See "Risk Factors."
Issuance of Stock	All shares of common stock that you purchase in the rights offering will be issued in book-entry, or uncertificated, form. All shares of Series X Preferred will be issued in book-entry, or uncertificated, form, unless otherwise requested. When issued, the shares will be registered in the name of the subscription rights holder of record. As soon as practicable after the expiration of the rights offering, the subscription agent or the Company, as applicable, will arrange for the issuance of the shares of common stock or Series X Preferred purchased in the rights offering. Subject to state securities laws and regulations, we have the discretion to delay distribution of any shares you may have elected to purchase by exercise of your subscription rights in order to comply with state securities laws.
Subscription Agent	Computershare Trust Company, N.A.
Information Agent	Georgeson LLC. If you have any questions or need further information about this Rights Offering, please call Georgeson LLC at (888) 613-9988.
Dividend Policy	We have never declared or paid any cash dividends on our common stock and do not currently anticipate declaring or paying cash dividends on our common stock in the foreseeable future. We currently intend to retain all of our future earnings, if any, to finance operations. In addition, our Loan and Security Agreement with

	Silicon Valley Bank restricts, and future debt instruments we issue may restrict, our ability to pay dividends on our common stock. Any future determination relating to our dividend policy will be made at 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 other factors that our board of directors may deem relevant.
Risk Factors	Stockholders considering making an investment by exercising subscription rights in the rights offering should carefully read and consider the information set forth in “Risk Factors” beginning on page S-14 of this prospectus supplement, together with the other information contained in or incorporated by reference into this prospectus supplement and the accompanying prospectus, before making a decision to invest in our common stock.
Nasdaq Capital Market Symbol	CTIC

RISK FACTORS

Investors should carefully consider the risks described below and in the filings incorporated by reference, including our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and our Quarterly Reports on Form 10-Q, before deciding whether to exercise your subscription rights. The risks described below and those described in the filings incorporated by reference are not the only ones we face. If any of the following risks actually occurs, our business, financial condition or results of operations could be adversely affected. In such case, the trading price of our common stock could decline and you could lose all or part of your investment. Our actual results could differ materially from those anticipated in the forward-looking statements made throughout this prospectus supplement and in the documents incorporated by reference as a result of different factors, including the risks we face described below and those described in the filings incorporated by reference.

Risks Related to Our Business

We expect to continue to incur net losses, and we may never achieve profitability.

We were incorporated in 1991 and have incurred a net operating loss every year since our formation. As of September 30, 2019, we had an accumulated deficit of $2.3 billion, and we expect to continue to incur additional net losses. As part of our business plan, we will need to continue to conduct research, development, testing and regulatory compliance activities with respect to our compounds and ensure the procurement of manufacturing and drug supply services, the costs of which, together with projected general and administrative expenses, is expected to result in operating losses for the foreseeable future. There can be no assurances that we will ever achieve profitability.

Our prospects are dependent on the successful development, regulatory approval and commercialization of pacritinib and we may be unsuccseful in such efforts.

Our business and future success depends on our ability to successfully develop, obtain regulatory approval for and commercialize pacritinib. Pacritinib, our sole product candidate in active development, has not yet received regulatory approval. Our ability to discover and develop drug candidates and to commercialize additional drug products will depend on our ability to:

- hire and retain key employees;
- identify high quality therapeutic targets;
- identify potential drug candidates;
- develop products internally or license drug candidates from others;
- identify and enroll suitable human subjects, either in the United States or abroad, for our clinical trials;
- complete laboratory testing;
- commence, conduct and complete safe and effective clinical trials on humans;
- obtain and maintain necessary intellectual property rights to our product candidates;
- obtain and maintain necessary regulatory approvals for our products, both in the United States and abroad;
- enter into arrangements with third parties to provide services or to manufacture our product candidates on our behalf;
- deploy sales and marketing resources effectively or enter into arrangements with third parties to provide these functions in compliance with all applicable laws; and
- obtain appropriate coverage and reimbursement levels for the cost of our products from governmental authorities, private health insurers and other third-party payors.

We have limited experience with many of the activities listed above and may not be successful in discovering, developing, or commercializing product candidates. Discovery and development of drug candidates are expensive, uncertain and time-consuming, and we do not know if our efforts will lead to discovery of any drug candidates that can be successfully developed and marketed. Of the compounds that we identify as potential drug products or that we may in-license from other companies, only a few, if any, are likely to lead to successful drug development programs and commercialized drug products.

In addition, obtaining regulatory approval requires substantial time, effort and financial resources, and without additional financing, we lack sufficient resources to pursue the development of pacritinib. We currently have no commitments or arrangements for any additional financing to fund the commercial launch of pacritinib, and we will need to seek additional funding at the appropriate time, which may not be available or may not be available on favorable terms. The amount of financing we require is dependent on many factors, such as the number of clinical trial sites, the number of patients in the trial, the pace of patient enrollment and other matters that may impact clinical development, including changes to the trial that we may initiate or that may be requested by the FDA or other regulators, and there can be no assurance as to the amount of funding necessary to fund the development of pacritinib to completion. We could also seek another collaborative partnership for the development and commercialization of pacritinib, which may not be available on reasonable terms or at all. If we partner pacritinib, we may have to relinquish valuable economic rights and would potentially forgo additional economic benefits that could be realized if we continued the development and commercialization activities alone. Even if pacritinib receives approval from the FDA, EMA or other regulatory authorities, we would need to incur significant expenses to support the commercialization and launch of pacritinib, which investment may never be realized if sales are insufficient. As our sole product candidate in active development, our prospects are dependent upon the successful development, approval and commercialization of pacritinib. If we fail to obtain regulatory approval and successfully commercialize pacritinib, our business would be materially and adversely impacted as we have no other product candidates in active clinical development.

We face direct and intense competition from our competitors in the biotechnology and pharmaceutical industries, and we may not compete successfully against them.

Competition in the oncology market is intense and is accentuated by the rapid pace of technological and product development. We anticipate that we will face increased competition in the future as new companies enter the
market. Our competitors in the U.S. and elsewhere are numerous and include, among others, major multinational pharmaceutical companies, specialized biotechnology companies and universities and other research institutions. Specifically, if we are successful in bringing pacritinib to market, pacritinib will face competition from the currently approved JAK1/JAK2 inhibitors, Jakafi ® / Jakavi ® and Inrebic ® (fedratinib). Celgene announced FDA approval of Inrebic ® for the treatment of adult patients with intermediate-2 or high-risk primary or secondary (post-polycythemia vera or post-essential thrombocythemia) myelofibrosis. Pacritinib may also face competition from momelotinib, which Sierra Oncology acquired from Gilead. In June 2019, Sierra Oncology announced that momelotinib was granted fast track designation by the FDA and launched a Phase 3 clinical trial in November 2019.

In addition to the specific competitive factors discussed above, new anti-cancer drugs that may be under development or developed and marketed in the future could compete with our various compounds.

Many of our competitors, particularly multinational pharmaceutical companies, either alone or together with their collaborators, have substantially greater financial and technical resources and substantially larger development and marketing teams than us, as well as significantly greater experience than we do in developing, commercializing, manufacturing, marketing and selling products. As a result, products of our competitors might come to market sooner or might prove to be more effective, less expensive, have fewer side effects or be easier to administer than ours. In any such case, sales of any potential future product would likely suffer and we might never recoup the significant investments we have made and will continue to make to develop and market these compounds.

Even if pacritinib or other compounds we may develop are successful in clinical trials and receive regulatory approvals, we or our collaboration partners may not be able to successfully commercialize them.

The development and ongoing clinical trials for pacritinib and other compounds we may develop may not be successful and, even if they are, the resulting products may never be successfully developed into commercial products or gain market acceptance among physicians, patients, healthcare payors or the medical community. Even if we are successful in our clinical trials and in obtaining other regulatory approvals, our products may not reach or remain in the market for a number of reasons including:

- they may be found ineffective or cause harmful side effects;
- they may be difficult to manufacture on a scale necessary for commercialization;
- they may experience excessive product loss due to contamination, equipment failure, inadequate transportation or storage, improper installation or operation of equipment, vendor or operator error, natural disasters or other catastrophic events, inconsistency in yields or variability in product characteristics;
- they may be uneconomical to produce;
- the timing of market introduction of pacritinib and other compounds we may develop and competitive products may be inopportune;
- political and legislative changes may make the commercialization of pacritinib, or any other product candidates we may develop in the future, more difficult;
- we may fail to obtain reimbursement approvals or pricing that is cost effective for patients as compared to other available forms of treatment or that covers the cost of production and other expenses;
- they may not compete effectively with existing or future alternatives;
- we may be unable to develop commercial operations and to sell marketing rights;
- they may fail to achieve market acceptance; or
- we may be precluded from commercialization of a product due to proprietary rights of third parties.

Uncertainty and speculation continue regarding the possible repeal of all or a portion of the Patient Protection and Affordable Care Act through legislative action, as well as possible changes to the regulations implemented under the Patient Protection and Affordable Care Act by the Department of Health and Human Services. The uncertainty this causes for the healthcare industry could also adversely affect the commercialization of our products. If we fail to commercialize products or if our future products do not achieve significant market acceptance, we will not likely generate significant revenues or become profitable.

If we are unable to adequately prepare the market for the potential future commercialization of a product, we may not be able to generate product revenue once marketing authorization is obtained. We currently have no marketing and sales organization and have no experience in marketing products. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our product candidates, we may not be able to generate product revenue.

We currently have limited commercialization expertise, including sales, marketing or distribution capabilities. Advancing pacritinib through Phase 3 development and regulatory approval will require us to begin commercialization preparation activities and incur related expenses before we obtain final trial results and know whether PACIFICA will support regulatory approval. These activities will include, among other things, the development of an in-house marketing organization and sales force, which will require significant capital expenditures, management resources and time. We will have to compete with other companies to recruit, hire, train and retain qualified marketing and sales personnel. If we are unable to adequately prepare the market for the potential future commercialization of pacritinib, we may not be able to generate product revenue once marketing authorization is obtained.

Additionally, if we are unable or decide not to establish internal sales, marketing and distribution capabilities, we will pursue collaborative arrangements regarding the sales and marketing of our products, however, there can be no assurance that we will be able to establish or maintain such collaborative arrangements on commercially reasonable terms, or if we are able to do so, that they will have effective sales forces. Any revenue we receive will depend upon the efforts of such third parties, which may not be successful. We may have little or no control over the marketing and sales efforts of such third parties and our revenue from product sales may be lower than if we had commercialized our product candidates ourselves. We also face competition in our search for third parties to assist us with the sales and marketing efforts of our product candidates.

Pacritinib or other compounds we may develop may cause undesirable side effects or have other properties that could halt their development, prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

It is possible that the FDA or foreign regulatory authorities may not agree with our assessment of the safety profile of pacritinib or other compounds we may develop in the future. Undesirable side effects caused by pacritinib could cause us, institutional review boards, our contract research organizations, or CROs, the FDA or foreign regulatory authorities to interrupt, delay or discontinue development and could result in a clinical hold on any clinical trial, or the denial of regulatory approval by the FDA or foreign regulatory authorities for any or all targeted indications. This, in turn, could prevent us from commercializing pacritinib and generating revenues from its sale. In addition, if pacritinib or other compounds we may develop in the future cause serious or unexpected side effects or are associated with other safety risks after receiving marketing approval, a number of potential significant negative consequences could result, including, but not limited to:

- regulatory authorities may withdraw their approval of this product;
- we may be required to recall the product, change the way it is administered, conduct additional clinical trials or change the labeling of the product;
- the product may be rendered less competitive and sales may decrease;
- our reputation may suffer generally both among clinicians and patients;
- we may be exposed to potential lawsuits and associated legal expenses, including costs of resolving claims;
- regulatory authorities may require certain labeling statements, such as warnings or contraindications or limitations on the indications for use, or impose restrictions on distribution in the form of a Risk Evaluation and Mitigation Strategy in connection with approval, if any;
- we may be required to change the way the product is administered or conduct additional preclinical studies or clinical trials; or
- we may be required to change or stop other ongoing clinical studies that may negatively impact the development of the agent for other indications.

If preliminary data demonstrate that any of our product candidates has an unfavorable safety profile and is unlikely to receive regulatory approval or be successfully commercialized, we may voluntarily suspend or terminate future development of such product candidate.

Any one or a combination of these events could prevent us from obtaining approval and achieving or maintaining market acceptance of the affected product or could substantially increase the costs and expenses of commercializing the product candidate, which in turn could delay or prevent us from generating significant revenues from the sale of the product.

We will need to raise additional funds to operate our business, but additional funds may not be available on acceptable terms, or at all. Any inability to raise required capital when needed could harm our liquidity, financial condition, business, operating results and prospects.

We have substantial operating expenses associated with the development of pacritinib, and we have significant contractual payment obligations. Note 1 of our financial statements for the quarter ended September 30, 2019 included in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2019, which is incorporated by reference in this prospectus supplement, disclosed that we have incurred net operating losses every year since our formation. As of September 30, 2019, we had an accumulated deficit of $2.3 billion, and we expect to continue to incur net losses for the foreseeable future. Our available cash, cash equivalents and short-term investments were $46.7 million as of September 30, 2019, and as of our third quarter 2019 assessment date, we expected that our present financial resources would only be sufficient to meet our obligations as they come due and to fund our operations into the third quarter of 2020. Based on our evaluation completed pursuant to Accounting Standards Update No. 2014-15, *Presentation of Financial Statements-Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*, these factors raised substantial doubt about our ability to continue as a going concern.

We believe that our present financial resources, when combined with the net proceeds we expect to receive upon the completion of this offering of $59.3 million, will be sufficient to fund our operations into early 2022.

We will update our assessment at each filing of a Quarterly Report on Form 10-Q or Annual Report on Form 10-K. Uncertainty regarding our ability to continue as a going concern could also have a material and adverse impact on the price of our common stock, which could negatively impact our ability to raise sufficient funds to continue development of pacritinib and continue as a going concern. In addition, cash forecasts and capital requirements are subject to change as a result of a variety of risks and uncertainties. Developments in and expenses associated with our clinical trials and other research and development activities, including regulatory approval developments, our ability to consummate appropriate collaborations for development and commercialization activities, our ability to reach milestones triggering payments under applicable contractual arrangements, receive the associated payments, litigation and other disputes, competitive market developments and other unplanned expenses or business developments may consume capital resources earlier than planned. Due to these and other factors, any forecast for the period for which we will have sufficient resources to fund our operations, as well as any other operational or business projection we have disclosed, or may, from time to time, disclose, may fail.

We may need to acquire additional funds in order to develop our business. We may seek to raise such capital through public or private equity financings, partnerships, collaborations, joint ventures, disposition of assets, debt financings or restructurings, bank borrowings or other sources of financing. However, our ability to raise capital is subject to a number of risks, uncertainties, constraints and consequences, including, but not limited to, the following:

- our ability to raise capital through the issuance of additional shares of our common stock or convertible securities is restricted by the limited number of our authorized shares available for issuance, the potential difficulty of obtaining stockholder approval to increase authorized shares and the restrictive covenants under our secured term loan agreement;
- issuance of equity-based securities will dilute the proportionate ownership of existing stockholders;
- our ability to obtain further funds from any potential loan arrangements is limited by our existing loan and security agreement;
- certain financing arrangements may require us to relinquish rights to various assets and/or impose more restrictive terms than any of our existing or past arrangements;
- we may be required to meet additional regulatory requirements, and we may be subject to certain contractual limitations, which may increase our costs and harm our ability to obtain funding;

- for so long as our non-affiliate public float does not exceed $75 million, our ability to file or use shelf registration statements on Form S-3 to raise capital will be limited; and
- if we are not listed on the Nasdaq or any stock exchange, whether due to a failure to regain compliance with the minimum bid price requirement (as discussed below) or otherwise, our ability to raise capital will be adversely impacted.

For these and other reasons, additional funding may not be available on favorable terms or at all. If we raise additional funds by issuing equity or equity-linked securities, our stockholders may experience dilution. If we fail to obtain additional capital when needed, we may be required to delay, scale back or eliminate some or all of our research and development programs, reduce our selling, general and administrative expenses, be unable to attract and retain highly qualified personnel, refrain from making our contractually required payments when due (including debt payments) and/or be forced to cease operations, liquidate our assets and possibly seek bankruptcy protection. Any of these consequences could harm our business, financial condition, operating results and prospects.

We may never be able to generate significant product revenues.

We anticipate that, for at least the next several years, our ability to generate significant revenues and become profitable will be dependent on our ability to obtain regulatory approval for and successfully commercialize pacritinib. If we are unable to successfully commercialize our development stage or approved products as planned, our business, financial condition, operating results and prospects could be harmed.

We are dependent on third-party service providers for a number of critical operational activities including, in particular, for the manufacture, testing and distribution of our compounds and associated supply chain operations, as well as for clinical trial activities. Any failure or delay in these undertakings by third parties could harm our business.

Our business is dependent on the performance by third parties of their responsibilities under contractual relationships. In particular, we rely heavily on third parties for the manufacture and testing of our compounds. We do not have internal analytical laboratory or manufacturing facilities to allow the testing or production of our compounds in compliance with GLP and cGMP. As a result, we rely on third parties to supply us in a timely manner with manufactured products or product candidates. We may not be able to adequately manage and oversee the manufacturers we choose, they may not perform as agreed or they may terminate their agreements with us. In particular, we depend on third-party manufacturers to conduct their operations in compliance with GLP and cGMP or similar standards imposed by the U.S. and/or applicable foreign regulatory authorities, including the FDA and EMA. Any of these regulatory authorities may take action against a contract manufacturer who violates GLP and cGMP. Failure of our manufacturers to comply with FDA, EMA or other applicable regulations may cause us to curtail or stop the manufacture of such products until we obtain regulatory compliance, and could subject us to penalties.

We may not be able to obtain sufficient quantities of our compounds if we are unable to secure manufacturers when needed, or if our designated manufacturers do not have the capacity or otherwise fail to manufacture compounds according to our schedule and specifications or fail to comply with cGMP regulations. In particular, in connection with the transition of the manufacturing of drug supply to successor vendors, we could face logistical, scaling or other challenges that may adversely affect supply. Furthermore, in order to ultimately obtain and maintain applicable regulatory approvals, any manufacturers we utilize are required to consistently produce the respective compounds in commercial quantities and of specified quality or execute fill-finish services on a repeated basis and document their ability to do so, which is referred to as process validation. In order to obtain and maintain regulatory approval of a compound, the applicable regulatory authority must consider the result of the applicable process validation to be satisfactory and must otherwise approve of the manufacturing process. Even if our compound manufacturing processes obtain regulatory approval and sufficient supply is available to complete clinical trials necessary for regulatory approval, there are no guarantees we will be able to supply the quantities necessary to effect a commercial launch of the applicable drug, or once launched, to satisfy ongoing demand. Any shortage could also impair our ability to deliver contractually required supply quantities to applicable collaborators, as well as to complete any additional planned clinical trials.

We also rely on third-party service providers for certain warehousing, transportation, sales, order processing, distribution and cash collection services. With regard to the distribution of our compounds, we depend on third-party distributors to act in accordance with GDP, and the distribution process and facilities are subject to continuing regulation by applicable regulatory authorities with respect to the distribution and storage of products.

In addition, we depend on medical institutions and CROs (together with their respective agents) to conduct clinical trials and associated activities in compliance with GCP and in accordance with our timelines, expectations and requirements. To the extent any such third parties are delayed in achieving or fail to meet our clinical trial enrollment expectations, fail to conduct our trials in accordance with GCP or study protocol or otherwise take actions outside of our control or without our consent, our business may be harmed. Furthermore, we conduct clinical trials in foreign countries, subjecting us to additional risks and challenges, including, in particular, as a result of the engagement of foreign medical institutions and foreign CROs, who may be less experienced with regard to regulatory matters applicable to us and may have different standards of medical care.

With regard to certain of the foregoing clinical trial operations and stages in the manufacturing and distribution chain of our compounds, we rely on single vendors. In addition, in the event pacritinib is approved, we will initially have only one commercial supplier for pacritinib. We may in the future seek to qualify an additional manufacturer of pacritinib, but the process for qualifying a manufacturer, and seeking prior regulatory approval for a new manufacturer, can be lengthy and expensive and may not occur on a timely basis or at all. The use of single vendors for core operational activities, such as clinical trial operations, manufacturing and distribution, and the resulting lack of diversification, exposes us to the risk of a material interruption in service related to these single, outside vendors. As a result, our exposure to this concentration risk could harm our business.

Although we monitor the compliance of our third-party service providers performing the aforementioned services, we cannot be certain that such service providers will consistently comply with applicable regulatory requirements or that they will otherwise timely satisfy their obligations to us. Any such failure and/or any failure by us to monitor their services and to plan for and manage our short and long term requirements underlying such services could result in shortage of the compound, delays in or cessation of clinical trials, failure to obtain or revocation of product approvals or authorizations, product recalls, withdrawal or seizure of products, suspension of an applicable wholesale distribution authorization and/or distribution of products, operating restrictions, injunctions, suspension of licenses, other administrative or judicial sanctions (including civil penalties and/or criminal prosecution) and/or unanticipated related expenditures to resolve shortcomings. Such consequences could have a significant impact on our business, financial condition, operating results or prospects.

We are party to a loan and security agreement that contains operating and financial covenants that may restrict our business and financing activities and we may be required to repay the outstanding indebtedness in an event of default, which could have a materially adverse effect on our business.

In November 2017, we entered into a loan and security agreement with Silicon Valley Bank, which was amended in May 2018, the proceeds of which were partially used to repay in full all outstanding indebtedness under a prior loan and security agreement.

Borrowings under this loan and security agreement are secured by substantially all of our assets except intellectual property and subject to certain other exceptions. The loan and security agreement restricts our ability, among other things, to:

- sell, transfer or otherwise dispose of any of our business assets or property, subject to limited exceptions;
- make material changes to our business or management;
- enter into transactions resulting in significant changes to the voting control of our stock;
- make certain changes to our organizational structure;
- consolidate or merge with other entities or acquire other entities;

- incur additional indebtedness or create encumbrances on our assets;
- pay dividends, other than dividends paid solely in our common shares, or make distributions on and, in certain cases, repurchase our capital stock;
- enter into certain transactions with our affiliates;
- repay subordinated indebtedness; or
- make certain investments.

In addition, we are required under our loan agreement and security agreement to comply with various affirmative covenants. The covenants and restrictions and obligations in our loan and security agreement, as well as any future financing agreements that we may enter into, may restrict our ability to finance our operations, engage in business activities or expand or fully pursue our business strategies. Our ability to comply with these covenants may be affected by events beyond our control, and we may not be able to meet those covenants. A breach of any of these covenants, including a material adverse change in our business, operations or condition (financial or otherwise) could result in a default under the loan and security agreement, which could cause all of the outstanding indebtedness under the facility to become immediately due and payable.

If we are unable to generate sufficient cash available to repay our debt obligations when they become due and payable, either when they mature, or in the event of a default, we may not be able to obtain additional debt or equity financing on favorable terms, if at all, which may negatively impact our business operations and financial condition.

If we are unable to recruit, retain, integrate and motivate senior management, other key personnel and directors, or if such persons are unable to perform effectively, our business could suffer.

Our future success depends, in part, on our ability to continue to attract and retain senior management, other key personnel and directors to enable the execution of our business plan and to identify and pursue new opportunities. Additionally, our productivity and the quality of our operations are dependent on our ability to integrate and train our new personnel quickly and effectively.

Directors and management of publicly traded corporations are increasingly concerned with the extent of their personal exposure to lawsuits and stockholder claims, as well as governmental, creditor and other claims that may be made against them. Due to these and other reasons, such persons are also becoming increasingly concerned with the availability of directors and officers liability insurance to pay on a timely basis the costs incurred in defending such claims. We currently carry directors and officers liability insurance. However, directors and officers liability insurance is expensive and can be difficult to obtain, particularly for companies like ours that have had a history of litigation. In addition, the cost of obtaining directors and officers liability insurance recently has been increasing while applicable coverage has been decreasing and self-insured retention levels have been increasing, which requires us to pay higher premiums and reserve for higher self-insurance retention levels. If we are unable to continue to provide directors and officers sufficient liability insurance at affordable rates or at all, or if directors and officers perceive our ability to do so in the future to be limited, it may become increasingly more difficult to attract and retain management and qualified directors to serve on our Board of Directors.

The loss of the services of senior management, other key personnel or directors and/or the inability to timely attract or integrate such persons could significantly delay or prevent the achievement of our development and strategic objectives and may adversely affect our business, financial condition and operating results.

We may encounter difficulties in managing our expected growth and in expanding our operations successfully.

Advancing our lead product candidate, pacritinib, through the product development and, if approved, commercialization process will require us to develop or expand our development, regulatory, manufacturing, medical affairs, marketing and sales capabilities or contract with third parties to provide these capabilities for us. We must also successfully integrate the employees and operations related to the development of pacritinib. Maintaining additional relationships and managing our future growth will impose significant added

responsibilities on members of our management. We must be able to manage our development efforts and clinical trials effectively, hire, train and integrate additional management, development, medical affairs, administrative and sales and marketing personnel, improve our managerial, development, operational and finance systems, and expand our facilities, all of which may impose a strain on our administrative and operational infrastructure. Our future financial performance will depend, in part, on our ability to manage this growth effectively. We may not be able to accomplish these tasks; which failure could prevent us from successfully developing and commercializing pacritinib.

If we are unable to in-license or acquire additional product candidates, our future product portfolio and potential profitability could be harmed.

One component of our business strategy is the in-licensing and acquisition of drug compounds developed by other pharmaceutical and biotechnology companies or academic research laboratories, such as pacritinib. Competition for new promising compounds and commercial products can be intense. If we are not able to identify future in-licensing or acquisition opportunities and enter into arrangements on acceptable terms, our future product portfolio and potential profitability could be harmed.

We may owe additional amounts for VAT related to our operations in Europe.

Our European operations are subject to the VAT which is usually applied to all goods and services purchased and sold throughout Europe. We historically carried out research and development activities in Italy and incurred value added tax, or VAT, from Italian suppliers on the acquisition of goods and services in Italy. This VAT should be considered as an input VAT credit. We treated the majority of our sales made in Italy without output VAT (on the basis that the supplies should be considered outside the scope of Italian VAT). This resulted in the value of input VAT exceeding the value of output VAT, and accordingly we submitted a refund claim for the VAT. The Italian Tax Authority, or the ITA, has challenged the treatment of the sales transactions and claimed that the sales transactions made by us should have been subject to output VAT. Our Italian VAT receivable was $4.3 million and $4.5 million as of September 30, 2019 and December 31, 2018, respectively.

On April 14, 2009, December 21, 2009 and June 25, 2010, the ITA issued notices of assessment to CTI (Europe) based on the ITA's audit of CTI (Europe)'s VAT returns for the years 2003, 2005, 2006 and 2007. The ITA audits concluded that CTI (Europe) did not collect and remit VAT on certain invoices issued to non-Italian clients for services performed by CTI (Europe). The assessments, including interest and penalties, for the years 2003, 2006 and 2007 are €0.6 million, €2.7 million and €0.9 million, respectively. While we are defending ourselves against the assessments both on procedural grounds and on the merits of the case, there can be no assurances that we will be successful in such defense. The 2005 VAT assessment was decided in favor of the Company by the Italian Supreme Court, with no further potential liabilities for the Company. Further information pertaining to these cases can be found in Part I, Item 1, "Notes to Condensed Consolidated Financial Statements, Note 9. Contingencies" of our Quarterly Report on Form 10-Q filed with the SEC on November 4, 2019 and is incorporated by reference therein. If the final decision of the Italian Supreme Court is unfavorable to us, or if, in the interim, the ITA were to make a demand for payment and we were to be unsuccessful in suspending collection efforts, we may be requested to pay to the ITA an amount up to €4.2 million, or approximately $4.6 million converted using the currency exchange rate as of September 30, 2019, including interest and penalties for the period lapsed between the date in which the assessments were issued and the date of effective payment.

We are currently subject to certain regulatory and legal proceedings, and may in the future be subject to additional proceedings and/or allegations of wrong-doing, which could harm our financial condition and operating results.

We are currently, and may in the future be, subject to regulatory matters and legal claims, including possible securities, derivative, consumer protection and other types of proceedings pursued by individuals, entities or regulatory bodies. For more information, see Part I, Item 1, "Notes to Condensed Consolidated Financial Statements, Note 9. Contingencies" of our Quarterly Report on Form 10-Q filed with the SEC on November 4, 2019 and is incorporated by reference therein. Additionally, we were previously required to supply documents in response to a subpoena from the SEC in connection with an investigation into potential federal securities law

violations; however, in August 2018, the SEC staff sent a letter stating that it had concluded its investigation of us, and, based on information it had as of that date, it did not intend to recommend an enforcement action against us. Litigation and regulatory proceedings are subject to inherent uncertainties, and we have had and may in the future have unfavorable rulings and settlements. Adverse outcomes may result in significant monetary damages and penalties or injunctive relief against us. It is possible that our financial condition and operating results could be harmed in any period in which the effect of an unfavorable final outcome becomes probable and reasonably estimable. If an unfavorable ruling were to occur in any of the legal proceedings we are or may be subject to, our business, financial condition, operating results and prospects could be harmed. The ultimate outcome of litigation and other claims is subject to inherent uncertainties, and our view of these matters may change in the future.

We cannot predict with certainty the eventual outcome of any litigation or regulatory proceedings we are or may be party to in the future. In addition, negative publicity resulting from any allegations of wrong-doing could harm our business, regardless of whether the allegations are valid or whether there is a finding of liability. Furthermore, we may have to incur substantial time and expense in connection with such lawsuits and management's attention and resources could be diverted from operating our business as we respond to the litigation. Our insurance is subject to high deductibles and there is no guarantee that the insurance will cover any specific claim that we currently face or may face in the future, or that it will be adequate to cover all potential liabilities and damages. In the event of negative publicity resulting from allegations of wrong-doing and/or an adverse outcome under any currently pending or future lawsuit, our business could be materially harmed.

A variety of risks associated with international operations could materially adversely affect our business.

If we engage in significant cross-border activities, we will be subject to risks related to international operations, including:

- different regulatory requirements for initiating clinical trials and maintaining approval of drugs in foreign countries and multiple differing and changing tax laws and regulations;
- reduced protection for intellectual property rights in certain countries;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, political instability or open conflict in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations of doing business in another country;
- workforce uncertainty in countries where labor unrest is more common than in North America;
- likelihood of potential or actual violations of domestic and international anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act, or of U.S. and international export control and sanctions regulations, which likelihood may increase with an increase of operations in foreign jurisdictions;
- tighter restrictions on privacy, data protection, and the collection and use of data, including genetic material, may apply in jurisdictions outside of North America; and
- business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters including earthquakes, typhoons, floods and fires.

If any of these issues were to occur, our business could be materially harmed.

Our net operating losses may not be available to reduce future income tax liability.

We have substantial tax loss carryforwards for U.S. federal income tax purposes, but our ability to use such carryforwards to offset future income or tax liability is limited under section 382 of the Internal Revenue Code of

1986, as amended, as a result of prior changes in the stock ownership of our company. As a result, if we earn net taxable income, our ability to use our pre-change net operating loss carryforwards, or other pre-change tax attributes, to offset U.S. federal and state taxable income and taxes may be subject to limitations. Moreover, future changes in the ownership of our stock, including those resulting from issuance of shares of our common stock upon exercise of outstanding warrants, may further limit our ability to use our net operating losses.

Changes in tax laws or regulations that are applied adversely to us or our customers may have a material adverse effect on our business, cash flow, financial condition or results of operations.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could affect the tax treatment of our domestic and foreign earnings. Any new taxes could adversely affect our domestic and international business operations, and our business and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us.

We could be subject to additional income tax liabilities.

We are subject to income taxes in the United States and certain foreign jurisdictions. We use significant judgment in evaluating our worldwide income-tax provision. During the ordinary course of business, we conduct many transactions for which the ultimate tax determination is uncertain. For example, our effective tax rates could be adversely affected by earnings being lower than anticipated in countries where we have lower statutory rates and higher than anticipated in countries where we have higher statutory rates, by changes in currency exchange rates, by changes in the valuation of our deferred tax assets and liabilities or by changes in the relevant tax, accounting and other laws, regulations, principles and interpretations. We are subject to audit in various jurisdictions, and such jurisdictions may assess additional income tax against us. Although we believe our tax estimates are reasonable, the final determination of tax audits and any related litigation could be materially different from our historical income-tax provisions and accruals. The results of an audit or litigation could have a material effect on our operating results or cash flows in the period or periods for which that determination is made.

We are subject to risk regarding currency exchange rate fluctuations associated with the translation of monetary amounts in foreign currencies into U.S. dollars.

We are exposed to risks associated with the translation of euro-denominated financial results and accounts into U.S. dollars for financial reporting purposes. The carrying value of the assets and liabilities, as well as the reported amounts of revenues and expenses, will be affected by fluctuations in the value of the U.S. dollar as compared to the euro. Certain of our transactions denote monetary amounts in foreign currencies, and consequently, the ultimate financial impact to us from a U.S. dollar perspective is subject to significant uncertainty. Furthermore, the referendum in the United Kingdom in June 2016, in which the majority of voters voted in favor of an exit from the European Union has resulted in increased volatility in the global financial markets and caused severe volatility in global currency exchange rate fluctuations that resulted in the strengthening of the U.S. dollar against the euro. Changes in the value of the U.S. dollar as compared to foreign currencies (in particular, the euro) might have an adverse effect on our reported operating results and financial condition.

Because there is a risk of product liability associated with developing and commercializing pharmaceuticals, we face potential difficulties in obtaining insurance, and if product liability lawsuits were to be successfully brought against us, our business may be harmed.

Our business exposes us to potential product liability risks inherent in the testing, manufacturing, marketing and sale of human pharmaceutical products. If our insurance covering a compound is not maintained on acceptable terms or at all, we might not have adequate coverage against potential liabilities. Our inability to obtain sufficient

insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or limit the commercialization of any products we develop. A successful product liability claim could also exceed our insurance coverage and could harm our financial condition and operating results.

The illegal distribution and sale by third parties of counterfeit versions of a product or stolen product could have a negative impact on our reputation and business.

Third parties might illegally distribute and sell counterfeit or unfit versions of a product that do not meet our rigorous manufacturing and testing standards. A patient who receives a counterfeit or unfit product may be at risk for a number of dangerous health consequences. Our reputation and business could suffer harm as a result of counterfeit or unfit product sold under our brand name. In addition, thefts of inventory at warehouses, plants or while in-transit, which are not properly stored and which are sold through unauthorized channels, could adversely impact patient safety, our reputation and our business.

We may be subject to claims relating to improper handling, storage or disposal of hazardous materials.

Our research and development activities involve the controlled use of hazardous materials, chemicals and various radioactive compounds. We are subject to federal, state and local laws and regulations, both internationally and domestically, governing the use, manufacture, storage, handlings, treatment, transportation and disposal of such materials and certain waste products and employee safety and health matters. Although we believe that our safety procedures for handling and disposing of such materials comply with applicable law and regulations, the risk of accidental contamination or injury from these materials cannot be eliminated completely. In the event of such an accident, we could be held liable for any damages that result and any such liability not covered by insurance could exceed our resources. Compliance with environmental, safety and health laws and regulations may be expensive, and current or future environmental regulations may impair our research, development or production efforts.

We depend on sophisticated information technology systems to operate our business and a cyber-attack or other breach of these systems could have a material adverse effect on our business.

We and third parties on which we rely, including our CROs and other service providers, depend on information technology systems to process, transmit and store electronic information in our day-to-day operations. The size and complexity of such information technology systems makes them vulnerable to damage from a cyber-attack, computer virus, malicious intrusion, breakdown, destruction, loss of data privacy or other significant disruption. Any such attacks or disruptions could result in the theft of intellectual property or other misappropriation of assets, result in the loss or disclosure of personal data, or otherwise compromise our confidential or proprietary information and disrupt our operations. Cyber-attacks are becoming more sophisticated and frequent. We have invested in our systems and the protection of our data to reduce the risk of an intrusion or interruption, and we monitor our systems on an ongoing basis for any current or potential threats. We anticipate needing to make further investments in protecting against these matters going forward. There can be no assurance that these measures and efforts will prevent future interruptions, breakdowns, security breach or other incidents. If we or the third parties on which we rely fail to maintain or protect our information technology systems and data integrity effectively or fail to anticipate, plan for or manage significant disruptions to these systems, we could find it necessary or advisable to need to notify individuals, government agencies, or others, have difficulty preventing, detecting and controlling fraud, have disputes with customers, physicians and other health care professionals, face private litigation, be subject to negative publicity and harm to our reputation, face regulatory investigations and have regulatory sanctions or penalties imposed, have increases in operating expenses, incur expenses or lose revenues, be exposed to increased costs including remediation costs, disruption of operations, or increased cybersecurity protection costs, or suffer other adverse consequences, any of which could have a material adverse effect on our business, results of operations, financial condition, prospects and cash flows. Further, any security breach, interruption, or other breakdown may take longer than anticipated to remediate or otherwise address. The third parties on which we rely, including our CROs and other service providers, face

similar risks with respect to interruptions, breakdowns, and other security incidents, and any incidents suffered by our service providers can result in similar impacts upon our business, results of operations, financial condition, prospects and cash flows.

While we maintain insurance, our insurance may be insufficient to cover all liabilities incurred by any security incidents. We also cannot be certain that our insurance coverage will be adequate for liabilities actually incurred, that insurance will continue to be available to us on economically reasonable terms, or at all, or that any insurer will not deny coverage as to any future claim. The successful assertion of one or more large claims against us that exceed available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our business, including our financial condition, operating results, and reputation.

In addition, any security incident could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, including state data protection regulations and the E.U. General Data Protection Regulation and other regulations, the breach of which could result in significant penalties.

If we or the third parties upon whom we depend are adversely affected by natural disasters or other events, our business continuity and disaster recovery plans may not adequately protect us from such interruptions.

Our headquarters are located in Seattle, Washington. Any unplanned event, such as flood, fire, explosion, earthquake, extreme weather condition, power shortage, power outage, telecommunication failure, or other natural or man-made accidents or incidents could disrupt our operations. If a natural disaster or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as the manufacturing facilities of our third-party contract manufacturers, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible for us to continue our business for a substantial period of time. We may not carry sufficient business interruption insurance to compensate us for all losses that may occur. The disaster recovery and business continuity plans we have in place may not be adequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of a natural disaster or other event, which could have a material adverse effect on our business, and we could potentially lose valuable data and other items. The occurrence of any of the foregoing could have a material adverse effect on our business.

We implemented a restructuring plan in December 2018, which we cannot guarantee will achieve its intended benefits.

In December 2018, we announced a restructuring plan to improve our efficiencies and reduce costs. We have incurred significant costs to implement this restructuring plan, and the implementation of the restructuring plan may subject us to litigation risks and expenses. Moreover, while we currently expect to realize cost savings of approximately $20 million primarily associated with reduced employee costs over the three years from December 2018 as a result of our restructuring plan, there can be no assurance that the restructuring plan will achieve its intended benefits. In addition, our restructuring plan may have other consequences, such as attrition beyond our planned reduction in workforce, a negative effect on employee morale and productivity or our ability to attract highly skilled employees. As a result, our restructuring plan and its implementation could have a material adverse effect on our business, results of operations, financial condition, prospects and cash flows.

We will incur a variety of costs for, and may never realize the anticipated benefits of, acquisitions, collaborations or other strategic transactions.

We evaluate and undertake acquisitions, collaborations and other strategic transactions from time to time. The process of negotiating these transactions, as well as integrating any acquisitions and implementing any strategic alliances, may result in operating difficulties and expenditures. In addition, these transactions may require significant management attention that would otherwise be available for ongoing development of our business,

whether or not any such transaction is ever consummated. These undertakings could also result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities and/or amortization expenses related to intangible assets, and we may never realize the anticipated benefits. In addition, following the consummation of a transaction, our results of operations and the market price of our common stock may be affected by factors different from those that affected our results of operations and the market price of our common stock prior to such acquisition. Any of the foregoing consequences resulting from transactions of the type described above could harm our business, financial condition, operating results or prospects.

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

The regulatory approval process for pacritinib has been subject to delay and uncertainty associated with clinical holds placed on pacritinib clinical trials in February 2016 and the withdrawal of the MAA in Europe. While the full clinical hold on pacritinib trials has been removed and the dose-exploration trial for pacritinib has been completed, further registration clinical trials for pacritinib could be subject to further delay or we could be prevented from further studying pacritinib or seeking its commercialization, which could have a material adverse effect on our business.

On February 8, 2016, the FDA notified us that a full clinical hold had been placed on pacritinib clinical trials. A full clinical hold is a suspension of the clinical work requested under an IND application. Under the full clinical hold, all patients on pacritinib at the time of the hold order were required to discontinue pacritinib immediately, and no new patients could be enrolled or start pacritinib as initial or crossover treatment. In January 2017, the full clinical hold was removed following review of our complete response submission which included, among other items, final Clinical Study Reports for both PERSIST-1 and 2 trials and FDA agreement on a proposed study design for a dose-exploration clinical trial. In July 2017, we enrolled the first patient in the PAC203 Phase 2 trial, which evaluated the safety and efficacy of three dosing schedules over 24 weeks in patients with myelofibrosis previously treated with ruxolitinib. In October 2018, we announced the continuation of the PAC203 Phase 2 trial without modification, following a planned second interim data review by the independent data monitoring committee, or IDMC. Following meetings with the FDA and EMA and in consultation with the IDMC, we eliminated the interim efficacy analysis and focused the second IDMC review, and all subsequent data reviews, on an assessment of safety. We completed a Type C meeting with the FDA in December 2018 and received input on key elements of the design of the PACIFICA Phase 3 trial in adult patients with myelofibrosis (primary myelofibrosis, post-polycythemia vera myelofibrosis, or post-essential thrombocythemia myelofibrosis) and who have severe thrombocytopenia (platelet counts of less than 50,000 per microliter). In June 2019, we met with the FDA for a Type B, End-of-Phase 2a meeting regarding the continued development of pacritinib, and in September 2019, we initiated patient enrollment in a Phase 3 clinical trial, which we refer to as the PACIFICA Phase 3 trial. The current PACIFICA Phase 3 trial protocol provides for the comparison of the safety and efficacy of 200mg of pacritinib administered twice daily to physician's choice in adult patients with myelofibrosis and severe thrombocytopenia who are treatment-naive or intolerant to ruxolitinib. The current PACIFICA Phase 3 protocol provides for the evaluation of 348 adult patients. Although the IDMC completed its fourth and final interim safety review in May 2019 and recommended that the PAC203 Phase 2 trial continue without modification, we cannot be certain that the PACIFICA Phase 3 trial will be sufficient for regulatory approval. Under the current protocol for the PACIFICA Phase 3 trial, the primary endpoint is the percentage of patients who achieve at least 35% reduction in spleen volume at week 24 and secondary endpoints include, among others, the efficacy of pacritinib versus physician's choice therapy as assessed by the proportion of patients achieving at least a 50% reduction in total symptom score between baseline and week 24. The primary analysis of SVR rates will be conducted once the 168th randomized patient has reached week 24, and this analysis will be used as the basis for an accelerated approval filing. An end-of-study efficacy analysis of the secondary endpoints TSS and OS will be conducted once the 348th randomized patient has reached week 24. Even if the current primary endpoint of the PACIFICA Phase 3 trial is achieved, the FDA may determine that the benefit/risk profile of pacritinib at the dose selected for the PACIFICA Phase 3 trial does not support approval based on the results of such trial, previously identified FDA concerns regarding safety and dosing limitations of pacritinib, including FDA concerns identified in connection with our previous PERSIST-1 and 2 trials, or otherwise. We also cannot

be certain of the anticipated timing of the results from the PACIFICA Phase 3 trial. The FDA may request additional information regarding pacritinib or require us to pursue new clinical safety trials with changes to, among other things, protocol, study design or sample size, which could cause significant delays in completion of these studies.

Additionally, in July 2019 we announced an expanded access program, or EAP, for pacritinib for patients in the PAC203 Phase 2 trial. To facilitate the EAP, we have extended the PAC203 Phase 2 trial to enable trial participants to continue receiving pacritinib through the launch of our EAP. Patients who receive access to unapproved drugs through compassionate use or expanded access programs have life-threatening illnesses and generally have exhausted all other available therapies. The risk for serious adverse events, including those which may be unrelated to pacritinib, in this patient population is high and could have a negative impact on the safety profile of pacritinib, which could cause significant delays or impair our ability to obtain regulatory approval for pacritinib.

Further, in the EMA's initial assessment report regarding our original MAA, the CHMP determined that the current application was not approvable because of major objections in the areas of efficacy, safety (hematological and cardiovascular toxicity) and the overall risk-benefit profile of pacritinib. After the filing of the original MAA, data from the second phase 3 trial of pacritinib, PERSIST-2, were reported. Following discussions with the EMA about how PERSIST-2 data might address the major objections and how to integrate the data into the current application, we withdrew the original MAA, and submitted a new application for the treatment of patients with myelofibrosis who have thrombocytopenia (platelet counts less than 100,000 per microliter). The new MAA was validated by the EMA in July 2017; however, we withdrew the MAA in February 2019 following interactions with CHMP, during which we learned that CHMP was likely to formally adopt a negative opinion in its evaluation of the application. CHMP indicated that the risk-benefit profile for pacritinib for the intended indication has not been sufficiently established with the clinical data available to date. For additional information regarding the status of our clinical development efforts, see "Prospectus Supplement Summary."

The submission of new marketing applications, complying with any additional requests for information from the FDA or EMA or making any changes to study design, or sample size may be time-consuming, expensive and delay or prevent our ability to continue to study pacritinib. If we are unable to adequately address any previous or further recommendations, concerns, requests, or objections in a manner satisfactory to the FDA or EMA, as applicable, in a timely manner, or at all, we could be delayed or prevented from seeking commercialization of pacritinib.

From time to time we may amend the clinical protocols for our product candidates to include additional objectives that could produce important clinical trial results critical to our overall development strategy. The protocol amendment process requires review and approval by several review bodies, including regulatory agencies and scientific, regulatory and ethics boards. These protocol amendments may not be accepted by the review bodies in the form submitted, or at all, which may delay our planned enhancements to the clinical development program and/or limit or change the type of information we may gather from our studies

In early October 2019, we received correspondence from the FDA asking us to consider incorporating change in total symptom score, or TSS, at week 24 as a co-primary endpoint for the PACIFICA Phase 3 trial. In February 2020, we reached agreement with the FDA on an accelerated approval pathway for pacritinib. We will be amending the PACIFICA pivotal Phase 3 trial protocol to allow for the primary analysis of SVR rates on the first 168 patients, with an end-of-study analysis of TSS and OS following the full enrollment of 348 patients. Such a change to the trial protocol will require an increase in the number of patients evaluated over the course of the trial, as well as the costs and time required to complete the trial. Making any changes to clinical protocols may be time-consuming, expensive and delay or prevent our ability to continue to study pacritinib. If we are unable to adequately address any previous or further recommendations, concerns, requests, or objections in a manner satisfactory to the FDA or EMA, as applicable, in a timely manner, or at all, we could be delayed or prevented from seeking commercialization of pacritinib.

If development and commercialization collaborations we enter into are not successful, or if we are unable to enter into additional collaborations, we may not be able to effectively develop and/or commercialize our compounds, which could have a material adverse effect on our business.

Historically, we have entered into development and commercialization collaborations to help advance the development of our product candidates. We evaluate collaboration opportunities from time to time and if we enter into such collaborations in the future, our business may become increasingly dependent on the success of such collaborations. Additionally, if we do not successfully enter into additional collaborations when needed, we may be unable to further develop and commercialize the applicable compounds, generate revenues to sustain or grow our business or achieve profitability, which would harm our business, financial condition, operating results and prospects.

Compounds that appear promising in research and development may fail to demonstrate safety and efficacy to the satisfaction of applicable regulatory authorities, and top-line or preliminary clinical trial data reports may ultimately differ from actual results once existing data are more fully evaluated, which could have a material adverse effect on our business.

Successful development of anti-cancer and other pharmaceutical products is highly uncertain, and obtaining regulatory approval to market drugs to treat cancer is expensive, difficult and speculative. Compounds that appear promising in research and development may fail to reach later stages of development for several reasons, including, but not limited to failure of clinical testing to show potential products to be safe and efficacious, failure to demonstrate desired safety and efficacy characteristics in human clinical trials, and failure to demonstrate a benefit/risk profile sufficient to justify approval in the view of applicable regulatory authorities.

In addition, from time to time, we report top-line data for clinical trials. Such data are based on a preliminary analysis of then-available efficacy and safety data, and such findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. Top-line or preliminary data are based on important assumptions, estimations, calculations and information then available to us to the extent we have had, at the time of such reporting, an opportunity to fully and carefully evaluate such information in light of all surrounding facts, circumstances, recommendations and analyses. As a result, top-line results may differ from future results, or different conclusions or considerations may qualify such results once existing data have been more fully evaluated. In addition, third parties, including regulatory agencies, may not accept or agree with our assumptions, estimations, calculations or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular compound and our business in general.

If the development of pacritinib is delayed or fails, or if top-line or preliminary clinical trial data reported differ from actual results, our development costs may increase and the ability to commercialize pacritinib may be harmed, which could harm our business, financial condition, operating results or prospects.

Pacritinib or other compounds we may develop may cause undesirable side effects or have other properties that could halt their development, prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

It is possible that the FDA or foreign regulatory authorities may not agree with any assessment of the safety profile of pacritinib or other compounds we may develop in the future. Undesirable side effects caused by pacritinib could cause us, institutional review boards, our CROs, the FDA or foreign regulatory authorities to interrupt, delay or discontinue development and could result in a clinical hold on any clinical trial, or the denial of regulatory approval by the FDA or foreign regulatory authorities for any or all targeted indications. This, in turn, could prevent us from commercializing pacritinib and generating revenues from its sale. In addition, if pacritinib or other compounds we may develop in the future cause serious or unexpected side effects or are associated with other safety risks after receiving marketing approval, a number of potential significant negative consequences could result, including, but not limited to:

- regulatory authorities may withdraw their approval of this product;

- we may be required to recall the product, change the way it is administered, conduct additional clinical trials or change the labeling of the product;
- the product may be rendered less competitive and sales may decrease;
- our reputation may suffer generally both among clinicians and patients;
- we may be exposed to potential lawsuits and associated legal expenses, including costs of resolving claims;
- regulatory authorities may require certain labeling statements, such as warnings or contraindications or limitations on the indications for use, or impose restrictions on distribution in the form of a Risk Evaluation and Mitigation Strategy in connection with approval, if any;
- we may be required to change the way the product is administered or conduct additional preclinical studies or clinical trials; or
- we may be required to change or stop other ongoing clinical studies that may negatively impact the development of the agent for other indications.

If preliminary data demonstrate that any of our product candidates has an unfavorable safety profile and is unlikely to receive regulatory approval or be successfully commercialized, we may voluntarily suspend or terminate future development of such product candidate.

Any one or a combination of these events could prevent us from obtaining approval and achieving or maintaining market acceptance of the affected product or could substantially increase the costs and expenses of commercializing the product candidate, which in turn could delay or prevent us from generating significant revenues from the sale of the product.

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

We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons, including that we often face lengthy preparatory periods prior to the activation of clinical trial sites, the patient populations that are eligible for our clinical trials are small and unique and we must comply with specific regulatory requirements and timelines in each country in which we conduct our clinical trials. The timely completion of clinical trials in accordance with their protocols depends, among other things, on our ability to enroll a sufficient number of patients who remain in the trial until its conclusion. The enrollment of patients depends on many factors, including, but not limited to:

- the number and size of clinical trials for other product candidates in the same therapeutic area that are currently in clinical development, and our ability to compete with such trials for patients and clinical trial sites;
- the patient eligibility criteria defined in the protocols;
- the size of the specific patient populations such as those whose have low platelet counts, if required, or other defined subsets of a larger patient population;
- the risk that disease progression will result in death or clinical deterioration before the patient can enroll in clinical trials or before sufficient data has been collected such that the patient contributes no meaningful information for the clinical trial in which the patient is enrolled;
- the proximity and availability of clinical trial sites for prospective patients;
- the design of the trials, including the inclusion of a placebo or comparator arm in a trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;

- our ability to obtain and maintain patient consents; and
- the risk that patients enrolled in clinical trials will drop out of the trials before completion.

Our clinical trials compete with other clinical trials for product candidates that are in the same therapeutic area as our product candidate. This competition reduces the number and types of patients and qualified clinical investigators available to us, because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors or clinical trial sites may not allow us to conduct our clinical trial at such site if competing trials are already being conducted there. Since the number of qualified clinical investigators is limited, we expect to conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the number of patients who are available for our clinical trials in such clinical trial site. We may also encounter difficulties finding a clinical trial site at which to conduct our trials. Moreover, because our product candidates are experimental, potential patients and their doctors may be inclined to use conventional therapies, such as surgery, radiation and chemotherapy, rather than enroll patients in any one of our clinical trials.

Delays in patient enrollment may result in increased costs or may affect the timing or outcome of our planned clinical trials, which could prevent completion of these clinical trials and adversely affect our ability to advance the development of pacritinib or other compounds we may develop in the future.

We may be required to suspend, repeat or terminate our clinical trials if they are not conducted in accordance with regulatory requirements, the results are negative or inconclusive, or the trials are not well-designed.

Regulatory agencies, IRBs or data safety monitoring boards may at any time recommend the temporary or permanent discontinuation of our clinical trials or request that we cease using investigators in the clinical trials if they believe that the clinical trials are not being conducted in accordance with applicable regulatory requirements, or that they present an unacceptable safety risk to participants. Clinical trials must be conducted in accordance with Good Clinical Practices, or GCPs, or other applicable foreign regulatory authority guidelines. Clinical trials are subject to oversight by the FDA, foreign regulatory authorities and IRBs at the study sites where the clinical trials are conducted. In addition, clinical trials must be conducted with product candidates produced in accordance with applicable current Good Manufacturing Practices, or cGMPs. Clinical trial data may be rejected by the FDA or foreign regulatory authorities or clinical trials may be suspended by the FDA, foreign regulatory authorities, or us for various reasons, including, but not limited to:

- deficiencies in the conduct of the clinical trials, including failure to conduct the clinical trial in accordance with regulatory requirements or clinical protocols or to obtain or maintain clinical trial data in accordance with applicable regulatory requirements;
- deficiencies in the clinical trial operations or trial sites;
- the product candidate may have unforeseen adverse side effects;
- deficiencies in the trial designs necessary to demonstrate efficacy;
- fatalities or other adverse events arising during a clinical trial due to medical problems that may or may not be related to clinical trial treatments;
- the product candidates may not appear to be more effective than current therapies;
- the quality or stability of the product candidates may fall below acceptable standards; or
- failure to adequately demonstrate study conduct oversight, ensure data integrity, and that clinical study sites complied with the principles of GCPs.

On February 8, 2016, clinical studies under the IND for pacritinib were placed on a full clinical hold issued by the FDA. The FDA removed the full clinical hold in January 2017. Although we have not been asked by a

regulatory agency, IRB or data safety monitoring board to temporarily or permanently discontinue a clinical trial since that clinical hold was removed, if we elect or are forced to suspend or terminate a clinical trial of any of our current or future product candidates, the commercial prospects for that product will be harmed and our ability to generate product revenue from that product may be delayed or eliminated. Furthermore, any of these events could prevent us or our partners from achieving or maintaining market acceptance of the affected product and could substantially increase the costs of commercializing our product candidates and impair our ability to generate revenue from the commercialization of these products either by us or by our collaboration partners.

If we are unable to expedite the regulatory approval process for pacritinib, we may be required to pursue strategic alternatives for the development of pacritinib and/or our company, which could have a material adverse effect on our business.

The FDA may grant accelerated approval to a product designed to treat a serious or life-threatening condition that provides meaningful therapeutic benefit over available therapies upon a determination that the product has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. A surrogate endpoint under an accelerated approval pathway may be used in cases in which the advantage of a new drug over available therapy may not be a direct therapeutic advantage, but is a clinically important improvement from a patient and public health perspective. There can be no assurance that the FDA will agree that any endpoint we suggest with respect to any of our drug candidates is an appropriate surrogate endpoint. Furthermore, there can be no assurance that any application will be accepted or that accelerated approval will be granted on any basis. Even if a product candidate is granted accelerated approval based on a surrogate endpoint, such accelerated approval is contingent on the sponsor's agreement to conduct one or more post-approval confirmatory trials that demonstrate a clinical benefit. Such confirmatory trial(s) must be completed with due diligence and, in some cases, the FDA may require that the trial(s) be designed and/or initiated prior to approval. Moreover, the FDA may withdraw approval of a product candidate or indication approved under the accelerated approval pathway for a variety of reasons, including if the trial(s) required to verify the predicted clinical benefit of a product candidate fail to verify such benefit or do not demonstrate sufficient clinical benefit to justify the risks associated with the drug, or if the sponsor fails to promptly conduct any required post-approval trial(s) with due diligence.

A priority review designation will direct the FDA's overall attention and resources to the evaluation of applications for drugs that, if approved, would be significant improvements in the safety or effectiveness of the treatment, diagnosis, or prevention of serious conditions when compared to standard applications. The FDA decides on the review designation for every application, and an applicant may also expressly request priority review. The FDA informs the applicant of a Priority Review designation within 60 days of the receipt of an original NDA. The FDA has a goal to (but is not required to) take action on an application designated as priority within six months after it has accepted an application for filing (rather than a goal of ten months for a standard review). The FDA has broad discretion whether to grant priority review, and, while the FDA has granted priority review to other oncology product candidates, our drug candidates may not receive similar designation. Moreover, designation of a drug as priority does not alter the scientific/medical standard for approval and does not affect the length of the clinical trial period or quality of evidence necessary for approval. Also, receiving priority review from the FDA does not guarantee completion of review or approval within the targeted six-month cycle or thereafter.

As described above, in early October 2019, we received correspondence from the FDA asking us to consider incorporating change in total symptom score, or TSS, at week 24 as a co-primary endpoint for the PACIFICA Phase 3 trial. In February 2020, we reached agreement with the FDA on an accelerated approval pathway for pacritinib. We will be amending the PACIFICA pivotal Phase 3 trial protocol to allow for the primary analysis of SVR rates on the first 168 patients, with an end-of-study analysis of TSS and OS following the full enrollment of 348 patients. If the primary endpoint of SVR is met following the planned review of data from the first 168 patients, we intend to submit an NDA under the FDA's regulations for the Accelerated Approval of New Drugs

for Serious or Life-Threatening Illnesses, 21 C.F.R. subpart H, subject to review of all available efficacy and safety data. Conversion to a regular approval of pacritinib would be anticipated following the successful end-of-study assessment of the secondary efficacy endpoints, and the completion of post-marketing requirements. Based on the new trial design, we expect to report primary SVR data by the end of 2021, with a potential NDA filing in early 2022 if the SVR data is positive. Final study efficacy data is expected in 2023.

We or any collaboration partners we may work with may not obtain or maintain the regulatory approvals required to develop or commercialize pacritinib or any other compounds we may develop in the future, which could have a material adverse effect on our business.

We are subject to rigorous and extensive regulation by the FDA in the U.S. and by comparable agencies in other jurisdictions, including the EMA in the E.U. Pacritinib is currently in clinical development. Pacritinib may not be marketed in the U.S. until it has been approved by the FDA and may not be marketed in other jurisdictions until it has received approval from the appropriate foreign regulatory agencies, and requires development and extensive clinical investigation before submission of any regulatory application for marketing approval. Obtaining regulatory approval requires substantial time, effort and financial resources, and we may not be able to obtain approval of pacritinib or any other product candidate on a timely basis, or at all. For instance, in February 2016, the FDA placed pacritinib on full clinical hold and the clinical hold was not removed until January 2017. The number, size, design and focus of preclinical and clinical trials that will be required for approval by the FDA, the EMA or any other foreign regulatory agency varies depending on the compound, the disease or condition that the compound is designed to address and the regulations applicable to any particular compound. For example, in June 2019, we met with the FDA for a Type B, End-of-Phase 2a meeting regarding the continued development of pacritinib and, in September 2019, we initiated patient enrollment in a Phase 3 clinical trial, which we refer to as the PACIFICA Phase 3 trial. The current PACIFICA Phase 3 trial protocol provides for the comparison of the safety and efficacy of 200mg of pacritinib administered twice daily to physician's choice in adult patients with myelofibrosis and severe thrombocytopenia who are treatment-naïve or intolerant to ruxolitinib. The current PACIFICA Phase 3 protocol provides for the evaluation of 348 adult patients. Although the IDMC completed its fourth and final interim safety review in May 2019 and recommended that the PAC203 Phase 2 trial continue without modification, we cannot be certain that the PACIFICA Phase 3 trial will be sufficient for regulatory approval. Under the current protocol for the PACIFICA Phase 3 trial, the primary endpoint is the percentage of patients who achieve at least 35% reduction in spleen volume at week 24 and secondary endpoints include, among others, the efficacy of pacritinib versus physician's choice therapy as assessed by the proportion of patients achieving at least a 50% reduction in total symptom score between baseline and week 24. The primary analysis of SVR rates will be conducted once the 168th patient has reached week 24, and this analysis will be used as the basis for an accelerated approval filing. An end-of-study efficacy analysis of the secondary endpoints TSS and OS will be conducted once the 348th patient has reached week 24. Even if the current primary endpoint of the PACIFICA Phase 3 trial is achieved, the FDA may determine that the benefit/risk profile of pacritinib at the dose selected for the PACIFICA Phase 3 trial does not support approval based on the results of such trial, previously identified FDA concerns regarding safety and dosing limitations of pacritinib, including FDA concerns identified in connection with our previous PERSIST-1 and 2 trials, or otherwise. Preclinical and clinical data can be interpreted in different ways, which could delay, limit or preclude regulatory approval. The FDA, the EMA and other foreign regulatory agencies can delay, limit or deny approval of a compound for many reasons, including, but not limited to:

- a compound may not be shown to be safe or effective;
- the clinical and other benefits of a compound may not outweigh its safety risks;
- clinical trial results may be negative or inconclusive, or adverse medical events may occur during a clinical trial;
- the results of clinical trials may not meet the level of statistical significance required by regulatory agencies for approval;

- such regulatory agencies may interpret data from pre-clinical and clinical trials in different ways than we do;
- such regulatory agencies may not approve the manufacturing process of a compound or determine that a third-party contract manufacturers manufactures a compound in accordance with current good manufacturing practices, or cGMPs;
- a compound may fail to comply with regulatory requirements; or
- such regulatory agencies might change their approval policies or adopt new regulations.

In particular, if pacritinib is not approved at all or quickly enough to provide net revenues to defray our operating expenses, our business, financial condition, operating results and prospects could be harmed.

The pharmaceutical business is subject to increasing government price controls and other restrictions on pricing, reimbursement and access to drugs, which could adversely affect our future revenues and profitability.

To the extent our products are developed, commercialized and introduced to market, they may not be considered cost-effective and third-party or government reimbursement might not be available or sufficient. Globally, governmental and other third-party payors are becoming increasingly aggressive in attempting to contain health care costs by strictly controlling, directly or indirectly, pricing and reimbursement and, in some cases, limiting or denying coverage altogether on the basis of a variety of justifications, and we expect pressures on pricing and reimbursement from both governments and private payors inside and outside the U.S. to continue. In the U.S., we are subject to substantial pricing, reimbursement and access pressures from state Medicaid programs, private insurance programs and pharmacy benefit managers, and implementation of U.S. health care reform legislation is increasing these pricing pressures. The Patient Protection and Affordable Care Act instituted comprehensive health care reform, which includes provisions that, among other things, reduce and/or limit Medicare reimbursement and impose new and/or increased taxes. In addition, members of the Trump administration, including the President, have made public statements criticizing pricing practices within the pharmaceutical industry, indicating that they may seek to increase pricing pressures on the pharmaceutical industry.

In almost all European markets, pricing and choice of prescription pharmaceuticals are subject to governmental control. Therefore, the price of our products and their reimbursement in Europe is and will be determined by national regulatory authorities. Reimbursement decisions from one or more of the European markets may impact reimbursement decisions in other European markets. A variety of factors are considered in making reimbursement decisions, including whether there is sufficient evidence to show that treatment with the product is more effective than current treatments, that the product represents good value for money for the health service it provides and that treatment with the product works at least as well as currently available treatments. The continuing efforts of governments and insurance companies, health maintenance organizations and other payors of health care costs, to contain or reduce costs of health care may affect the availability of capital, as well as our future revenues and profitability or those of our potential customers, suppliers and collaborative partners.

Post-approval or authorization regulatory reviews and obligations often result in significant expense and marketing limitations, and any failure to satisfy such ongoing obligations could negatively affect our business, financial condition, operating results or prospects.

Even if a product receives regulatory approval or authorization, as applicable, we are and will continue to be subject to numerous regulations and statutes regulating the manner of obtaining reimbursement for and selling the product, including limitations on the indicated uses for which a product may be marketed, promoted and advertised. Approved or authorized products are subject to extensive manufacturing, labeling, packaging, adverse event reporting, storage, advertising, promotion and record-keeping regulations. These requirements include submissions of safety and other post-marketing information and reports. In addition, such products are subject to ongoing maintenance of product

registration and continued compliance with cGMPs, good clinical practices, or GCPs, and good laboratory practices, or GLPs for post-approval studies. Further, distribution of products must be conducted in accordance with good distribution practices, or GDPs. The distribution process and facilities of our third-party distributors are subject to, and our wholesale distribution authorization by the UK Medicines and Healthcare Products Regulatory Agency subjects us to, continuing regulation by applicable regulatory authorities with respect to the distribution and storage of products. Regulatory authorities may also impose new restrictions on continued product marketing or may require the withdrawal of a product from the market if adverse events of unanticipated severity or frequency are discovered following approval. In addition, regulatory agencies may impose post-approval/post-authorization clinical trials, such as the PIX306 trial of PIXUVRI required by the EMA. In July 2018, we and Les Laboratoires Servier and Institut de Recherches Internationales Servier, or collectively, Servier, announced that PIXUVRI plus rituximab did not show a statistically significant improvement in progression-free survival compared to gemcitabine plus rituximab; in February 2019, we and Servier mutually agreed to terminate our collaborative agreement; and in September 2019, we transferred and assigned all of our rights and responsibilities for PIXUVRI globally to Servier pursuant to an amended and restated asset purchase agreement, which eliminates our ability to receive future payments and royalties related to PIXUVRI. For more information on the termination of our agreement with Servier, see Part I, Item 1, “Business—License Agreements—Servier” of our Annual Report on Form 10-K for the year ended December 31, 2018.

Any other failure to comply with applicable regulations could result in warning or untitled letters from the FDA, product recalls, interruption of manufacturing and commercial supply processes, withdrawal or seizure of products, suspension of an applicable wholesale distribution authorization and/or distribution of products, operating restrictions, injunctions, suspension of licenses, revocation of the applicable product’s approval or authorization, other administrative or judicial sanctions (including civil penalties and/or criminal prosecution) and/or unanticipated related expenditure to resolve shortcomings, which could negatively affect our business, financial condition, operating results or prospects.

We may be subject to fines, penalties, injunctions and other sanctions if we are deemed to be promoting the use of our products for non-FDA-approved, or off-label, uses.

Our business and future growth depend on the development, ultimate sale and use of products that are subject to FDA, EMA and or other regulatory agencies regulation, clearance and approval. Under the U.S. Federal Food, Drug, and Cosmetic Act and other laws, we are prohibited from promoting our products for off-label uses, or uses not approved by the FDA. This means that in the U.S., we may not make claims about the safety or effectiveness of our products and may not proactively discuss or provide information on the uses of our products that are not approved by the FDA, unless otherwise allowed by the FDA by policy or other guidance.

Government investigations concerning the promotion of off-label uses and related issues are typically expensive, disruptive and burdensome, generate negative publicity and may result in fines or payments of settlement awards. If our promotional activities are found to be in violation of applicable law or if we agree to a settlement in connection with an enforcement action, we would likely face significant fines and penalties and would likely be required to substantially change our sales, promotion, grant and educational activities.

We are subject to numerous laws and regulations related to health care fraud and abuse, false claims, anti-bribery and anti-corruption laws, such as the U.S. Anti-Kickback Statute and Foreign Corrupt Practices Act of 1977, in which violations of these laws could result in substantial penalties and prosecution.

In the United States, we are subject to various state and federal fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute and federal False Claims Act. There are similar laws in other countries. These laws may impact, among other things, the sales, marketing and education programs for our products. The federal Anti-Kickback Statute prohibits persons from knowingly and willingly soliciting, offering, receiving or providing remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual, or the furnishing or arranging for a good or service, for which payment may be made under a federal health care program. The federal False Claims Act prohibits persons from knowingly filing, or causing to be

filed, a false claim to, or the knowing use of false statements to obtain payment from the federal government. Suits filed under the False Claims Act can be brought by any individual on behalf of the government and such individuals, commonly known as "whistleblowers," may share in any amounts paid by the entity to the government in fines or settlement. Many states have also adopted laws similar to the federal Anti-Kickback Statute and False Claims Act. Any allegation, investigation, or violation of these domestic health care fraud and abuse laws could result in government or internal investigations, significant diversion of resources, exclusion from government health care reimbursement programs and the curtailment or restructuring of our operations, significant fines, penalties, or other financial consequences, any of which may ultimately have a material adverse effect on our business.

For our sales and operations outside the United States, we are similarly subject to various heavily-enforced anti-bribery and anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act of 1977, as amended, or FCPA, U.K. Bribery Act, and similar laws around the world. These laws generally prohibit U.S. companies and their employees and intermediaries from offering, promising, authorizing or making improper payments to foreign government officials for the purpose of obtaining or retaining business or gaining any advantage. We face significant risks if we, which includes our third parties, fail to comply with the FCPA and other anti-corruption and anti-bribery laws.

We leverage various third parties to sell our products and conduct our business abroad. We, our commercial partners and our other third-party intermediaries, including collaborators and licensees, may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated entities (such as in the context of obtaining government approvals, registrations, or licenses or sales to government owned or controlled health care facilities, universities, institutes, clinics, etc.) and may be held liable for the corrupt or other illegal activities of these third-party business partners and intermediaries, our employees, representatives, contractors, partners, collaborators, licensees and agents, even if we do not explicitly authorize such activities. In many foreign countries, particularly in countries with developing economies, it may be a local custom that businesses engage in practices that are prohibited by the FCPA or other applicable laws and regulations. To that end, while we have adopted and implemented internal control policies and procedures and employee training and compliance programs to deter prohibited practices, such compliance measures ultimately may not be effective in prohibiting our employees, representatives, contractors, partners, collaborators, licensees, agents and other third parties or intermediaries from violating or circumventing our policies and/or the law.

Any violation of the FCPA, other applicable anti-bribery, anti-corruption laws, and anti-money laundering laws could result in whistleblower complaints, adverse media coverage, investigations, loss of export privileges, severe criminal or civil sanctions and, in the case of the FCPA, suspension or debarment from U.S. government contracts, which could have a material and adverse effect on our reputation, business, operating results and prospects. In addition, responding to any enforcement action or related investigation may result in a materially significant diversion of management's attention and resources and significant defense costs and other professional fees.

Our employees, collaborators and other personnel may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading, which could have a material adverse impact on our business.

We are exposed to the risk of fraud or other misconduct by our employees, collaborators, vendors, principal investigators, consultants and commercial partners. Misconduct by these parties could include intentional failures to comply with the regulations of the FDA, EMA and other regulators, providing inaccurate or misleading information to the FDA, EMA and other regulators, failure to comply with data privacy and security and healthcare fraud and abuse laws and regulations in the United States and abroad, reporting inaccurate financial information or clinical data or failing to disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices.

Various laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Any misconduct could also involve

the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and cause serious harm to our reputation. We have adopted a code of conduct applicable to all of our employees, officers, directors, agents and representatives, including consultants, but it is not always possible to identify and deter misconduct, and the precautions we take to detect and prevent misconduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws and regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.

We are subject to a variety of laws regarding data privacy and protection, which carry potentially significant penalties for non-compliance.

Laws regarding data privacy and protection may impose obligations with respect to safeguarding the privacy, use, security, transmission and other processing of individually identifiable health information and other personal data that we may collect, retain, and otherwise process.

In the United States, these laws include HIPAA and HITECH. In addition to possible civil and criminal penalties imposed by federal authorities for HIPAA violations, state attorneys general are authorized to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. In some instances, individuals also may file civil actions related to alleged data privacy and protection violations, seeking damages, injunctions, attorneys' fees, costs, and other relief.

As the General Data Protection Regulation entered into force recently, guidance on implementation and compliance practices are still being developed, updated or otherwise revised. Although the General Data Protection Regulation is intended to provide for a high level of harmonization across the European Union, Member States may still implement certain variations, and data protection authorities may enforce the General Data Protection Regulation and national laws differently, which adds to the complexity of processing personal data in the European Union.

Furthermore, there is a trend towards the public disclosure of clinical trial data in the European Union, which also adds to the complexity of processing health data from clinical trials. Such public disclosure obligations are provided in the new EU Clinical Trials Regulation (which is replacing the EU Clinical Trials Directive), EMA disclosure initiatives, and voluntary commitments by industry, among other sources.

The uncertainty regarding the interplay between different regulatory frameworks, such as the Clinical Trials Regulation and the General Data Protection Regulation, further adds to the complexity that we face with regard to data protection regulation.

Failing to comply with these obligations could lead to government investigations and enforcement actions and significant penalties against us, harm to our reputation, and adversely impact our business and operating results. For example, the General Data Protection Regulation provides for significant penalties that may be assessed in the event of noncompliance, up to the greater of 20 million or 4% of worldwide annual revenues. We may be subject to negative publicity, have increases in operating expenses, incur expenses or lose revenues, be exposed to increased costs including remediation costs and disruption of operations, or suffer other adverse consequences, any of which could have a material adverse effect on our business, results of operations, financial condition, prospects and cash flows.

Additionally, we rely on the use of standard contractual clauses approved by the European Commission in order to transfer personal data from the European Union to the United States. These standard contractual clauses are subject to legal challenge in the European Union, and it is possible that they will be invalidated or modified. In such event, we could need to implement alternative measures to transfer personal data from the European Union to the United States, which we may be unable to do in a commercially reasonable manner or at all.

Risks Related to Our Intellectual Property

If any of our license agreements for intellectual property underlying our compounds are terminated, we may lose the right to develop or market that product candidate.

We have acquired or licensed intellectual property from third parties, including patent applications and patents relating to pacritinib and other product candidates. Some of our product development programs depend on our ability to maintain rights under license agreements relating to this licensed intellectual property. Each licensor of this intellectual property has the power to terminate its agreement with us if we fail to meet our obligations under that agreement. We may not be able to meet all of our obligations under each of these agreements. If we default under any of these agreements, we may lose our right to market and sell any products based on the intellectual property licensed under these agreements and may be forced to cease operations, liquidate our assets and possibly seek bankruptcy protection. Bankruptcy may result in the termination of these agreements.

We hold rights under numerous patents that we have acquired or licensed or that protect inventions originating from our research and development, and the expiration of any of these patents would enable our competitors to use the inventions that are the subject of such patents in competition with us.

We dedicate significant resources to protecting our intellectual property, which is important to our business. We have filed numerous patent applications in the U.S. and various other countries seeking protection of inventions originating from our research and development, and we have also obtained rights to various patents and patent applications under licenses with third parties and through acquisitions. We have pending patent applications or issued patents in the U.S. and foreign countries directed to pacritinib and other product candidates. Patents for the individual products extend for varying periods according to the date of the patent filing or grant and the legal term of patents in the various countries where patent protection is obtained.

Our U.S. and foreign method and composition of matter patents for pacritinib expire as follows: U.S. patents expire in May 2028 (method) / January 2029 (compound) / March 2030 (salt); foreign patents expire in November 2026 (method and compound) / December 2029 (salt). We expect our U.S. and foreign patent applications for use of pacritinib for treating transplant rejection will expire in 2036.

Each patent may be eligible for future patent term restoration of up to five years under certain circumstances. However, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before such candidates are commercialized which may prevent us from obtaining any regulatory extensions if all the patents covering our candidates are expired prior to regulatory approval of the corresponding product candidate. 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.

Also, regulatory exclusivity tied to the protection of clinical data may be complementary to patent protection. During a period of regulatory exclusivity, competitors generally may not use the original applicant’s data as the basis for a generic application. In the U.S., the data protection generally runs for five years from first marketing approval of a new chemical entity, extended to seven years for an orphan drug indication. Pacritinib has orphan drug designation for myelofibrosis in the U.S. and the E.U.

In addition to our patent rights, we rely, to the extent possible, trade secret and contractual protections for our know-how and other unpatented technology. Ultimately, to the extent any of our product candidates are not protected by patent rights our competitors would be free to use inventions embodied in our product candidates to which they have access to compete with us.

If we fail to adequately protect our intellectual property, our competitive position and the potential for long-term success could be harmed.

Development and protection of our intellectual property are critical to our business. If we do not adequately protect our intellectual property, competitors may be able to practice our technologies, including the inventions embodied in our product candidates. Our success depends in part on our ability to:

- obtain and maintain patent protection for our product candidates and technologies both in the U.S. and other countries;
- maintain our know-how, unpatented technologies and trade secrets; and
- prevent others from infringing on our proprietary rights.

The patent position of pharmaceutical and biotechnology firms, including ours, generally is highly uncertain and involves complex legal and factual questions. The U.S. Patent and Trademark Office has not established a consistent policy regarding the breadth of claims that it will allow in pharmaceutical and biotechnology patents. If it allows broad claims in patents that are issued, the number and cost of patent interference or derivation proceedings in the U.S. and the risk of infringement litigation may increase. If it allows narrow claims, the risk of infringement may decrease, but the value of our rights under our patents, licenses and patent applications may also decrease. Patent applications in which we have rights may never issue as patents, and the claims of any issued patents may not afford meaningful protection for our product candidates or technologies. In addition, patents issued to us or our licensors may be challenged and subsequently narrowed, invalidated, circumvented or found unenforceable. Litigation, interference or derivation proceedings or other governmental proceedings that we may become involved in with respect to our patent rights or our proprietary technologies or the proprietary technologies of others could result in substantial cost to us.

We also rely upon trade secrets to protect our proprietary know-how and continuing technological innovation to enable us to remain competitive. Third parties may independently develop such know-how or innovations or otherwise obtain access to such know-how or technology. While we require our employees, consultants and corporate partners and other third parties with access to proprietary information to enter into confidentiality agreements, these agreements may not be honored and may be difficult to enforce.

Patent litigation is widespread in the pharmaceutical and biotechnology industry, and any patent litigation in which we become involved could harm our business.

Costly litigation for us might be necessary to protect a patent position or to determine the scope and validity of third-party proprietary rights, and we may not have the required resources to pursue any such litigation or to protect our patent rights. Any adverse outcome in litigation with respect to the infringement or validity of any patents owned by third parties could subject us to significant liabilities to third parties, require disputed rights to be licensed from third parties or require us to cease using a product or technology. With respect to our in-licensed patents, if we attempt to initiate a patent infringement suit against an alleged infringer, it is possible that our applicable licensor will not participate in or assist us with the suit, and as a result, we may not be able to effectively enforce the applicable patents against the alleged infringers.

We may be unable to obtain or protect our intellectual property rights and we may be liable for infringing upon the intellectual property rights of others, which may cause us to engage in costly litigation and, if unsuccessful, could cause us to pay substantial damages and prohibit us from selling our products.

At times, we may monitor patent filings for patents that might be relevant to some of our product candidates in an effort to guide the design and development of our products to avoid infringement, but we may not conduct a search or, if we do, it may not be an exhaustive search. We may not be able to successfully challenge the validity of third-party patents and could be required to pay substantial damages, possibly including treble damages, for past infringement and attorneys' fees if it is ultimately determined that our products infringe such patents. Further, we may be prohibited from selling our products before we obtain a license, which, if available at all, may require us to pay substantial royalties.

Moreover, third parties may challenge the patents that have been issued or licensed to us. We do not believe that pacritinib infringes upon the rights of any third parties of which we are aware nor do we believe that third parties are materially infringing any of our owned or licensed patents; however, there can be no assurance that our technology or product candidates will not be found in the future to infringe upon the rights of others or be infringed upon by others. In such a case, others may assert infringement claims against us, and should we be

found to infringe upon their patents, or otherwise impermissibly utilize their intellectual property, we might be forced to pay damages, potentially including treble damages, if we are found to have willfully infringed on such parties' patent rights. In addition to any damages we might have to pay, we may be required to obtain licenses from the holders of this intellectual property, enter into royalty agreements or redesign our compounds so as not to utilize this intellectual property, each of which may prove to be uneconomical or otherwise impossible. Conversely, we may not always be able to successfully pursue our claims against others that infringe upon our technology and the technology exclusively licensed from any third parties. Thus, the proprietary nature of our technology or technology licensed by us may not provide adequate protection against competitors.

Even if infringement claims against us are without merit, or if we challenge the validity of issued patents that are asserted against us, lawsuits in which such claims could be asserted or challenges could be made take significant time, may, even if resolved in our favor, be expensive and divert management attention from other business activities requiring attention. Uncertainties resulting from the initiation and continuation of any litigation relating to intellectual property could limit our ability to continue our operations.

We may be subject to damages resulting from claims that we or our employees have wrongfully used or disclosed alleged trade secrets of our employees' former employers.

Many of our employees were previously employed at universities or other life sciences companies, including our competitors or potential competitors. Although no claims against us are currently pending, we or our employees may be subject to claims that we or these employees have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of the former employers of these employees. Litigation may be necessary to defend against these claims. If we are unsuccessful in our defense of such claims, in addition to paying monetary damages, we may lose the right to use valuable intellectual property rights relating to our product candidates or technologies. A loss of key research personnel work product could hamper or prevent our ability to commercialize certain potential products, which could severely harm our business. Even if we are successful in defending against these claims, the litigation involving these claims could result in substantial costs and be a distraction to management.

Changes in patent law could diminish the value of patents in general, thereby impairing our ability to protect our product candidates.

Our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve technological and legal complexity, and obtaining and enforcing patents is costly, time consuming, and inherently uncertain. The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our and our licensors' ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by Congress, the federal courts, and the U.S. PTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our and our licensors' ability to obtain new patents or to enforce existing patents and patents we and our licensors or may obtain in the future.

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

Filing, prosecuting, enforcing and defending patents on our product or product candidates in all countries throughout the world would be prohibitively expensive, and our or our licensors' intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we and our licensors may not be able to prevent third parties from practicing our and our licensors' inventions in all countries outside the United States, or from selling or importing products made using our and our licensors' inventions in and into the United States or other jurisdictions. Competitors may use our and our licensors' technologies in jurisdictions where we have not

obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we and our licensors have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our product and product candidates and our and our licensors' patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

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

Risks Related to Our Common Stock

The market price of shares of our common stock is extremely volatile, which may affect our ability to raise capital in the future and may subject the value of your investment in our securities to sudden decreases.

The market price for securities of biopharmaceutical and biotechnology companies, including ours, historically has been highly volatile, and the market from time to time has experienced significant price and volume fluctuations that are unrelated to the operating performance of such companies. For example, during the 12-month period ended February 13, 2020, our stock price ranged from a low of $0.63 to a high of $1.93. Fluctuations in the market price or liquidity of our common stock may harm the value of your investment in our common stock. Factors that may have an impact, which, depending on the circumstances, could be significant, on the market price and marketability of our securities include:

- announcements by us or others of results of clinical trials and regulatory actions, such as the imposition of a clinical trial hold or required amendments to our clinical trial protocols;
- announcements by us or others of serious adverse events that have occurred during administration of our products to patients;
- announcements by us or others relating to our ongoing development and commercialization activities;
- halting or suspension of trading in our common stock on The Nasdaq Capital Market;
- announcements of technological innovations or new commercial therapeutic products by us, our collaborative partners or our present or potential competitors;
- our issuance of debt or equity securities, which we expect to pursue to generate additional funds to operate our business, or any perception from time to time that we will issue such securities;
- our quarterly operating results;
- liquidity, cash position or financing needs;
- developments or disputes concerning patent or other proprietary rights;
- developments in relationships with collaborative partners;
- acquisitions or divestitures;
- our ability to realize the anticipated benefits of our compounds;
- litigation and government proceedings;

- adverse legislation, including changes in governmental regulation;
- third-party reimbursement policies;
- changes in securities analysts' recommendations;
- short selling of our securities;
- changes in health care policies and practices;
- a failure to achieve previously announced goals and objectives as or when projected; and
- general economic and market conditions.

We may not be able to maintain our listing on The Nasdaq Capital Market, or the Nasdaq, or trading on the Nasdaq may otherwise be halted or suspended, which may make it more difficult for investors to sell shares of our common stock and consequently may negatively impact the price of our common stock.

On June 3, 2019, we received written notice from the Nasdaq indicating that we are not in compliance with the $1.00 minimum bid price requirement for continued listing on Nasdaq, as set forth in Nasdaq Listing Rule 5550(a)(2). We regained compliance in December 2019 with the minimum $1.00 bid price requirement.

There can be no assurance that we will continue to be in compliance with the minimum bid price requirement in the future.

If our common stock ceases to be listed for trading on the Nasdaq, it may harm our stock price, increase the volatility of our stock price, decrease the level of trading activity and make it more difficult for investors to buy or sell shares of our common stock. Our failure to maintain a listing on the Nasdaq may constitute an event of default under our loan and security agreement and any future indebtedness, which would accelerate the maturity date of such debt or trigger other obligations. In addition, certain institutional investors that are not permitted to own securities of non-listed companies may be required to sell their shares adversely affecting the market price of our common stock. If we are not listed on the Nasdaq, our ability to raise capital will be adversely impacted.

Additionally, for so long as our non-affiliate public float does not exceed $75 million, the amount of securities that we may sell pursuant to registration statements on Form S-3 will be limited to the equivalent of one-third of our public float, which will limit our ability to file or use shelf registration statements on Form S-3 and further limit our ability to raise capital. We have relied significantly on shelf registration statements on Form S-3 for most of our financings in recent years, so any such limitations may harm our ability to raise the capital we need. Trading in our common stock has been halted or suspended on the Nasdaq in the past and may also be halted or suspended in the future on the Nasdaq due to market or trading conditions at the discretion of the Nasdaq. Any halt or suspension in the trading in our common stock may negatively impact the market price of our common stock.

Following this offering, we will seek to increase the number of authorized shares in our Certificate of Incorporation. An inability to secure requisite stockholder approval for such increases could materially and adversely impact our ability to fund our operations.

At our 2018 annual meeting of stockholders, we sought and received approval of an amendment to our Certificate of Incorporation to increase the total number of authorized shares and the total number of authorized shares of our common stock by 20 million. We proposed the increase in authorized shares due to the fact that we anticipate the need to issue additional shares of common stock in the future in connection with one or more of the following:

- financing transactions, such as public or private offerings of common stock or derivative securities;
- our equity incentive plans and employee stock purchase plan;

- debt, warrant or other equity restructuring or refinancing transactions, such as debt or warrant exchanges or offerings of new convertible debt or modifications to existing securities, or as payments of interest on debt securities;
- acquisitions, strategic partnerships, collaborations, joint ventures, restructurings, divestitures, business combinations and strategic investments;
- corporate transactions, such as stock splits or stock dividends; and
- other corporate purposes that have not yet been identified.

At our 2019 annual meeting of stockholders, our stockholders approved an amendment to our Certificate of Incorporation to increase the total number of authorized shares and the total number of authorized shares of common stock by 30 million and we may seek approval to increase the number of authorized shares again in the future. Without such increases in the number of authorized shares, we may be constrained in our ability to raise capital when needed, and may lose important business opportunities, including to competitors, which could adversely affect our financial performance, growth and ability to continue our operations. As opportunities or circumstances that require prompt action frequently arise, we believe that the delay necessitated for stockholder approval of a specific issuance could result in a material and adverse impact on our business.

Even if we obtain approval to increase the number of authorized shares, we are required under the Nasdaq Marketplace Rules to obtain stockholder approval for any issuance of additional equity securities that would comprise more than 20% of the total shares of our common stock outstanding before the issuance of such securities sold at a discount to a minimum price as set forth in the Nasdaq Marketplace Rules in an offering that is not deemed to be a “public offering” by the Nasdaq Marketplace Rules, as well as under certain other circumstances. We have in the past and may in the future issue additional equity securities that would comprise more than 20% of the total shares of our common stock outstanding in order to fund our operations. However, we might not be successful in obtaining the required stockholder approval for any future issuance that requires stockholder approval pursuant to applicable rules and regulations. If we are unable to obtain financing or our financing options are limited due to stockholder approval difficulties, such failure may harm our ability to continue operations.

Anti-takeover provisions in our charter documents, under Delaware law and in other applicable instruments could make removal of incumbent management or an acquisition of us, which may be beneficial to our stockholders, more difficult.

Provisions of our Certificate of Incorporation and Bylaws may have the effect of deterring or delaying attempts by our stockholders to remove or replace management, to commence proxy contests or to effect changes in control. These provisions include:

- elimination of cumulative voting in the election of directors;
- procedures for advance notification of stockholder nominations and proposals;
- the ability of our Board of Directors to amend our bylaws without stockholder approval; and
- the ability of our Board of Directors to issue shares of preferred stock without stockholder approval upon the terms and conditions and with the rights, privileges and preferences as our Board of Directors may determine.

In addition, as a Delaware corporation, we are subject to Delaware’s anti-takeover statute, which imposes restrictions on some transactions between a corporation and certain interested stockholders. Other existing provisions applicable to us that could have an anti-takeover effect include our executive employment agreements and certain provisions of our outstanding equity-based compensatory awards that allow for acceleration of vesting in the event of a change in control. Our shareholder rights plan expired pursuant to its terms on

December 2, 2018, and was not replaced; however, the of Directors may, subject to its fiduciary duties under applicable law, choose to implement a similar plan in the future. Likewise, because our principal executive offices are located in Washington, the anti-takeover provisions of the Washington Business Corporation Act may apply to us under certain circumstances now or in the future. These provisions prohibit a "target corporation" from engaging in any of a broad range of business combinations with any stockholder constituting an "acquiring person" for a period of five years following the date on which the stockholder became an "acquiring person."

The foregoing provisions, alone or together, could have the effect of deterring or delaying changes in incumbent management, proxy contests or changes in control.

If we fail to maintain effective internal controls over financial reporting, we may not be able to accurately report our financial results, which could adversely affect our investors' confidence, our business and the trading prices of our securities.

If we fail to maintain the adequacy of our internal controls, we may be unable to provide financial information in a timely and reliable manner within the time periods required for our financial reporting under SEC rules and regulations. Internal controls over financial reporting may not prevent or detect misstatements or omissions in our financial statements because of their inherent limitations, including the possibility of human error, the circumvention or overriding of controls or fraud. We have recently implemented a reduction in force, which may result in changes to our internal controls over financial reporting. The changes could relate to different employees performing internal control activities than those who have previously performed those activities or revisions to our actual control activities as we evaluate the appropriate internal control structure after our workforce reduction. A changing internal control environment increases the risk that our system of internal controls is not designed effectively or that internal control activities will not occur as designed. The occurrence of or failure to remediate a significant deficiency material weakness may adversely affect our reputation and business and the market price of shares of our common stock.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could cause you to incur dilution and could cause the market price of our common stock to fall.

As of September 30, 2019, options to purchase 10,985,026 shares of our common stock with a weighted-average exercise price of $2.58 per share were outstanding. The exercise of any of these options would result in dilution to current stockholders. Further, because we will need to raise additional capital to fund our operations and clinical development programs, we may in the future sell substantial amounts of common stock or securities convertible into or exchangeable for common stock. Pursuant to our equity incentive plans, our compensation committee is authorized to grant equity-based incentive awards to our employees, directors and consultants. Future option grants and issuances of common stock under our share-based compensation plans may have an adverse effect on the market price of our common stock.

These future issuances of common stock or common stock-related securities, together with the exercise of outstanding options and any additional shares of common stock issued in connection with acquisitions, if any, may result in further dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to those of holders of our common stock.

If securities or industry analysts do not publish research reports about our business, or if they issue an adverse opinion about our business, the market price of our common stock and the trading volume of our common stock could decline.

The trading market for our common stock is influenced by the research and reports that securities or industry analysts publish about us or our business. If too few securities or industry analysts cover our company, the market price of our common stock would likely be negatively impacted. If securities and industry analysts who

cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, the market price of our common stock would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our common stock could decrease, which might cause the market price of our common stock and the trading volume of our common stock to decline.

Risks Related to the Rights Offering

The price of our common stock is volatile and may decline after you exercise your subscription rights.

The market price of our common stock is subject to wide fluctuations in response to numerous factors, including factors that have little or nothing to do with us or our performance, and these fluctuations could materially reduce our stock price. These factors include, among other things, the fact that our stock is relatively thinly traded, and as a result trades of small numbers of our shares can have a significant impact on the trading price of our stock, business conditions in our markets and the general state of the securities markets and the market for other biotechnology stocks, changes in capital markets that affect the perceived availability of capital to companies in our industry, governmental legislation or regulation and general economic and market conditions, such as recessions and downturns in the United States or global economy. In addition, the stock market historically has experienced significant price and volume fluctuations. These fluctuations are often unrelated to the operating performance of particular companies. These broad market fluctuations may cause declines in the market price of our common stock, which may make it difficult for you to resell shares of our common stock owned by you at times or at prices that you find attractive.

If you do not fully exercise your subscription rights, your interest in us may be significantly diluted, and to the extent you do exercise your subscription rights and the subscription price is less than the fair value of our common stock, you would experience an immediate dilution of the aggregate fair value of your subscription shares, which could be substantial.

Up to a maximum of 60,000,000 shares of common stock (or an equivalent value of shares of Series X Preferred) are issuable in the rights offering and/or pursuant to the Backstop Commitment. Accordingly, if you do not exercise your subscription rights in full, your interest in us will be significantly diluted upon completion of the rights offering. In addition, if you do exercise your subscription rights and the subscription price is less than the fair value of our common stock, you would experience immediate dilution of the value of your subscription shares relative to what your value would have been had our common stock been issued at fair value. This dilution could be substantial.

The subscription price determined for the rights offering is not an indication of the fair value of our common stock.

Our Board of Directors considered a number of factors in determining the price for the rights offering, including:

- the price per share at which the Investors are willing to backstop the rights offering;
- “pass through” savings as a result of conducting the rights offering with no investment banking support;
- the price at which our stockholders might be willing to participate in the rights offering;
- historical and current trading prices for our common stock, including on a volume weighted average share price basis over certain periods; and
- the desire to provide an opportunity to our stockholders to participate in the rights offering on a *pro rata* basis.

The subscription price is not necessarily related to our book value, results of operations, cash flows, financial condition or net worth or any other established criteria of value and may or may not be considered the fair value

of our common stock at the time the rights offering was approved by our Board of Directors or during the rights offering period. We cannot assure you that the trading price of our common stock will not decline after you exercise your subscription rights. We also cannot assure you that you will be able to sell shares purchased in this rights offering at a price equal to or greater than the subscription price. We do not intend to change the subscription price in response to changes in the trading price of our common stock prior to the closing of the rights offering.

Our Board of Directors is not making any recommendations regarding your exercise of the subscription rights, and we did not receive a fairness opinion from a financial advisor in determining the subscription price or the terms of the rights offering.

Our Board of Directors is not making any recommendations regarding your exercise of the subscription rights. In addition, we did not receive a fairness opinion from a financial advisor in determining the subscription price or the terms of the rights offering. Stockholders who exercise subscription rights risk investment loss on new money invested. We cannot assure you that the trading price for our common stock will be above the subscription price at the time of exercise or at the expiration of the rights offering period or that anyone purchasing shares at the subscription price will be able to sell those shares in the future at the same price or a higher price. You are urged to make your own decision whether or not to exercise your subscription rights based on your own assessment of our business and the rights offering.

The rights offering may cause the price of our common stock to decline.

The rights offering and its terms, including the subscription price, together with the number of shares of common stock we could issue if this rights offering is completed, may result in a decrease in the trading price of our common stock. This decrease may continue after the completion of the rights offering. If that occurs, your purchase of shares of our common stock in the rights offering may be at a price greater than the prevailing trading price. Further, if the holders of the shares received upon exercise of the subscription rights choose to sell some or all of their shares, the resulting sales could also depress the trading price of our common stock.

Because you may not revoke or change your exercise of the subscription rights, you could be committed to buying shares above the prevailing trading price at the time the rights offering is completed.

Once you exercise your subscription rights, you may not revoke or change the exercise. The trading price of our common stock may decline after you exercise your subscription right. If you exercise your subscription rights, and, afterwards, the trading price of our common stock decreases below the Subscription Price, you will have committed to buying shares of our common stock at a price above the prevailing trading price and could have an immediate unrealized loss. There can be no assurances that the trading price of our common stock will equal or exceed the subscription price at the time of exercise or at the expiration of the subscription rights offering period or thereafter.

You may not be able to resell any shares of our common stock that you purchase pursuant to the exercise of subscription rights immediately upon expiration of the subscription rights offering period.

If you exercise subscription rights, you may not be able to resell the common stock purchased by exercising your subscription rights until you, or your broker, custodian bank or other nominee, if applicable, has received those shares. Moreover, you will have no rights as a stockholder of the shares you purchased in the rights offering until we issue the shares to you. Although we will endeavor to issue the shares as soon as practicable after completion of the rights offering, including after all necessary calculations have been completed, there may be a delay between the expiration date of the rights offering and the time that the shares are issued.

Because we will have broad discretion over the use of the net proceeds from the rights offering, you may not agree with how we use the proceeds.

We are conducting the rights offering in order to raise additional capital and to improve and strengthen our financial position. We will have broad discretion to use the net proceeds to us from this rights offering, and investors will be relying solely on the judgment of our board of directors and management regarding the application of these proceeds. Although we expect to use the net proceeds from this rights offering to progress the Company's pacritinib development program and for general corporate purposes and working capital, we have not allocated these net proceeds for specific purposes. See "Use of Proceeds" for additional information. Investors will not have the opportunity, as part of their investment decision, to assess whether the proceeds are being used appropriately. Our use of the proceeds may not improve our operating results or increase the value of the securities being offered hereby.

Because the subscription rights are non-transferable, there is no market for the subscription rights.

You may not sell, transfer or assign your subscription rights to anyone else. Because the subscription rights are non-transferable, there is no market or other means for you to directly realize any value associated with the subscription rights. You must exercise the subscription rights and acquire additional shares of our common stock to realize any value that may be embedded in the subscription rights.

Shares of our common stock (and Series X Preferred) are subordinate to any preferred stock we may issue and to existing and any future indebtedness.

Shares of our common stock (and Series X Preferred) rank junior to any shares of our senior preferred stock that we may issue in the future and to our existing indebtedness, including under our senior secured term loan agreement, and any future indebtedness we may incur, as well as to all creditor claims and other non-equity claims against us and our assets available to satisfy claims on us, including claims in a bankruptcy or similar proceeding. Our secured term loan agreement restricts, and any future indebtedness and preferred stock may restrict, payment of dividends on our common stock.

Furthermore, unlike indebtedness, where principal and interest customarily are payable on specified due dates, in the case of our common stock, (i) dividends are payable only when and if declared by our board of directors or a duly authorized committee of our Board of Directors, and (ii) as a corporation, we are restricted to making dividend payments and redemption payments out of legally available assets. We have never paid a dividend on our common stock and have no current intention to pay dividends in the future. Furthermore, our common stock places no restrictions on our business or operations or on our ability to incur indebtedness or engage in any transactions, subject only to the voting rights available to our shareholders generally.

FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents we incorporate by reference in this prospectus supplement and the accompanying prospectus may contain certain statements that constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. When used in this in this prospectus supplement, the accompanying prospectus and the documents we incorporate by reference herein and therein, terms such as "anticipates," "believes," "continue," "could," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "should," or "will" or the negative of those terms or other comparable terms are intended to identify such forward-looking statements.

These forward-looking statements include, but are not limited to:

- our expectations regarding sufficiency of cash resources, cash expenditures, sources of cash flows and other projections, product manufacturing and sales, research and development expenses, selling, general and administrative expenses and additional losses;
- our ability to obtain funding for our operations;
- the timing of, and our ability to develop, commercialize, and obtain regulatory approval of pacritinib and other development programs we may pursue in the future;
- the design of our clinical trials and anticipated enrollment, and the progress and potential of pacritinib and other development programs we may pursue in the future;
- the timing of and results from clinical trials and pre-clinical development activities, including those related to pacritinib and any other product candidates we may develop in the future;
- our ability to advance product candidates, including pacritinib and any other candidates we may develop in the future, into and successfully complete clinical trials;
- our ability to achieve profitability, including our ability to effectively implement cost reduction strategies and realize anticipated cost savings from those efforts;
- our expectations regarding federal, state and foreign regulatory requirements;
- the rate and degree of market acceptance and clinical utility of pacritinib or any other product candidates we may develop in the future;
- the timing of, and our and our collaborators' ability to obtain and maintain, regulatory approvals for any of our product candidates;
- our ability to maintain and establish collaborations;
- our expectations regarding market risk, including interest rate changes and foreign currency fluctuations;
- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others;
- our ability to negotiate, integrate, and implement collaborations, acquisitions and other strategic transactions;
- our ability to engage and retain the employees required to advance our development activities and grow our business; and
- developments relating to our competitors and our industry, including the success of competing therapies that are or become available.

These statements are based on assumptions about many important factors and information currently available to us to the extent that we have thus far had an opportunity to fully and carefully evaluate such information in light of all surrounding facts, circumstances, recommendations and analyses. Additionally, these statements are

subject to known and unknown risks and uncertainties, including, but not limited to, those discussed above and elsewhere in this prospectus supplement, the accompanying prospectus and the documents we incorporate by reference herein and therein. Although we believe that expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. These statements, like all statements in this report, speak only as of their date, and we undertake no obligation to update or revise these statements in light of future developments, except as required by law. Readers are cautioned not to place undue reliance on these forward-looking statements.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus supplement, and although we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted a thorough inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and you are cautioned not to unduly rely upon these statements.

USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of our common stock (and Series X Preferred) offered in the rights offering and/or pursuant to the Backstop Commitment after deducting estimated offering expenses, will be approximately $59.3 million. We estimate that the expenses of the rights offering will be approximately $0.7 million.

We are conducting the rights offering in order to raise additional capital and to improve and strengthen our financial position. We currently plan to use the net proceeds from this offering to conduct our ongoing PACIFICA Phase 3 trial, as well as for general corporate purposes and working capital. The timing and amount of our actual expenditures will be based on many factors, including cash flows from operations and the anticipated growth of our business. As a result, our management will have broad discretion to allocate the net proceeds of the rights offering.

As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses for the net proceeds we will have upon completion of the offering. Accordingly, we will retain broad discretion over the use of these proceeds.

DILUTION

If you purchase shares of our common stock in this offering, you will experience dilution to the extent of the difference between the price per share you pay in this offering and the net tangible book value per share of our common stock immediately after this rights offering. The net tangible book value of our common stock on September 30, 2019 was $26.2 million, or $0.45 per share (based upon 57,978,725 shares of our common stock outstanding). Net tangible book value per share represents the amount of our total tangible assets, less total liabilities, divided by the aggregate number of shares of our common stock outstanding.

After giving effect to the assumed sale in this rights offering by us of 60,000,000 shares of common stock (or an equivalent value of shares of Series X Preferred) at a subscription price of $1.00 per share and after deducting estimated offering expenses payable by us, our as-adjusted net tangible book value as of September 30, 2019 would have been $85.4 million, or $0.72 per share of common stock. This represents an immediate increase in net tangible book value of $0.27 per share to existing stockholders and immediate dilution in net tangible book value of $0.28 per share to investors purchasing shares of our common stock in this offering. The following table illustrates this per share dilution:

Subscription price per share of common stock		$1.00
Net tangible book value per share as of September 30, 2019	$0.45	
Increase attributable to investors in this offering	$0.27	
As adjusted net tangible book value per share as of September 30, 2019 after giving effect to this offering		$0.72
Dilution per share to investors participating in this offering		$0.28

The above discussion and table are based on 57,978,725 shares of our common stock outstanding as of September 30, 2019 and excludes as of that date:

- 10,985,026 shares of common stock issuable upon exercise of options outstanding as of September 30, 2019, at a weighted-average exercise price of $2.58 per share;
- 513,496 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2019, at a weighted-average exercise price of $3.00 per share.
- 8,383,333 shares issuable upon the conversion of 12,575 shares of Series O Preferred at a conversion price of $3.00 per share;
- 177,376 shares reserved for issuance under our employee stock purchase plan;
- 1,018,133 shares of common stock reserved for future issuance under our equity compensation plans; and
- one share of common stock reserved for issuance upon exercise of outstanding restricted share rights.

To the extent that any options, rights or warrants are exercised, new options are issued under our equity incentive plans, additional shares of common stock are sold under our employee stock purchase plan or we otherwise issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering.

DESCRIPTION OF THE RIGHTS OFFERING

Before deciding whether to exercise your subscription rights, you should carefully read this prospectus supplement and the accompanying prospectus, including the information set forth under the heading "Risk Factors" and the information that is incorporated by reference into this prospectus supplement and the accompanying prospectus, including our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and our Quarterly Reports on Form 10-Q for the quarterly periods ended subsequent to our filing of such Annual Report on Form 10-K.

The Subscription Rights

We are distributing to the holders of record of our common stock and Series O Preferred (collectively, for purposes of the rights offering, "stockholders") as of 5:00 p.m., New York time, on February 14, 2020, which is the record date for this rights offering, at no charge, non-transferable subscription rights to purchase shares of our common stock (subject to the aggregate offering threshold and certain ownership limitations). For each share of common stock (including shares of common stock issuable upon conversion of the Company's outstanding shares of Series O Preferred) for which you are the holder of record as of 5:00 p.m., New York Time, on February 13, 2020, you will receive 0.90412 rights to purchase shares of our common stock (subject to the aggregate offering threshold and certain ownership limitations). Each whole subscription right will allow you to subscribe for one share of common stock at the subscription price (or an equivalent value of shares of Series X Preferred) on the terms described in this prospectus supplement.

The total number of subscription rights issued to each holder will be rounded down to the nearest whole number.

You may exercise any number of your subscription rights, or you may choose not to exercise any subscription rights. The subscription rights will allocate the rights to purchase up to 60,000,000 shares of common stock (or an equivalent value of shares of Series X Preferred) (the "offered pool"), *pro rata* among the stockholders entitled to participate as of the record date.

The subscription rights will be evidenced by subscription rights certificates. Subscription rights may be exercised at any time during the subscription period, which commences on February 14, 2020, through the expiration date for the rights offering, which is 5:00 p.m., New York time, on March 2, 2020. You are not required to exercise any of your subscription rights.

If any portion of the offered pool remains unpurchased at the end of the offering period, we will offer the Investors the right to subscribe for up to the full amount of the unsubscribed portion of the offered pool (on the same terms and subject to the same conditions as set forth herein). Separately, the Investors have agreed to purchase a number of shares of common stock (or Series X Preferred) with a face value equal to the remaining unsubscribed portion of the securities offered by this prospectus supplement. See "Description of the Backstop Commitment."

Subscription Price

Our Board of Directors considered a number of factors in determining the price for the rights offering, including:

- the price per share at which the Investors are willing to backstop the rights offering;
- "pass through" savings as a result of conducting the rights offering with no investment banking support;
- the price at which our stockholders might be willing to participate in the rights offering;
- historical and current trading prices for our common stock, including on a volume weighted average share price basis over certain periods; and
- the desire to provide an opportunity to our stockholders to participate in the rights offering on a *pro rata* basis.

See “Risk Factors—The subscription price determined for the rights offering is not an indication of the fair value of our common stock.”

Expiration Time and Date

The subscription rights will expire at 5:00 p.m., New York time, on March 2, 2020, unless we extend it. We reserve the right to extend the subscription period at our sole discretion. If the expiration date of the rights offering is so extended, we will give oral or written notice to the subscription agent on or before the scheduled expiration date, and we will issue a press release announcing such extension no later than 9:00 a.m., New York City time, on the next business day after the most recently announced expiration of the rights offering. You must properly complete the subscription rights certificate distributed by the subscription agent and deliver it, along with the full subscription price, to the subscription agent prior to 5:00 p.m., New York time, on March 2, 2020, unless the expiration date is extended. After the expiration date, all unexercised subscription rights will be null and void. We will not be obligated to honor any purported exercise of subscription rights which the subscription agent receives after the expiration of the rights offering, regardless of when you sent the documents regarding that exercise. Shares purchased in the rights offering will be issued, and any subscription payments for shares not allocated or validly purchased will be returned, as soon as practicable following the expiration date of the rights offering.

Common Stock

The material terms and provisions of our common stock and each other class of our securities which qualifies or limits our common stock are described under the caption “General Description of Capital Stock” starting on page 10 of the accompanying prospectus.

Series X Convertible Preferred Stock

The material terms and provisions of the Series X Preferred being offered pursuant to this prospectus supplement and the accompanying prospectus are summarized below. This summary is subject to, and qualified in its entirety by, the rights, preferences and privileges of the Series X Preferred set forth in the Certificate of Designation of Preferences, Rights and Limitations of Series X Convertible Preferred Stock to our Certificate of Incorporation, as amended (our “Certificate of Incorporation”), to be filed as an exhibit to our Current Report on Form 8-K, which we expect to file with the SEC in connection with this rights offering.

General. Our Certificate of Incorporation authorizes our Board of Directors to issue up to 33,333 shares of our preferred stock, par value $0.001 per share, of which 12,575 shares have been designated as Series O Preferred, all of which are issued and outstanding.

Subject to the limitations prescribed by our Certificate of Incorporation, our Board of Directors is authorized to establish the number of shares constituting each series of preferred stock and to fix the designations, powers, preferences and rights of the shares of each of those series and the qualifications, limitations and restrictions of each of those series, all without any further vote or action by our stockholders. Our Board of Directors has designated 4,500 shares of the 33,333 authorized shares of preferred stock as Series X Preferred (in addition to the previously designated 12,575 shares of Series O Preferred and previously designated 5,000 shares of Series ZZ Junior Participating Cumulative Preferred Stock (“Series ZZ Preferred”)). When issued, the shares of Series X Preferred will be validly issued, fully paid and non-assessable.

Rank. The Series X Preferred will rank:

- senior to our Series ZZ Preferred and any class or series of our capital stock hereafter created specifically ranking by its terms junior to the Series X Preferred;
- on parity to our common stock, Series O Preferred and any class or series of our capital stock hereafter created specifically ranking by its terms on parity with Series X Preferred (collectively, “Parity Securities”); and

- junior to any class or series of our capital stock hereafter created specifically ranking by its terms senior to the Series X Preferred;

in each case, as to distributions of assets upon our liquidation, dissolution or winding up whether voluntarily or involuntarily or the payment of dividends on our common stock.

Dividends. Holders of Series X Preferred are entitled to receive dividends on shares of Series X Preferred equal (on an as if converted to common stock basis) to and in the same form as dividends actually paid on Parity Securities.

Liquidation Preference. In the event of our liquidation, dissolution, or winding up, holders of our Series X Preferred will participate *pari passu* (on an as-converted basis, without regard to any blocker provisions) in any distribution of proceeds to holders of Parity Securities.

Redemption. We are not obligated to redeem or repurchase any shares of Series X Preferred. Shares of Series X Preferred are not otherwise entitled to any redemption rights or mandatory sinking fund or analogous fund provisions.

Exchange Listing. We do not plan on making an application to list the Series X Preferred on The Nasdaq Capital Market, any national securities exchange or other nationally recognized trading system. We expect the common stock issuable upon conversion of the Series X Preferred to be listed on The Nasdaq Capital Market.

Conversion. Each share of Series X Preferred shall be convertible at the option of the holders thereof at any time after issuance into 10,000 shares of registered shares of common stock. No holder may request a conversion of its Series X Preferred to the extent such conversion would result in the holder and its affiliates beneficially owning more than a pre-set conversion blocker threshold, which will initially be set at 9.99% of our common stock then outstanding (the “Beneficial Ownership Limitation”). The amount of beneficial ownership of a holder and its affiliates will be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations of that section.

Conversion Ratio Adjustment—Stock Dividends and Stock Splits. If we pay a stock dividend or otherwise make a distribution payable in common stock on our common stock or any common stock equivalents, subdivide or combine our outstanding common stock, or reclassify our common stock in such a way that we issue additional shares of our capital stock, the Series X Preferred conversion ratio will be adjusted by multiplying the then-existing conversion price by a fraction, the numerator of which is the number of shares of common stock outstanding immediately after the distribution, dividend, adjustment or recapitalization and the denominator of which is the number of shares of common stock outstanding immediately before such action.

Fundamental Transaction. If we effect a “fundamental transaction” (as defined below), then upon any future conversion of the Series X Preferred, the holders will have the right to receive, for each common share they would have received upon such conversion, the same kind and amount of securities, cash or property as such holders would have been entitled to receive in the fundamental transaction had they been the holder of common stock immediately prior to the fundamental transaction. The term “fundamental transaction” means any of the following:

- a merger or consolidation of the Company with or into another entity or any stock sale to, or other business combination in which the Company is not the surviving entity;
- the sale of all or substantially all of our assets in one transaction or a series of related transactions;
- any completed tender offer or exchange offer involving holders of common stock in which more than 50% of the common stock is converted or exchanged into other securities, cash or property, regardless of who makes such offer; or
- any reclassification of common stock or any compulsory share exchange by which our common stock is effectively converted into or exchanged for other securities, cash or property (but not a reverse stock split).

If the holders of common stock are given a choice as to the securities, cash or property to be received in a fundamental transaction, the holders of Series X Preferred will be given the same choice on conversion of such holders' shares.

Voting Rights. The Series X Preferred shall have no voting rights, except to the extent expressly provided in our Certificate of Incorporation or as otherwise required by law. However, so long as any of the authorized shares of Series X Preferred are outstanding, we may not take any of the following actions without the affirmative consent of holders of a majority of the outstanding Series X Preferred:

- amend our Certificate of Incorporation, Bylaws or other charter documents so as to materially, specifically and adversely affect the preferences, rights, privileges of the Series X Preferred;
- issue additional shares of Series X Preferred or increase or decrease the number of authorized shares of Series X Preferred; or
- enter into any agreement or understanding to take any of the actions listed above.

Shares Outstanding After the Rights Offering

As of the record date, there were 57,979,725 shares of our common stock outstanding, 12,575 shares of our Series O Preferred outstanding, no shares of our Series ZZ Preferred outstanding and no shares of our Series X Preferred outstanding. We will issue up to a maximum of 60,000,000 shares of common stock (or an equivalent value of shares of Series X Preferred) in the rights offering and/or pursuant to the Backstop Commitment. Based on the number of shares issued and outstanding as of the record date, if we issue all 60,000,000 shares of common stock available in this rights offering and/or pursuant to the Backstop Commitment, we would have 117,979,725 shares of common stock issued and outstanding following the completion of the rights offering.

The shares of our common stock are listed on The Nasdaq Capital Market under the symbol "CTIC."

Reasons for the Rights Offering

We are conducting the rights offering in order to raise additional capital and to improve and strengthen our financial position. We currently plan to use the net proceeds from the rights offering to conduct our ongoing PACIFICA Phase 3 trial, as well as for working capital and other general corporate purposes. See "Use of Proceeds."

In authorizing the rights offering, our Board of Directors considered and evaluated a number of factors, including:

- our current capital resources and our future need for additional liquidity and capital;
- the size and timing of the rights offering;
- the potential dilution to our current stockholders if they choose not to participate in the rights offering;
- alternatives available for raising capital, including debt and other forms of equity raises;
- the potential impact of the rights offering on the public float for our common stock;
- the Investors' willingness to backstop the rights offering;
- that applicable Nasdaq marketplace rules do not require stockholder approval of the rights offering or the Backstop Commitment; and
- the fact that existing stockholders would have the opportunity to participate on a *pro rata* basis to purchase additional shares of common stock or Series X Preferred.

The net proceeds to us, after deducting estimated offering expenses, will be approximately $59.3 million, assuming all shares of common stock (or Series X Preferred) are issued in the rights offering and/or pursuant to the Backstop Commitment. We estimate that the expenses of the rights offering will be approximately $0.7 million.

Investment Agreement

We have entered into an Investment Agreement with the Investors, pursuant to which the Investors agreed to provide the Backstop Commitment, whereby the Investors have agreed to purchase from us, subject to certain conditions, shares of common stock (or Series X Preferred) in an amount equal to the aggregate value of the shares of common stock not subscribed for in the rights offering, at a price per share equal to $1.00 (or $10,000 per share of Series X Preferred) (the "Backstop Commitment"). The Investors will not receive any fees in connection with the Backstop Commitment. A member of our Board of Directors, Matthew Perry, is President of BVF, one of the Investors. For more information, see the section entitled "Description of the Backstop Commitment" of this prospectus supplement.

Limitations on the Purchase of Shares of Common Stock

You may only purchase the number of whole shares of common stock purchasable upon exercise of the subscription rights distributed to you in the rights offering. Accordingly, the number of shares of common stock that you may purchase in the rights offering is limited by the number of our shares of common stock you held on the record date. We reserve the right to reject any or all subscriptions not properly submitted or the acceptance of which would, in the opinion of our counsel, be unlawful.

In addition, we will not be required to issue to you shares of our common stock pursuant to the rights offering if, in our opinion, you are required to obtain prior clearance or approval from any state or federal regulatory authorities to own or control the shares and if, at the time the rights offering expires, you have not obtained this clearance or approval.

Method of Exercising Subscription Rights

The exercise of subscription rights is irrevocable and may not be cancelled or modified. You may exercise your subscription rights as follows:

Subscription by Registered Holders

To exercise your subscription rights, you must properly complete and execute the subscription rights certificate, together with any required signature guarantees, and forward it, together with payment in full of the subscription price for each share of our common stock you are subscribing for, to the subscription agent at the address set forth under "Subscription Agent" below, on or prior to the expiration date.

Subscription by Beneficial Owners

If you are a beneficial owner of shares that holds your shares through a broker, custodian bank or other nominee, we will ask your broker, custodian bank or other nominee to notify you of the rights offering. If you wish to exercise your subscription rights, you will need to have your broker, custodian bank or other nominee act for you and exercise your subscription rights and deliver all documents and payment on your behalf prior to 5:00 p.m., New York time, on March 2, 2020. If you hold certificates of our common stock directly and would prefer to have your broker, custodian bank or other nominee act for you, you should contact your nominee and request it to effect the transactions for you.

To indicate your decision with respect to your subscription rights, you should complete and return to your broker, custodian bank or other nominee, the form entitled "Beneficial Owner Election Form." You should receive this form from your broker, custodian bank or other nominee with the other subscription rights offering materials.

You should contact your broker, custodian bank or other nominee if you do not receive this form, but you believe you are entitled to participate in the rights offering. We are not responsible if you do not receive the form from your broker, custodian bank or nominee or if you receive it without sufficient time to respond.

Instructions for Completing Your Subscription Rights Certificate

You should read the instruction letter accompanying the subscription rights certificate carefully and strictly follow it. Do not send subscription rights certificates or payments to us. We will not consider your subscription received until the subscription agent has received delivery of a properly completed and duly executed subscription rights certificate and payment of the full subscription amount. The risk of delivery of all documents and payments is borne by you or your nominee, not us or the subscription agent.

The method of delivery of subscription rights certificates and payment of the subscription amount to the subscription agent will be at the risk of the holders of subscription rights. If sent by mail, we recommend that you send those certificates and payments by overnight courier or by registered mail, properly insured, with return receipt requested, and that a sufficient number of days be allowed to ensure delivery to the subscription agent and clearance of payment before the expiration of the subscription period for the rights offering.

Validity of Subscriptions

We will resolve all questions regarding the validity and form of the exercise of your subscription rights, including time of receipt and eligibility to participate in the rights offering. Our determination will be final and binding. Once made, subscriptions and directions are irrevocable, and we will not accept any alternative, conditional or contingent subscriptions or directions. We reserve the absolute right to reject any subscriptions or directions not properly submitted or the acceptance of which would be unlawful. You must resolve any irregularities in connection with your subscriptions before the subscription period expires, unless waived by us at our sole discretion. Neither the subscription agent nor we shall be under any duty to notify you or your representative of defects in your subscriptions. A subscription will be considered accepted, subject to our right to cancel the rights offering, only when a properly completed and duly executed subscription rights certificate and any other required documents and payment of the full subscription amount have been received by the subscription agent. Our interpretations of the terms and conditions of the rights offering will be final and binding.

No Revocation or Change

Once you submit the form of subscription rights certificate to exercise any subscription rights, you are not allowed to revoke or change the exercise or request a refund of monies paid. All exercises of subscription rights are irrevocable. You should not exercise your subscription rights unless you are certain that you wish to purchase the shares of common stock (or Series X Preferred) offered pursuant to this rights offering.

Payment for Shares

Method of Payment

Your payment of the subscription price must be made in U.S. dollars for the full number of shares of common stock (or Series X Preferred) you wish to acquire in the rights offering by personal check payable to “Computershare Trust Company, N.A. (acting as subscription agent for CTI BioPharma Corp.)”.

If you hold your rights through a broker, dealer, custodian bank or other nominee, you must deliver the applicable subscription payment and a completed form entitled “Beneficial Owner Election Form” (or such other appropriate documents as are provided by your nominee related to your subscription rights) to your nominee in each case, prior to the expiration of the rights offering.

Segregated Account; Return of Funds

The subscription agent will hold funds received in payment for shares of the common stock in a segregated account pending completion of the rights offering. The subscription agent will hold this money until the rights offering is completed or is cancelled. If the rights offering is cancelled for any reason, the subscription agent will return this money to subscribers, without interest or penalty, as soon as practicable.

Receipt of Payment

Your payment will be considered received by the subscription agent only upon clearance of any uncertified check deposited by the subscription agent

Payment received after the expiration of the rights offering period will not be honored, and, in that case, the subscription agent will return your payment to you, without interest or penalty, as soon as practicable.

Clearance of Uncertified Checks

If you are paying by uncertified personal check, please note that payment will not be deemed to have been received by the subscription agent until the check has cleared, which could take at least five or more business days to clear. If you wish to pay the subscription price by uncertified personal check, we urge you to make payment sufficiently in advance of the time the rights offering expires to ensure that your payment is received by the subscription agent and clears by the rights offering expiration date.

Missing or Incomplete Subscription Information

If you do not indicate the number of rights being exercised or complete the other required information, or do not forward full payment of the total subscription price payment for the number of subscription rights that you indicate are being exercised, then you will be deemed to have exercised your subscription rights with respect to the maximum number of subscription rights that may be exercised with the aggregate subscription price payment you delivered to the subscription agent. If we do not apply your full subscription price payment to your purchase of shares of our common stock, the subscription agent will return the excess amount to you by mail, without interest or penalty, as soon as practicable after the expiration date of the rights offering.

Amendment, Withdrawal and Termination

The period for exercising your subscription rights may be extended by our Board of Directors in its reasonable discretion. Our Board of Directors does not currently intend to extend the expiration of the rights offering.

If we cancel the rights offering, in whole or in part, all affected subscription rights will expire without value, and all subscription payments received by the subscription agent will be returned, without interest or penalty, as soon as practicable. If we cancel the rights offering, we will issue a press release notifying stockholders of the cancellation.

Notice to Brokers and Nominees

If you are a broker, custodian bank or other nominee holder that holds shares of our common stock for the account of others on the rights offering record date, you should notify the respective beneficial owners of such shares of the rights offering as soon as possible to learn their intentions with respect to exercising their subscription rights. You should obtain instructions from the beneficial owner with respect to their subscription rights, as set forth in the instructions we have provided to you for your distribution to beneficial owners. If the beneficial owner so instructs, you should complete the appropriate subscription rights certificates and submit them to the subscription agent with the proper payment. If you hold shares of our common stock for the account(s) of more than one beneficial owner, you may exercise the number of subscription rights to which all such beneficial owners in the aggregate otherwise would have been entitled had they been direct record holders of our common stock on the subscription rights offering record date, provided that you, as a nominee record holder, make a proper showing to the subscription agent by submitting the form entitled “Nominee Holder Certification” that we will provide to you with your subscription rights offering materials. If you did not receive this form, you should contact the subscription agent to request a copy.

Transferability of Subscription Rights

The subscription rights granted to you are non-transferable and, therefore, you may not sell, transfer or assign your subscription rights to anyone else.

Delivery of Shares

All shares of common stock that you purchase in the rights offering will be issued in book-entry, or uncertificated, form. All shares of Series X Preferred that you purchase in the rights offering will be in book-entry, or uncertificated, form unless otherwise requested, provided that the underlying common stock (when and as issued on conversion) will be issued in book-entry form or delivered via DWAC to the converting stockholders' account (as requested by the stockholder). When issued, the shares will be registered in the name of the subscription rights holder of record.

As soon as practicable after the expiration of the rights offering, the subscription agent, in the case of the common stock, or the Company, in the case of the Series X Preferred, will arrange for the issuance of the shares of common stock or Series X Preferred purchased in the rights offering. Subject to state securities laws and regulations, we have the discretion to delay distribution of any shares you may have elected to purchase by exercise of your subscription rights in order to comply with state securities laws.

Rights of Subscribers

You will have no rights as a stockholder of our common stock (or Series X Preferred) until your account, or your account at your broker, custodian bank or other nominee is credited with the shares of our common stock (or Series X Preferred) purchased in the rights offering. You will have no right to revoke your subscriptions after you deliver your completed subscription rights certificate, payment and any other required documents to the subscription agent.

No Recommendation to Subscription Rights Holders

Our Board of Directors is making no recommendations regarding your exercise of the subscription rights. You are urged to make your own decision whether or not to exercise your subscription rights based on your own assessment of our business and the rights offering. See "Risk Factors" in this prospectus supplement and in any document incorporated by reference into this prospectus supplement and the accompanying prospectus.

Miscellaneous

No Brokers, Dealers or Underwriters

We have not employed any brokers, dealers or underwriters in connection with the solicitation of the exercise of subscription rights, and, except as described herein, no other commissions, underwriting fees or discounts will be paid in connection with this rights offering.

Subscription Agent

Computershare Trust Company, N.A. is acting as the subscription agent for the rights offering under an agreement with us. All subscription rights certificates, payments of the subscription price and nominee holder certifications, to the extent applicable to your exercise of subscription rights, must be delivered to Computershare Trust Company, N.A. as follows:

Computershare Trust Company, N.A.
Attn: Voluntary Corporate Actions
150 Royall St – Suite V
Canton MA 02021

We will pay the fees and expenses of Computershare Trust Company, N.A. as subscription agent.

If you deliver subscription documents or subscription rights certificates in a manner different than that described in this prospectus supplement, then we may not honor the exercise of your subscription rights.

Information Agent

We have appointed Georgeson LLC to act as information agent for this rights offering. You should direct any questions or requests for assistance concerning the method of subscribing for the shares of common stock (or Series X Preferred) or for additional copies of this prospectus supplement and accompanying prospectus to the information agent.

Requests for Information

You should direct any questions or requests for assistance concerning the method of subscribing for the shares of common stock or Series X Preferred or for additional copies of this prospectus supplement to the information agent for this rights offering, Georgeson LLC, at (888) 613-9988.

Other Matters

We are not making the rights offering in any state or other jurisdiction in which it is unlawful to do so, nor are we distributing or accepting any offers to purchase any shares of our common stock (or Series X Preferred) from subscription rights holders who are residents of those states or other jurisdictions or who are otherwise prohibited by federal, state or foreign laws or regulations from accepting or exercising the subscription rights. We may delay the commencement of the rights offering in those states or other jurisdictions, or change the terms of the rights offering, in whole or in part, in order to comply with the securities laws or other legal requirements of those states or other jurisdictions. Subject to state securities laws and regulations, we also have the discretion to delay allocation and distribution of any securities you may elect to purchase in the rights offering in order to comply with state securities laws. We may decline to make modifications to the terms of the rights offering requested by those states or other jurisdictions, in which case, if you are a resident in those states or jurisdictions or if you are otherwise prohibited by federal, state or foreign laws or regulations from accepting or exercising the subscription rights, you will not be eligible to participate in the rights offering.

Questions About Exercising Subscription Rights

If you have other questions or need assistance, please contact the information agent for this rights offering, Georgeson LLC, at (888) 613-9988.

DESCRIPTION OF THE BACKSTOP COMMITMENT

Below is a brief summary of matters related to the Backstop Commitment.

Investment Agreement

On January 31, 2020, the Company entered into the Investment Agreement, pursuant to which the Investors agreed to provide the Backstop Commitment, whereby the Investors (and their respective assignee(s)/transferee(s)) have agreed to purchase from us, subject to certain conditions, shares of common stock or Series X Preferred in an amount equal to the aggregate value of the shares of common stock not subscribed for in the rights offering, at a price per share equal to $1.00 per share of common stock or $10,000 per share of Series X Preferred, as applicable. In addition to their respective investments under the Investment Agreement, as stockholders as of the record date, the Investors will each have the right to subscribe for and purchase their respective pro rata shares of our common stock and/or Series X Preferred in the rights offering. If the Investors do not exercise their purchase rights in full, then they will be obligated to purchase an equivalent value of shares of our common stock and/or Series X Preferred pursuant to the Backstop Commitment. A member of our Board of Directors, Matthew Perry, is president of BVF, one of the Investors. Mr. Perry recused himself from approval by the Board of Directors of the Investment Agreement and the Backstop Commitment.

The Investors' respective obligations to collectively provide the Backstop Commitment under the Investment Agreement is subject to certain conditions, including, but not limited to, the following: (i) the rights offering being completed in accordance with the terms and conditions of the Investment Agreement and this prospectus supplement; (ii) the Investors having received certain notices from us; (iii) all governmental and third party notifications, filings, consents, waivers and approvals required for the consummation of the transactions contemplated by the Investment Agreement having been made or received; (iv) the accuracy of our representations and warranties made in the Investment Agreement; and (v) the absence of a material adverse effect.

The Investment Agreement may be terminated by mutual written consent of the Company and the Investors or by each Investor (with respect to itself only) if the closing of the rights offering has not been consummated before March 9, 2020 through no fault of such Investor.

We are not paying a fee to any Investor in connection with the Backstop Commitment.

Investor Ownership

BVF

As of February 1, 2020, BVF owned 6,929,690 shares of our common stock, representing approximately 11.95% of our outstanding common stock. If all of the Series O Preferred were converted, BVF would own an additional 8,383,333 shares of our common stock, representing in the aggregate approximately 23.1% of the Company's total outstanding common stock. As of the record date, none of the Series O Preferred has been converted into shares of the Company's common stock. Following completion of the rights offering and after giving effect to the Backstop Commitment, if no stockholders, other than the Investors, exercise their subscription rights in the rights offering, and BVF purchases all of its Backstop Commitment in shares of Series X Preferred, BVF will own (a) 6,929,690 shares of our common stock, (b) 12,575 shares of our Series O Preferred, convertible into an aggregate of 8,383,333 shares of common stock (subject to applicable conversion limits) and (c) 3,500 shares of Series X Preferred, convertible into an aggregate of 35,000,000 shares of common stock (subject to applicable conversion limits).

As of February 1, 2020, Stonepine Capital, LP ("Stonepine") owned 3,613,600 shares of our common stock, representing approximately 6.23% of our outstanding common stock. Following completion of the rights offering and after giving effect to the Backstop Commitment, if no other stockholders, other than the Investors, exercise their subscription rights in the rights offering, and Stonepine purchases all of its Backstop Commitment

in shares of Series X Preferred, Stonepine will own (a) 3,613,600 shares of our common stock and (b) 1,000 shares of Series X Preferred, convertible into an aggregate of 10,000,000 shares of common stock (subject to applicable conversion limits).

As of February 1, 2020, OrbiMed Private Investments VI, LP ("OrbiMed") owned 5,000,000 shares of our common stock, representing approximately 8.62% of our outstanding common stock. Following completion of the rights offering and after giving effect to the Backstop Commitment, if no other stockholders, other than the Investors, exercise their subscription rights in the rights offering, and OrbiMed purchases all of its Backstop Commitment in shares of common stock, OrbiMed will own 12,500,000 shares of our common stock.

As of February 1, 2020, Growth Equity Opportunities Fund V LLC ("NEA") owned 3,750,000 shares of our common stock, representing approximately 5.59% of our outstanding common stock. Following completion of the rights offering and after giving effect to the Backstop Commitment, if no other stockholders, other than the Investors, exercise their subscription rights in the rights offering, and NEA purchases all of its Backstop Commitment in shares of common stock, NEA will own 11,250,000 shares of our common stock.

PLAN OF DISTRIBUTION

We will distribute the subscription rights, subscription rights certificates and copies of this prospectus supplement and the accompanying prospectus to persons who owned shares of our common stock or Series O Preferred of record as of 5:00 p.m., New York time, on February 13, 2020, the record date for the rights offering. If you wish to exercise your subscription rights and purchase shares of common stock or Series X Preferred (as applicable), you should complete the subscription rights certificate and return it with payment for the shares, to the subscription agent, Computershare Trust Company, N.A. See "Description of the Rights Offering – Method of Exercising Subscription Rights." If you have any questions, you should contact the Information Agent, Georgeson LLC, at (888) 613-9988. The subscription rights will not be listed on any stock exchange or market or on the OTC Markets. Our shares of common stock are listed on The Nasdaq Capital Market under the symbol "CTIC."

We have agreed to pay the subscription agent and the information agent customary fees plus certain expenses in connection with the rights offering. Except as described in this section, we are not paying any other commissions, underwriting fees or discounts in connection with the rights offering. We estimate that our total expenses in connection with the rights offering will be approximately $0.7 million.

Computershare Trust Company, N.A. is acting as the subscription agent and Georgeson LLC is acting as the information agent for this rights offering. We will pay all customary fees and expenses of the subscription agent and information agent related to this rights offering and have also agreed to indemnify the subscription agent and information agent from liabilities that they may incur in connection with this rights offering.

LEGAL MATTERS

The validity of the securities being offered hereby will be passed upon for us by Gibson, Dunn & Crutcher LLP, San Francisco, California.

EXPERTS

Marcum LLP, an independent registered public accounting firm, has audited our consolidated financial statements at December 31, 2017 and for the year ended December 31, 2017, included in our Annual Report on Form 10-K for the year ended December 31, 2018, as set forth in its report, which is incorporated by reference in this prospectus supplement and the accompanying prospectus. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

Our consolidated financial statements appearing in our Annual Report on Form 10-K for the year ended December 31, 2018, and the effectiveness of our internal control over financial reporting as of December 31, 2018, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in its reports thereon and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at *http://www.sec.gov*. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge from our website at *http://www.ctibiopharma.com*. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information contained on our website is not part of or incorporated by reference into this prospectus supplement or the accompanying prospectus.

We have not authorized anyone else to provide you with information other than that contained in this prospectus supplement, the accompanying prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give to you. Our securities are not being offered in any state where the offer is not permitted. The information contained in documents that are incorporated by reference in this prospectus supplement is accurate only as of the dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. You should read the information incorporated by reference because it is an important part of this prospectus supplement. We incorporate by reference the following information or documents that we have filed with the SEC (excluding those portions of any Current Report on Form 8-K that are not deemed "filed" pursuant to the General Instructions of Form 8-K):

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 filed with the SEC on March 13, 2019;
- the portions of our Definitive Proxy Statement on Schedule 14A (other than information furnished rather than filed) that are incorporated by reference into our Annual Report on Form 10-K, filed on April 4, 2019, as amended on April 17, 2019;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2019, June 30, 2019, and September 30, 2019, filed with the SEC on May 2, 2019, August 1, 2019, and November 4, 2019, respectively;
- our Current Reports on Form 8-K filed with the SEC on February 1, 2019, February 11, 2019, February 22, 2019, February 27, 2019, March 22, 2019, May 17, 2019, June 4, 2019, July 18, 2019, October 1, 2019, November 15, 2019, December 6, 2019, February 3, 2020 and February 14, 2020, respectively;
- the description of our capital stock contained in our Registration Statement on Form 10 filed with the SEC on June 27, 1996, as amended; and
- the description of our preferred stock purchase rights contained in our Registration Statement on Form 8-A filed with the SEC on September 6, 2012, as amended.

We also incorporate by reference into this prospectus supplement additional documents that we may file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the completion or termination of the offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information deemed furnished and not filed with the SEC. Any statement contained in a previously filed document incorporated by reference into this prospectus supplement is deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement, or in a subsequently filed document also incorporated by reference herein, modifies or supersedes that statement.

This prospectus supplement may contain information that updates, modifies or is contrary to information in one or more of the documents incorporated by reference in this prospectus supplement. We have not authorized anyone else to provide you with information other than that contained in this prospectus supplement, the accompanying prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give to you. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date of this prospectus supplement or the date of the documents incorporated by reference in this prospectus supplement.

We will provide to each person, including any beneficial owner, to whom this prospectus supplement is delivered, upon written or oral request, at no cost to the requester, a copy of any and all of the information that is incorporated by reference in this prospectus supplement.

Requests for such documents should be directed to:

CTI BioPharma Corp.
3101 Western Avenue, Suite 800
Seattle, WA 98121
(206) 282-7100
Attention: Investor Relations

You may also access the documents incorporated by reference in this prospectus supplement through our website at *www.ctibiopharma.com*. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus supplement, the accompanying prospectus or the registration statement of which it forms a part.

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PROSPECTUS

CTI BIOPHARMA CORP.

$200,000,000

Common Stock
Preferred Stock
Debt Securities
Warrants
Rights
Units

From time to time, we may offer and sell in one or more offerings:

- shares of our common stock, including the associated preferred stock purchase rights;
- shares of our preferred stock;
- debt securities;
- warrants to purchase common stock, preferred stock and/or debt securities;
- rights to purchase common stock, preferred stock and/or debt securities; and
- units consisting of two or more of these classes or series of securities.

We may sell any combination of these securities in one or more offerings, up to an aggregate offering price of $200,000,000, in amounts, at prices and on terms to be determined at the time of each offering thereof. Each time we offer securities using this prospectus, we will provide specific terms of the securities and the offering in one or more supplements to this prospectus. The prospectus supplements may also add to, update or change the information in this prospectus and will also describe the specific manner in which we will offer the securities. The securities may be offered and sold by us to or through one or more underwriters, broker-dealers or agents, or directly to purchasers on a continuous or delayed basis. See "Plan of Distribution."

This prospectus may not be used by us to sell securities unless accompanied by a prospectus supplement. You should carefully read this prospectus and any accompanying prospectus supplement, including the information incorporated by reference, prior to investing in any of our securities.

On January 23, 2018, the last reported sale price of our common stock on The NASDAQ Capital Market was $3.23 per share. We do not expect our preferred stock, debt securities, warrants, rights or units to be listed on any securities exchange or over-the-counter market unless otherwise described in the applicable prospectus supplement.

Investing in our securities involves a high degree of risk. See the "Risk Factors" section on page 6 of this prospectus.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is January 31, 2018

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a "shelf" registration process. Under the shelf registration process, we may, from time to time, sell common stock, preferred stock, debt securities, warrants, rights, units or any combination of these securities in one or more offerings, for a total maximum offering price not to exceed $200,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell any securities under this prospectus, we will provide a prospectus supplement that will contain more specific information about the terms of that offering, including the specific amounts, prices and terms of the securities offered. Any prospectus supplement may include a discussion of risks or other special considerations applicable to us or the offered securities. Any prospectus supplement may also add to, update or change information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any prospectus supplement, on the other hand, you should rely on the information in the prospectus supplement.

You should read this prospectus, any prospectus supplement, any documents that we incorporate by reference in this prospectus and in any prospectus supplement, and the additional information described below under "Where You Can Find More Information" and "Incorporation of Certain Documents by Reference" before making an investment decision. You should rely only on the information contained or incorporated by reference in this prospectus, any prospectus supplement and any free writing prospectus. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

You should not assume that the information in this prospectus, any prospectus supplement, any free writing prospectus or any documents we incorporate by reference herein or therein is accurate as of any date other than the date on the front of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

Market data and industry statistics disclosed in this prospectus, any prospectus supplement, any free writing prospectus or any other document we incorporate by reference herein or therein are based on independent industry publications, reports by market research firms and other published independent sources. Some data and other information is also based on our good faith estimates, which are derived from our review of internal surveys and independent sources. Accordingly, investors should not place undue reliance on this information. By including such market data and information, we do not undertake a duty to update or provide that data in the future.

In this prospectus, the terms "CTI," "Company," "registrant," "we," "us," "our" and similar terms refer to CTI BioPharma Corp., a Delaware corporation, and its subsidiaries, unless the context otherwise requires. "CTI" and "Pixuvri" are our proprietary marks. All other product names, trademarks and trade names referred to in this prospectus, as supplemented from time to time, are the property of their respective owners.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Exchange Act. In accordance with the Exchange Act, we file reports, proxy statements and other information with the SEC. Such reports, proxy statements and other information filed by us are available to the public free of charge at www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at www.ctibiopharma.com. You may also read and copy any document we file with the SEC, including the registration statement on Form S-3 and the exhibits thereto, at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330.

This prospectus omits some information contained in the registration statement of which this prospectus forms a part in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

SEC rules allow us to "incorporate by reference" into this prospectus much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference into this prospectus is considered to be part of this prospectus. This prospectus incorporates by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents deemed to be furnished and not filed in accordance with SEC rules) until the offering of the securities under the registration statement of which this prospectus forms a part is terminated or completed:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the SEC on March 2, 2017;
- portions of the proxy statement for our 2017 annual meeting of shareholders, filed with the SEC on March 28, 2017, to the extent specifically incorporated by reference to our Annual Report on Form 10-K for the year ended December 31, 2016;
- our Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2017, June 30, 2017 and September 30, 2017, filed with the SEC on May 3, 2017, August 4, 2017 and November 7, 2017, respectively;
- our Current Reports on Form 8-K filed with the SEC on January 5, 2017, January 20, 2017, January 24, 2017, February 10, 2017, February 27, 2017 (Item 5.02 only), March 13, 2017 (Item 5.02 only), April 25, 2017 (Item 1.01 only), May 16, 2017 (Items 5.02 and 5.07 only) as amended by that Current Report on Form 8-K/A filed with the SEC on June 16, 2017, June 5, 2017 (Item 5.02 only), June 9, 2017, July 24, 2017 (Item 5.02 only), August 22, 2017 (Item 5.02 only), September 26, 2017, November 28, 2017, December 5, 2017, December 15, 2017, January 24, 2018, and January 25, 2018;
- the description of our capital stock contained in our Registration Statement on Form 10 filed with the SEC on June 27, 1996, as amended; and
- the description of our preferred stock purchase rights contained in our Registration Statement on Form 8-A filed with the SEC on September 6, 2012, as amended.

Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and later information filed with the SEC may update and supersede some of the information included or incorporated by reference in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded.

We will provide without charge to each person, including any beneficial owners, to whom this prospectus is delivered, upon his or her written or oral request, a copy of any or all documents referred to above which have been or may be incorporated by reference into this prospectus but not delivered with this prospectus, excluding exhibits to those documents unless they are specifically incorporated by reference into those documents. You may request a copy of these documents by writing or telephoning us at the following address:

CTI BioPharma Corp.
3101 Western Avenue, Suite 800
Seattle, Washington 98121
(206) 282-7100
Attention: Investor Relations

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and any documents we incorporate by reference herein or therein may contain "forward-looking statements" within the meaning of the U.S. federal securities laws. All statements other than statements of historical fact are forward-looking statements, including, without limitation:

- any statements regarding future operations, plans, expectations, intentions, regulatory filings or approvals;
- any statements regarding the performance, or likely performance, outcomes or economic benefit of any licensing collaboration or other arrangement;
- any projections of revenues, operating expenses or other financial terms, and any projections of cash resources;
- any statements of the plans and objectives of management for future operations or programs;
- any statements concerning proposed new products;
- any statements regarding the safety and efficacy or future availability of any of our compounds;
- any statements regarding our ability to interpret clinical trial data and results for PERSIST-2 despite not satisfying the pre-specified minimum evaluable patient goal or expectations with respect to the potential therapeutic utility of pacritinib and statements regarding our expectations with respect to the potential of pacritnib to achieve treatment goals;
- any statements on plans regarding proposed or potential clinical trials or new drug filing strategies, timelines or submissions, including expectations with respect to the timing and planned enrollment of PAC203;
- any significant disruptions in our information technology systems;
- any statements regarding compliance with the listing standards of The NASDAQ Stock Market;
- any statements regarding potential future partnerships, licensing arrangements, mergers, acquisitions or other transactions;
- any statements regarding future economic conditions or performance; and
- any statements of assumption underlying any of the foregoing.

In some cases, forward-looking statements can be identified by terms such as "anticipates," "believes," "continue," "could," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "projects," "should" or "will" or the negative thereof, variations thereof and similar expressions. Such statements are based on management's current expectations and are subject to risks and uncertainties which may cause actual results to differ materially from those set forth in the forward-looking statements. There can be no assurance that such expectations or any of the forward-looking statements will prove to be correct, and actual results could differ materially from those projected or assumed in the forward-looking statements. We urge you to carefully review the disclosures we make concerning risks and other factors that may affect our business and operating results, including those made in "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2016 and in "Part II—Item 1A. Risk Factors" in our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2017, June 30, 2017 and September 30, 2017, as such risk factors may be updated in subsequent SEC filings, as well as our other reports filed with the SEC and in any prospectus supplement. We caution you not to place undue reliance on forward-looking statements, which speak only as of the date of this prospectus or any prospectus supplement. We do not intend, and we undertake no obligation, to update any forward-looking information to reflect events or circumstances after the date of this prospectus or any prospectus supplement or to reflect the occurrence of unanticipated events, unless required by law to do so.

INFORMATION ABOUT THE COMPANY

We are a biopharmaceutical company focused on the acquisition, development and commercialization of novel targeted therapies covering a spectrum of blood-related cancers that offer a unique benefit to patients and healthcare providers. Our goal is to build a profitable company by generating income from products we develop and commercialize, either alone or with partners. We are currently concentrating our efforts on treatments that target blood-related cancers where there is an unmet medical need. In particular, we are primarily focused on commercializing PIXUVRI® (pixantrone), or PIXUVRI, in the European Union, or the E.U., for multiply relapsed or refractory aggressive B-cell non-Hodgkin lymphoma, or NHL, and evaluating pacritinib for the treatment of adult patients with myelofibrosis.

We were incorporated in the State of Washington in 1991. On January 24, 2018, we changed our state of incorporation from Washington to Delaware pursuant to the Reincorporation. Our shares of common stock trade on The NASDAQ Capital Market under the symbol “CTIC.” Our principal executive offices are located at 3101 Western Avenue, Suite 800, Seattle, Washington 98121, and our phone number is (206) 282-7100. Our website is located at www.ctibiopharma.com; however, the information in, or that can be accessed through, our website is not part of this prospectus.

RISK FACTORS

You should carefully consider the risks under the heading “Risk Factors” beginning on page 24 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the SEC on March 2, 2017, and our Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2017, June 30, 2017 and September 30, 2017, filed with the SEC on May 3, 2017, August 4, 2017 and November 6, 2017, respectively, which information is incorporated by reference in this prospectus, and the additional risks and other information in this prospectus, any prospectus supplement and the documents incorporated by reference herein and therein before deciding to invest in our securities. If any of the identified risks actually occur, they could materially adversely affect our business, financial condition, operating results or prospects and the trading price of our securities. Additional risks and uncertainties that we do not presently know or that we currently deem immaterial may also impair our business, financial condition, operating results and prospects and the trading price of our securities.

RATIO OF EARNINGS TO FIXED CHARGES AND OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS

The following table sets forth our ratio of earnings to fixed charges and of earnings to combined fixed charges and preferred stock dividends for each of the periods indicated:

	Nine months ended September 30, 2017	Year ended December 31,				
		2016	2015	2014	2013	2012
Ratio of earnings to fixed charges(1)	—	—	—	—	—	—

(1) Earnings were not sufficient to cover fixed charges for each of the periods indicated. Earnings consist of income (loss) before provision for income taxes plus fixed charges less income (loss) attributable to noncontrolling interest. Fixed charges consist of interest charges, amortization of debt expense and discount related to indebtedness, and that portion of rental payments under operating leases we believe to be representative of interest. Earnings for the nine months ended September 30, 2017, and for the years ended December 31, 2016, 2015, 2014, 2013 and 2012, were insufficient to cover fixed charges by $30.8, $52.0, $122.6, $96.0, $49.6 and $115.3 (in millions), respectively. For this reason, no ratios are provided for these periods.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds to us from the sale of our securities under this prospectus. Unless we indicate otherwise in the applicable prospectus supplement, we anticipate that any net proceeds will be used for general corporate purposes or for strategic acquisitions from time to time. General corporate purposes may include:

- increasing our working capital;
- funding research and development (including clinical trials); or
- repaying debt.

We may temporarily invest funds that we do not immediately use in short- and medium-term marketable securities. When we offer particular securities pursuant to this prospectus, we will set forth in the prospectus supplement our intended use for the net proceeds received from the sale of such securities.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our common stock and do not currently anticipate declaring or paying cash dividends on our common stock in the foreseeable future. We currently intend to retain all of our future earnings, if any, to finance operations. Any future determination relating to our dividend policy will be made at 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 other factors that our board of directors may deem relevant.

GENERAL DESCRIPTION OF CAPITAL STOCK

The following summaries of common stock and preferred stock do not purport to be complete and are subject to, and qualified in their entirety by, the provisions of our certificate of incorporation, which we refer to as our certificate of incorporation, our amended and restated bylaws, which we refer to as our bylaws, and all applicable provisions of Delaware law. Our certificate of incorporation and bylaws are incorporated by reference as exhibits to the registration statement of which this prospectus is a part. The particular terms of any offering of our securities will be described in a prospectus supplement relating to such offering.

We are authorized to issue 81,500,000 shares of common stock, par value $0.001 per share, and 33,333 shares of preferred stock, par value $0.001 per share. As of January 24, 2018, there were 42,983,990 shares of common stock outstanding and 575 shares of preferred stock (convertible into approximately 383,345 shares of common stock) outstanding and warrants to purchase 124,309 shares of common stock outstanding. In addition, as of January 24, 2018, 7,026,632 shares of common stock were reserved for issuance under our equity compensation plans, 183,527 shares of common stock were reserved for issuance under our employee stock purchase plan, one share of common stock was reserved for issuance upon exercise of outstanding restricted share rights and 10,000 shares of Series ZZ Junior Participating Cumulative Preferred Stock were reserved for issuance pursuant to our shareholders' rights plan.

DESCRIPTION OF COMMON STOCK

General

Each holder of common stock is generally entitled to one vote for each share held on all matters to be voted upon by the shareholders and there are no cumulative voting rights. Subject to preferences that may be applicable to any outstanding preferred stock, holders of common stock are entitled to receive ratably the dividends, if any, that are declared from time to time by the board of directors out of funds legally available for that purpose. In the event of our liquidation, dissolution or winding up, the holders of common stock are entitled to share in our assets remaining after the payment of liabilities and the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock. Holders of common stock have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Listing

Our shares of common stock trade on The NASDAQ Capital Market under the symbol “CTIC.”

Certain Anti-Takeover Matters

Delaware law contains certain provisions that may have the effect of delaying, deterring or preventing a change in control of the Company. Section 203 of the DGCL prohibits us, with certain exceptions, from engaging in certain business combinations with an “interested shareholder” (defined generally as a person who owns 15% or more of our voting stock or is an affiliate of the Company and the owner of 15% of our voting stock within a 3 year period) for a period of three years following date that such shareholder becomes an interested shareholder. The prohibited transactions include, among others, a merger or consolidation with, disposition of assets to, or issuance or redemption of stock to or from, the interested shareholder, or any other receipt by the interested shareholder of a disproportionate benefit as a shareholder. Exceptions to this statutory prohibition include approval of the business combination or transaction which resulted in the shareholder becoming an interested shareholder by the board of directors, ownership of at least 85% of the voting stock of the Company outstanding at the time of the transaction or approval of the business combination and approval by the board of directors and holders of not less than two-thirds of the outstanding shares entitled to vote on the business combination which is not owned by the interested shareholder on or subsequent to the date of the business combination. The Company’s certificate of incorporation does not exclude the Company from the restrictions imposed under Section 203 of the DGCL. These statutory provisions may have the effect of delaying, deterring or preventing a change in control of the Company.

Prior to our annual meeting of shareholders held on May 22, 2014, our board of directors was classified and divided into three classes, with one class being elected at each annual shareholder meeting for a three year term. However, beginning with our annual meeting of shareholders held on May 22, 2014, successors to the class of directors whose term expires in the year of the annual meeting shall be elected for a term expiring at the next annual meeting of shareholders, such that our board of directors was declassified following our annual meeting of shareholders held in calendar year 2016, from which point, directors are elected annually, for terms of one year and until their successors are elected and qualified. Our bylaws provide that, in any election of directors, those candidates receiving the largest number of votes cast by the shares entitled to vote in the election, up to the number of directors to be elected by such shares, will be elected to our board of directors. Our bylaws also

provide that any vacancy in our board of directors may be filled only by the affirmative vote of a majority of directors then in office, though less than a quorum. Further, our bylaws require a shareholder to provide notice to us of such shareholder's intention to nominate a person or persons for election as directors not later than 90 days prior to the first anniversary of the previous year's annual meeting or, in the case of an election to be held at a special meeting of the shareholders for the election of directors, the close of business on the tenth day following the date on which notice of such meeting is first given to shareholders. A shareholder must also provide us with notice of such shareholder's intent to make any proposal at an annual meeting of shareholders not later than 90 days prior to the first anniversary of the previous year's annual meeting of shareholders. These provisions may have the effect of deterring hostile takeovers or delaying a change in control of our management.

Under our rights plan with Computershare Trust Company, N.A., as rights agent, dated as of December 28, 2009 and amended on August 31, 2012, December 3, 2012, December 1, 2015 and September 22, 2017, preferred stock purchase rights are attached to, and trade with, all of the shares of common stock outstanding as of, and issued subsequent to, the record date (as defined in the rights plan). Each right, if and when it becomes exercisable, will entitle the holder to purchase a unit consisting of two ten-thousandths of a share of Series ZZ Junior Participating Cumulative Preferred Stock, no par value per share, at a cash exercise price of $16.00 per unit, subject to standard adjustment in the rights plan. The rights will separate from the common stock and become exercisable if a person or group acquires 20% or more of our common stock. Upon acquisition of 20% or more of our common stock, the board could decide that each right (except those held by a 20% shareholder, which become null and void) would become exercisable entitling the holder to receive upon exercise, in lieu of a number of units of preferred stock, that number of shares of our common stock having a market value of two times the exercise price of the right. In certain circumstances, including if there are insufficient shares of our common stock to permit the exercise in full of the rights, the holder may receive units of preferred stock, other securities, cash or property, or any combination of the foregoing.

In addition, if we are acquired in a merger or other business combination transaction, each holder of a right, except those rights held by a 20% shareholder which become null and void, would have the right to receive, upon exercise, common stock of the acquiring company having a market value equal to two times the exercise price of the right. Our board of directors may redeem the rights for $0.0002 per right or terminate the rights plan at any time prior to an acquisition by a person or group holding 20% or more of our common stock.

DESCRIPTION OF PREFERRED STOCK

General

The rights, preferences, privileges and restrictions of the preferred stock of each series will be fixed by the certificate of amendment to the certificate of incorporation relating to that series and will be described in the applicable prospectus supplement. Our board of directors has the discretion to fix the number of shares of any such series and the designation thereof, and to fix and amend the powers, preferences and rights, and the limitations or restrictions granted to or imposed upon any wholly unissued series of preferred stock, including the voting rights, dividend rights, conversion rights, rights and terms of redemption (including sinking fund provisions), redemption prices and liquidation preferences of any such series. It is not possible to state the actual effects of the issuance of any shares of preferred stock upon the rights of holders of the common stock until our board of directors determines the specific rights of the holders of such preferred stock. However, the effects could include, among other things:

- restricting dividends on the common stock;
- diluting the voting power of the common stock;
- impairing the liquidation rights of the common stock; or
- delaying or preventing a change in control of the Company without further action by the shareholders.

As stated above, the applicable prospectus supplement will specify the terms of the series of preferred stock being offered, including the following:

- the number of shares of preferred stock being offered;
- the designation of the series of preferred stock;
- the per share purchase price of the preferred stock;
- the dividend rate or method of determining the dividend rate, if any, including whether the dividend rate is fixed or variable;
- the date or dates on which dividends will accrue and the dividend payment dates;
- whether dividends will be cumulative or non-cumulative and, if cumulative, the dates from which dividends will accrue;
- the price and the terms and conditions for redemption, if any, including redemption at our option or at the option of the holders, the time period for redemption, and any accumulated dividends or premiums;
- the liquidation preference, if any, and any accumulated dividends upon the liquidation, dissolution or winding up of our affairs;
- any sinking fund or similar provision, and, if so, the terms and provisions relating to the purpose and operation of the fund;
- the terms and conditions, if any, for conversion or exchange of preferred stock for any other class or classes of our securities, including the price or the rate of conversion or exchange and the method, if any, of adjustment;
- the voting rights of the preferred stock;
- any exchange on which the preferred stock will be listed
- the transfer agent for the preferred stock; and
- any or all other preferences and relative, participating, optional or other special rights, privileges or qualifications, limitations or restrictions.

Rank

Unless otherwise specified in the applicable prospectus supplement, the preferred stock will, with respect to distribution rights and rights upon liquidation, dissolution or winding up of the company, rank (i) senior to our common stock and to any series of preferred stock which specifically provides that it will rank junior to the preferred stock being offered, (ii) junior to any series of preferred stock which specifically provides that it will rank senior to the preferred stock being offered and (iii) on parity with any other series of preferred stock.

The issuance of preferred stock will affect, and may adversely affect, the rights of holders of common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock on the rights of holders of common stock until our board of directors determines the specific rights attached to that preferred stock. The effects of issuing preferred stock could include one or more of the following:

- restricting dividends on the common stock;
- diluting the voting power of the common stock;
- impairing the liquidation rights of the common stock; or
- delaying or preventing changes in control or management of our company.

Dividend Rights

Holders of preferred stock will have the dividend rights set forth in the applicable prospectus supplement. Dividends on any series of preferred stock, if cumulative, will be cumulative from and after the date set forth in the applicable prospectus supplement. Any restriction on the repurchase or redemption of shares of preferred stock while dividends on such shares are in arrears shall be set forth in the applicable prospectus supplement.

Certain Anti-Takeover Matters

Refer to “Description of Common Stock—Certain Anti-Takeover Matters” for a discussion of provisions under Delaware law, our certificate of incorporation, bylaws and rights plan that may have the effect of delaying, deferring or preventing a change in control.

DESCRIPTION OF DEBT SECURITIES

This summary, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the debt securities that we may offer under this prospectus. While the terms we have summarized below will generally apply to any future debt securities we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities we offer under a prospectus supplement may differ from the terms we describe below.

The debt securities may be either secured or unsecured and will either be senior debt securities or subordinated debt securities. We will issue the senior notes under the senior indenture which we will enter into with one or more trustees. We will issue the subordinated notes under the subordinated indenture which we will enter into with one or more trustees. We have filed forms of these documents as exhibits to the registration statement of which this prospectus forms a part. We use the term “indentures” to refer to both the senior indenture and the subordinated indenture.

The indentures will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We use the term “debenture trustee” to refer to either the senior trustee or the subordinated trustee, as applicable.

The following summaries of the material provisions of the senior notes, the subordinated notes and the indentures are subject to, and qualified in their entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements related to the debt securities that we sell under this prospectus, as well as the complete indentures that contain the terms of the debt securities. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

We will describe in the applicable prospectus supplement the terms relating to a series of debt securities, including, to the extent applicable:

- the title;
- the principal amount being offered and, if a series, the total amount authorized and the total amount outstanding;
- any limit on the amount that may be issued;
- whether or not we will issue the series of debt securities in global form and, if so, the terms and who the depositary will be;
- the maturity date;
- the principal amount due at maturity and whether the debt securities will be issued with any original issue discount;
- whether and under what circumstances, if any, we will pay additional amounts on any debt securities held by a person who is not a U.S. person for U.S. federal income tax purposes, and whether we can redeem the debt securities if we have to pay such additional amounts;
- the interest rate, which may be fixed or variable, or the method for determining the rate, the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;
- the rate or rates of amortization of the debt securities;

- whether or not the debt securities will be secured or unsecured, the terms of any secured debt and the properties secured by any such debt;
- whether or not the debt securities will be senior or subordinated, and the terms of the subordination of any series of subordinated debt;
- the place where payments will be payable;
- restrictions on transfer, sale or other assignment, if any;
- our right, if any, to defer payment of interest and the maximum length of any such deferral period;
- the date, if any, after which, the conditions upon which, and the price at which we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions, and any other applicable terms of those redemption provisions;
- provisions for a sinking fund, purchase or other analogous fund, if any;
- the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to retire, redeem, or at the holder's option to purchase, the series of debt securities;
- whether the indenture will restrict our ability and/or the ability of our subsidiaries to:
  - incur additional indebtedness;
  - issue additional securities;
  - create liens;
  - pay dividends and make distributions in respect of our capital stock and the capital stock of our subsidiaries;
  - redeem capital stock;
  - place restrictions on our subsidiaries' ability to pay dividends, make distributions or transfer assets;
  - make investments or other restricted payments;
  - sell or otherwise dispose of assets;
  - enter into sale-leaseback transactions;
  - engage in transactions with shareholders and affiliates;
  - issue or sell stock of our subsidiaries; or
  - effect a consolidation or merger;
- whether the indenture will require us to maintain any interest coverage or other financial reserve, fixed charge, cash flow-based, asset-based or other financial ratios;
- a discussion of any material or special U.S. federal income tax considerations applicable to the debt securities;
- information describing any book-entry features;
- the procedures for any auction and remarketing, if any;
- the denominations in which we will issue the series of debt securities, if other than denominations of $1,000 and any integral multiple thereof;
- if other than U.S. dollars, the currency in which the series of debt securities will be denominated; and

- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any events of default that are in addition to those described in this prospectus or any covenants provided with respect to the debt securities that are in addition to those described above, and any terms which may be required by us or advisable under applicable laws or regulations or advisable in connection with the marketing of the debt securities.

Conversion or Exchange Rights

We will set forth in the applicable prospectus supplements the terms on which a series of debt securities may be convertible into or exchangeable for common stock or other securities of ours or a third party, including the conversion or exchange rate, as applicable, or how it will be calculated, and the applicable conversion or exchange period. We will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of our securities or the securities of a third party that the holders of the series of debt securities receive upon conversion or exchange would, under the circumstances described in those provisions, be subject to adjustment, or pursuant to which those holders would, under those circumstances, receive other property upon conversion or exchange, for example in the event of our merger or consolidation with another entity.

Consolidation, Merger or Sale

The indentures in the form initially filed as exhibits to the registration statement of which this prospectus forms a part do not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets. However, any successor of ours or acquirer of such assets must assume all of our obligations under the indentures and the debt securities.

If the debt securities are convertible into our other securities, the person with whom we consolidate or merge or to whom we sell all of our property must make provisions for the conversion of the debt securities into securities which the holders of the debt securities would have received if they had converted the debt securities before the consolidation, merger or sale.

Events of Default Under the Indentures

Unless otherwise specified in the applicable prospectus supplement, the following are events of default under the indentures with respect to any series of debt securities that we may issue:

- if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been validly extended;
- if we fail to pay the principal, or premium, if any, or to make payment required by any sinking fund or analogous fund when due and payable and the time for payment has not been validly extended;
- if we fail to observe or perform any other covenant contained in the debt securities or the indentures, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the debenture trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and
- if specified events of bankruptcy, insolvency or reorganization occur.

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the debenture trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series may, by notice to us in writing (and to the debenture trustee if notice is given by such holders), declare the unpaid principal, premium, if any, and accrued interest, if any, due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the principal amount of and accrued interest, if any, of each series of debt securities then outstanding shall be due and payable without any notice or other action on the part of the debenture trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture.

Subject to the terms of the indentures, if an event of default under an indenture shall occur and be continuing, the debenture trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the debenture trustee reasonable indemnity. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the debenture trustee, or exercising any trust or power conferred on the debenture trustee, with respect to the debt securities of that series, provided that:

- the direction so given by the holder is not in conflict with any law or the applicable indenture; and
- subject to its duties under the Trust Indenture Act, the debenture trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will only have the right to institute a proceeding under the indentures or to appoint a receiver or trustee, or to seek other remedies, if:

- the holder has given written notice to the debenture trustee of a continuing event of default with respect to that series;
- the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the debenture trustee, to institute the proceeding as trustee; and
- the debenture trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions, within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on the debt securities.

We will be required to deliver to the debenture trustee, within 120 days after the end of each fiscal year during which any debt securities were outstanding, a certificate stating whether the signors know that any default or event of default occurred during such fiscal year, as well as certain other reports.

Modification of Indenture; Waiver

We and the debenture trustee may modify an indenture without the consent of any holders with respect to specific matters, including, without limitation:

- to fix any ambiguity, defect or inconsistency in the indenture or in the debt securities of any series;
- to comply with the provisions described above under “Consolidation, Merger or Sale”;
- to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act;
- to evidence and provide for the acceptance of appointment under the indenture by a successor trustee;
- to provide for uncertificated debt securities in addition to or in place of certificated securities and to make all appropriate changes for such purpose;

- to add to, delete from, or revise the conditions, limitations and restrictions on the authorized amount, terms or purposes of issuance, authentication and delivery of debt securities of any series;
- to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series authorized pursuant to the indentures, to establish the form of any certifications required to be furnished pursuant to the indentures or any series or to add to the rights of the holders of any series of debt securities;
- to add to our covenants such new covenants, restrictions, conditions or provisions for the protection of the holders, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default, or to surrender any of our rights or powers under the indenture; or
- to change anything that does not adversely affect the rights of any holder of debt securities of any series in any material respect.

In addition, under the indentures, the rights of holders of debt securities of any series may be changed by us and the debenture trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, we and the debenture trustee may only make the following changes with the consent of each holder of any outstanding debt securities affected:

- extending the fixed maturity of the debt securities of any series;
- reducing the principal amount, reducing the rate of or extending the time of payment of interest or reducing any premium payable upon the redemption of any debt securities; or
- reducing the percentage of debt securities the holders of which are required to consent to any supplemental indenture.

Discharge

The indentures provide that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for certain obligations, including obligations to:

- register the transfer or exchange of debt securities of the series;
- replace mutilated, destroyed, lost or stolen debt securities of the series;
- maintain paying agencies;
- compensate and indemnify the debenture trustee; and
- appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the debenture trustee money or government obligations, or a combination of both, sufficient to pay all of the principal, premium, if any, and interest on the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we otherwise specify in the applicable prospectus supplement, in denominations of $1,000 and any integral multiple thereof. The indentures provide that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company, New York, New York, known as DTC, or another depositary named by us and identified in a prospectus supplement with respect to that series.

At the option of the holder, subject to the terms of the indentures and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can

exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplements, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will not impose a service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges applicable to or associated with such registration of transfer or exchange.

We will name in the applicable prospectus supplements the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

- issue, register the transfer of, or exchange any debt securities of any series being redeemed in part during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or
- register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Debenture Trustee

The debenture trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the debenture trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the debenture trustee is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of, and any premium and interest on, the debt securities of a particular series at the office of the paying agents designated by us, except that, unless we otherwise indicate in the applicable prospectus supplement, we may make certain payments by check which we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in a prospectus supplement, we will designate an office or agency of the debenture trustee in the city of New York as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the debenture trustee for the payment of the principal of or any premium or interest on any debt securities which remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

No Protection in the Event of a Change in Control

Unless otherwise indicated in a prospectus supplement with respect to a particular series of debt securities, the debt securities will not contain any provisions that may afford holders of the debt securities protection in the event we have a change in control or in the event of a highly leveraged transaction, whether or not such transaction results in a change in control.

No Personal Liability of Directors, Officers, Employees and Shareholders

No incorporator, shareholder, employee, agent, officer, director or subsidiary of ours will have any liability for any obligations of ours, or because of the creation of any indebtedness under the debt securities, the indentures or supplemental indentures. The indentures provide that all such liability is expressly waived and released as a condition of, and as a consideration for, the execution of such indentures and the issuance of the debt securities.

Governing Law

The indentures and the debt securities will be governed by and construed in accordance with the laws of the state of New York, except to the extent that the Trust Indenture Act is applicable.

Subordination of Subordinated Debt Securities

The subordinated debt securities will be subordinate and junior in priority of payment to certain of our other indebtedness to the extent described in a prospectus supplement. The indentures in the form initially filed as exhibits to the registration statement of which this prospectus forms a part do not limit the amount of indebtedness which we may incur, including senior indebtedness or subordinated indebtedness, and do not limit us from issuing any other debt, including secured debt or unsecured debt. Additional or different subordination provisions may be described in a prospectus supplement relating to a particular series of debt securities.

DESCRIPTION OF WARRANTS

This summary, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus, which consist of warrants to purchase our common stock, preferred stock and/or debt securities in one or more series. Warrants may be offered independently or together with our common stock, preferred stock, debt securities and/or rights offered by any prospectus supplement, and may be attached to or separate from those securities. While the terms we have summarized below will generally apply to any future warrants we may offer under this prospectus, we will describe the particular terms of any warrants that we may offer in more detail in the applicable prospectus supplement. The terms of any warrants we offer under a prospectus supplement may differ from the terms we describe below.

We will issue the warrants directly or under a warrant agreement which we will enter into with a warrant agent to be selected by us. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a bank or trust company, as warrant agent, all as set forth in the prospectus supplement relating to the particular issue of offered warrants. We use the term “warrant agreement” to refer to any of these warrant agreements. We use the term “warrant agent” to refer to the warrant agent under any of these warrant agreements. The warrant agent will act solely as an agent of ours in connection with the warrants and will not act as an agent for the holders or beneficial owners of the warrants.

The following summary of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all of the provisions of the warrant agreement applicable to a particular series of warrants. We urge you to read the applicable prospectus supplements related to the warrants that we sell pursuant to this prospectus, as well as the complete warrant agreements that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplements the terms relating to a series of warrants.

If warrants for the purchase of securities are offered, the prospectus supplement will describe the following terms, to the extent applicable:

- the number of shares of common stock or preferred stock purchasable upon the exercise of warrants to purchase such shares and the price at which such number of shares may be purchased upon such exercise (as well as provision for changes to or adjustments in such exercise price);
- the currencies in which the warrants are being offered;
- the designation, stated value and terms (including, without limitation, liquidation, dividend, conversion and voting rights) of the series of preferred stock purchasable upon exercise of warrants to purchase preferred stock;
- the principal amount of debt securities that may be purchased upon exercise of a debt warrant and the exercise price for the warrants, which may be payable in cash, securities or other property, together with the designation, denominations, currencies and other terms of the debt securities purchasable upon exercise of debt warrants;
- the date on and after which the holder of the warrants can transfer them separately from the related security;
- the principal amount of the series of debt securities that can be purchased if a holder exercises a warrant and the price at which and currencies in which such principal amount may be purchased upon exercise;

- the terms of any anti-dilution or other adjustment provisions;
- the terms of any mandatory or optional call or redemption of the warrants;
- the date on which the right to exercise the warrants begins and the date on which such right expires, and any expiration acceleration provisions;
- the number of warrants outstanding, if any;
- a discussion of any material U.S. federal income tax considerations applicable to the warrants;
- whether the warrants are issued pursuant to a warrant agreement with a warrant agent or issued directly by us;
- the number of warrants then-outstanding, if any; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the warrants.

A holder of warrant certificates may exchange them for new certificates of different denominations, present them for registration of transfer and exercise them at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement. Until any warrants to purchase debt securities are exercised, the holder of the warrants will not have any of the rights of holders of the related security that can be purchased upon exercise, including any rights to:

- receive notice as shareholders with respect to any meeting of shareholders for the election of our directors or any other matter;
- exercise any rights as shareholders; or
- receive payments of principal, premium or interest on any underlying debt securities or to enforce covenants in the applicable indenture.

Exercise of Warrants

Warrants may be exercised at the applicable price at any time up to the close of business on the expiration date set forth in the applicable prospectus supplement or other offering material. After the close of business on the expiration date, unexercised warrants will become void.

Warrants may be exercised in the method(s) as set forth in the applicable prospectus supplement or other offering material. Upon receipt of payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the prospectus supplement or other offering material, we will forward, as soon as practicable, the securities purchasable upon such exercise.

Amendments and Supplements to the Warrant Agreements

We may amend or supplement a warrant agreement without the consent of the holders of the applicable warrants to cure ambiguities in the warrant agreement, to cure, correct or supplement a defective provision in the warrant agreement, or to provide for other matters under the warrant agreement that we and the warrant agent deem necessary or desirable, so long as, in each case, such amendments or supplements do not materially adversely affect the interests of the holders of the warrants.

Warrant Adjustments

Unless the applicable prospectus supplements state otherwise, the exercise price of, and the number of securities covered by, a common stock warrant or preferred stock warrant will be adjusted proportionately if we subdivide or combine our common stock or preferred stock, as applicable.

In addition, unless the prospectus supplements state otherwise, if we, without payment therefor:

- issue capital stock or other securities convertible into or exchangeable for common stock or preferred stock, or any rights to subscribe for, purchase or otherwise acquire any of the foregoing, as a dividend or distribution to holders of our common stock or preferred stock;
- pay any cash to holders of our common stock or preferred stock other than a cash dividend paid out of our current or retained earnings or other than in accordance with the terms of the preferred stock;
- issue any evidence of our indebtedness or rights to subscribe for or purchase our indebtedness to holders of our common stock or preferred stock; or
- issue common stock or preferred stock or additional stock or other securities or property to holders of our common stock or preferred stock by way of spinoff, split-up, reclassification, combination of shares or similar corporate rearrangement;

then the holders of common stock warrants and preferred stock warrants, as applicable, will be entitled to receive upon exercise of the warrants, in addition to the securities otherwise receivable upon exercise of the warrants and without paying any additional consideration, the amount of stock and other securities and property such holders would have been entitled to receive had they held the common stock or preferred stock, as applicable, issuable under the warrants on the dates on which holders of those securities received or became entitled to receive such additional stock and other securities and property.

Except as stated above, the exercise price and number of securities covered by a common stock warrant or preferred stock warrant, and the amounts of other securities or property to be received, if any, upon exercise of those warrants, will not be adjusted or provided for if we issue those securities or any securities convertible into or exchangeable for those securities, or securities carrying the right to purchase those securities or securities convertible into or exchangeable for those securities.

Holders of common stock warrants and preferred stock warrants may have additional rights under the following circumstances:

- certain reclassifications, capital reorganizations or changes of the common stock or preferred stock, as applicable;
- certain share exchanges, mergers, or similar transactions involving us and which result in changes of the common stock or preferred stock, as applicable; or
- certain sales or dispositions to another entity of all or substantially all of our property and assets.

If one of the above transactions occurs and holders of our common stock or preferred stock are entitled to receive stock, securities or other property with respect to or in exchange for their securities, the holders of the common stock warrants and preferred stock warrants then outstanding, as applicable, will be entitled to receive upon exercise of their warrants the kind and amount of shares of stock and other securities or property that they would have received upon the applicable transaction if they had exercised their warrants immediately before the transaction.

DESCRIPTION OF RIGHTS

This summary, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the rights that we may offer under this prospectus, which consist of rights to purchase our common stock, preferred stock and/or debt securities in one or more series. Rights may be offered independently or together with our common stock, preferred stock, debt securities and/or warrants offered by any prospectus supplement, and may be attached to or separate from those securities. While the terms we have summarized below will generally apply to any future rights we may offer pursuant to this prospectus, we will describe the particular terms of any rights that we may offer in more detail in the applicable prospectus supplements. The terms of any rights we offer under a prospectus supplement may differ from the terms we describe below.

The applicable prospectus supplements relating to any rights that we offer will include specific terms of any offering of rights for which this prospectus is being delivered, including the following, to the extent applicable:

- the date for determining the persons entitled to participate in the rights distribution;
- the price, if any, per right;
- the exercise price payable for each share of common stock, share of preferred stock or debt security upon the exercise of the rights;
- the number of rights issued or to be issued to each holder;
- the number and terms of the shares of common stock, shares of preferred stock or debt securities that may be purchased per each right;
- the extent to which the rights are transferable;
- any other terms of the rights, including the terms, procedures and limitations relating to the exchange and exercise of the rights;
- the respective dates on which the holder’s ability to exercise the rights will commence and will expire;
- the number of rights outstanding, if any;
- a discussion of any material U.S. federal income tax considerations applicable to the rights;
- the extent to which the rights may include an over-subscription privilege with respect to unsubscribed securities or an over-allotment privilege to the extent the securities are fully subscribed; and
- if applicable, the material terms of any standby underwriting or purchase arrangement entered into by us in connection with the offering of such rights.

The description in the applicable prospectus supplements of any rights that we may offer will not necessarily be complete and will be qualified in its entirety by reference to the applicable rights agreement and/or rights certificate, which will be filed with the SEC in connection therewith. Therefore, you should carefully consider the actual provisions of the rights, the rights agreement and the applicable securities.

DESCRIPTION OF UNITS

This summary, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the units that we may offer under this prospectus, which may consist of one or more shares of common stock, shares of preferred stock, debt securities, warrants, rights or any combination of such securities. While the terms we have summarized below will generally apply to any future units we may offer pursuant to this prospectus, we will describe the particular terms of any units that we may offer in more detail in the applicable prospectus supplements. The terms of any units we offer under a prospectus supplement may differ from the terms we describe below.

The applicable prospectus supplements relating to any units that we offer will include specific terms of any offering of units for which this prospectus is being delivered, including the following, to the extent applicable:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- whether we will apply to have the units traded on a securities exchange or securities quotation system;
- a discussion of any material U.S. federal income tax considerations applicable to the units; and
- how, for U.S. federal income tax purposes, the purchase price paid for the units is to be allocated among the component securities.

The description in the applicable prospectus supplements of any units that we may offer will not necessarily be complete and will be qualified in its entirety by reference to the applicable unit agreement, which will be filed with the SEC in connection therewith. Therefore, you should carefully consider the actual provisions of the units, the units agreement and the applicable securities.

PLAN OF DISTRIBUTION

We may sell the securities offered pursuant to this prospectus and any accompanying prospectus supplements from time to time through underwritten public offerings, negotiated transactions, block trades or a combination of these methods or in one or more transactions:

- to or through one or more underwriters or dealers;
- to investors directly;
- through agents; or
- through any combination of these methods of sale.

Our securities may be offered and sold from time to time in one or more transactions at:

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to the prevailing market prices; or
- negotiated prices.

Any of the prices at which we sell securities may be at a discount to market prices. Broker-dealers may also receive from us, as applicable, or the purchasers of the securities compensation that is not expected to exceed that customary in the types of transactions involved.

Each prospectus supplement, to the extent applicable, will describe the number and terms of the securities to which such prospectus supplement relates, including:

- any over-allotment options under which underwriters, if any, may purchase additional securities;
- the name or names of any underwriters, dealers or agents with whom we have entered into an arrangement with respect to the sale of such securities;
- the public offering or purchase price of such securities;
- any underwriting discounts, commissions or agency fees or other items constituting underwriter or agent compensation;
- any discounts, commissions or concessions allowed or reallowed or paid to dealers;
- any securities exchanges or markets on which the securities may be listed;
- any delayed delivery arrangements; and
- estimated offering expenses and the net proceeds we will receive from such sale.

We may engage in at-the-market offerings into an existing trading market in accordance with Rule 415(a)(4) under the Securities Act or the Exchange Act. Any at-the-market offering will be through an underwriter or underwriters acting as principal or agent for us.

Underwritten Offerings

If underwriters are used in the sale of any securities, the securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions described above. The applicable prospectus supplement will name any underwriter involved in a sale of securities. Such securities may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Underwriters may sell the securities to or through dealers, and such dealers may receive compensation in the form of discounts. Generally, the underwriters' obligations to purchase the securities will be subject to conditions precedent and the underwriters will be obligated to purchase all of the securities if they purchase any of the securities. We may use underwriters with whom we have a material relationship. We will describe any such underwriters in the applicable prospectus supplement, naming the underwriter and the nature of any such relationship.

Direct Sales and Sales through Agents

We may sell securities directly to purchasers. Such purchasers may be institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act, with respect to any sale of those securities. We also may, from time to time, authorize dealers or agents to offer and sell these securities, upon such terms and conditions as may be set forth in the applicable prospectus supplement, if applicable. In order to comply with the securities laws of certain states, if applicable, the securities offered will be sold in such jurisdictions only through registered or licensed brokers or dealers. In addition, in certain states securities may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with. This prospectus, one or more prospectus supplements, and the registration statement of which this prospectus forms a part may be used in conjunction with one or more other registration statements to the extent permitted by the Securities Act and the rules and regulations promulgated thereunder.

Rights Offerings

We also may sell directly to investors through subscription rights distributed to our shareholders on a pro rata basis. In connection with any distribution of subscription rights to shareholders, if all of the underlying securities are not subscribed for, we may sell the unsubscribed shares of our securities directly to third parties or may engage the services of one or more underwriters, dealers or agents, including standby underwriters, to sell the unsubscribed securities to third parties.

We may also sell securities in one or more of the following transactions:

- block transactions (which may involve crosses) in which a broker-dealer may sell all or a portion of the shares as agent but may position and resell all or a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its own account;
- ordinary brokerage transactions and transactions in which a broker-dealer solicits purchasers;
- sales “at the market” to or through a market maker or into an existing trading market, on an exchange or otherwise, for securities; and
- sales in other ways not involving a market maker or established trading markets, including direct sales to purchasers.

We may also enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. In connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and will be identified in the applicable prospectus supplement or in a post-effective amendment to the registration statement of which this prospectus forms a part.

Any dealers or agents that participate in the distribution of securities may be deemed to be underwriters under the Securities Act, and in such event, any discounts or commissions received by them and any profit realized by them on the resale of securities they realize may be deemed to be underwriting discounts and commissions under the Securities Act.

Indemnification

Underwriters, dealers and agents and remarketing firms may be entitled, under agreements entered into with us, to indemnification against and contribution toward certain civil liabilities, including liabilities under the Securities Act, or to contribute with respect to payments that the agents, dealers, underwriters or remarketing firms may be required to make.

Stabilization

In connection with any offering of the securities hereby, certain underwriters and selling group members and their respective affiliates may engage in transactions that stabilize, maintain or otherwise affect the market price of the applicable securities. These transactions may include stabilization transactions pursuant to which these persons may bid for or purchase securities for the purpose of stabilizing their market price.

The underwriters in an offering of securities may also create a "short position" for their account by selling more securities in connection with the offering than they are committed to purchase from us. In that case, the underwriters could cover all or a portion of the short position by either purchasing securities in the open market following completion of the offering of these securities or by exercising any over-allotment option granted to them by us. In addition, the managing underwriter may impose "penalty bids" under contractual arrangements with other underwriters, which means that it can reclaim from an underwriter (or any selling group member participating in the offering) for the account of the other underwriters, the selling concession for the securities that are distributed in the offering but subsequently purchased for the account of the underwriters in the open market. Any of the transactions described in this paragraph or comparable transactions that are described in any accompanying prospectus supplement may result in the maintenance of the price of the securities at a level above that which might otherwise prevail in the open market. None of the transactions described in this paragraph or in an accompanying prospectus supplement are required to be taken by an underwriter and, if they are undertaken, may be discontinued at any time.

Under applicable rules and regulations under the Exchange Act, under certain circumstances a person engaged in the distribution of the securities offered under this prospectus and the accompanying prospectus supplement may not simultaneously engage in market making activities with respect to our securities for a specified period prior to the commencement of such distribution.

Passive Market-Making on NASDAQ

Any underwriters who are qualified market makers on The NASDAQ Capital Market may engage in passive market making transactions in our common stock on The NASDAQ Capital Market in accordance with Rule 103 of Regulation M. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market making bid, however, the passive market making bid must then be lowered when certain purchase limits are exceeded.

Remarketing Arrangements

Offered securities may also be offered and sold in connection with a remarketing upon their purchase, in accordance with a redemption or repayment pursuant to their terms, or otherwise, by one or more remarketing firms, acting as principals for their own accounts or as agents for us. We will identify any remarketing firm and describe the terms of its agreements, if any, with us and its compensation in the applicable prospectus supplement.

Delayed Delivery Contracts

If indicated in the applicable prospectus supplement, we will authorize dealers acting as our agents to solicit offers by institutions to purchase securities covered by this prospectus from us at the public offering price set forth in the relevant prospectus supplement under delayed delivery contracts providing for payment and delivery on the date or dates stated in the relevant prospectus supplement. Each delayed delivery contract will be for an amount not less than, and the aggregate principal amount of securities sold pursuant to delayed delivery contracts shall be not less nor more than, the respective amounts stated in the applicable prospectus supplement. Institutions with whom delayed delivery contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions, and other institutions, but will in all cases be subject to our approval. Delayed delivery contracts will

not be subject to any conditions except (i) the purchase by an institution of the securities covered by its delayed delivery contracts may not at the time of delivery be prohibited under the laws of any jurisdiction in the United States to which the institution is subject, and (ii) if the securities are being sold to underwriters, we will be required to have sold to such underwriters the total principal amount of the securities less the principal amount thereof covered by delayed delivery contracts. The underwriters and any other agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

Electronic Auctions

We may also make sales through the Internet or through other electronic means. Since we may from time to time elect to offer securities directly to the public, with or without the involvement of agents, underwriters or dealers, utilizing the Internet or other forms of electronic bidding or ordering systems for the pricing and allocation of such securities, you will want to pay particular attention to the description of that system we will provide in the applicable prospectus supplement.

Such electronic system may allow bidders to directly participate, through electronic access to an auction site, by submitting conditional offers to buy that are subject to acceptance by us, and which may directly affect the price or other terms and conditions at which such securities are sold. These bidding or ordering systems may present to each bidder, on a so-called “real-time” basis, relevant information to assist in making a bid, such as the clearing spread at which the offering would be sold, based on the bids submitted, and whether a bidder’s individual bids would be accepted, prorated or rejected. For example, in the case of debt security, the clearing spread could be indicated as a number of “basis points” above an index treasury note. Of course, many pricing methods can and may also be used.

Upon completion of such an electronic auction process, securities will be allocated based on prices bid, terms of bid or other factors. The final offering price at which securities would be sold and the allocation of securities among bidders would be based in whole or in part on the results of the Internet or other electronic bidding process or auction

Other Relationships

Underwriters, dealers, agents and remarketing firms may engage in transactions with, or perform services for, us and our affiliates in the ordinary course of business for which they receive customary compensation. Unless we specify otherwise in the related prospectus supplement, each class or series of securities will be a new issue with no established trading market, other than shares of our common stock, which are listed on The NASDAQ Capital Market. It is possible that one or more underwriters may make a market in our securities, but will not be obligated to do so and may discontinue any market making at any time without notice. Therefore, no assurance can be given as to the liquidity of the trading market for our securities.

General Information

The specific terms of any lock-up provisions in respect of any given offering will be described in the applicable prospectus supplement.

In compliance with guidelines of the Financial Industry Regulatory Authority, Inc., or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer presently will not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

LEGAL MATTERS

Certain legal matters in connection with the securities offered hereby will be passed upon for us by O'Melveny & Myers LLP, San Francisco, California.

EXPERTS

Marcum LLP, an independent registered public accounting firm, has audited our consolidated financial statements at December 31, 2016 and 2015 and for the years ended December 31, 2016, 2015 and 2014, included in our Annual Report on Form 10-K for the year ended December 31, 2016, and the effectiveness of our internal control over financial reporting as of December 31, 2016, in each case, as set forth in its report, which is incorporated by reference in this prospectus and elsewhere in the registration statement of which this prospectus forms a part. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

Up to 60,000,000 Shares of Common Stock
Up to 4,500 Shares of Series X Convertible Preferred Stock

Prospectus Supplement

February 14, 2020