

CTI BIOPHARMA CORP
Form 424B5
February 05, 2018

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

The information contained in this preliminary prospectus supplement and the accompanying prospectus is not complete and may be changed. The registration statement relating to the securities has been declared effective by the Securities and Exchange Commission. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities and are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED FEBRUARY 5, 2018

PRELIMINARY PROSPECTUS SUPPLEMENT

(To Prospectus dated January 31, 2018)

Shares

Common Stock

We are offering shares of our common stock, par value \$0.001 per share. Our common stock is traded on the NASDAQ Capital Market under the symbol CTIC. The last sale price for our common stock on February 2, 2018, as reported on the NASDAQ Capital Market, was \$2.83 per share.

We have granted the underwriters an option for a period of 30 days from the date of this prospectus supplement to purchase up to an additional shares of our common stock. See Underwriting for more information.

	Per share	Total
Public offering price	\$	\$
Underwriting discounts ⁽¹⁾	\$	\$
Proceeds to CTI BioPharma Corp., before expenses	\$	\$

- (1) The underwriters will also be reimbursed for certain expenses incurred in this offering. See Underwriting for details.

Investing in our securities involves a high degree of risk. See the **Risk Factors** section on page S-5 of this prospectus supplement and under similar headings in the documents incorporated by reference into this prospectus supplement.

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

Delivery of the shares of common stock is expected to be made to purchasers on or about , 2018.

Sole Book-Running Manager

Leerink Partners

Senior Lead Manager

JMP Securities

Lead Managers

Needham & Company

The date of this prospectus supplement is , 2018

Oppenheimer & Co.

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Neither we nor the underwriters have authorized anyone to provide any information or to make any representations other than those contained in this prospectus supplement, the accompanying prospectus or in any of the documents incorporated by reference. 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 not making an offer of the common stock covered by this prospectus supplement in any jurisdiction where the offer is not permitted.

The information contained in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference is accurate only as of its respective date, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus, or of any sale of the common stock. You should not assume that the information contained in or incorporated by reference in this prospectus supplement or the accompanying prospectus is accurate as of any date other than the respective dates thereof.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus relate to the offering of our common stock pursuant to a shelf registration statement on Form S-3 as previously filed and declared effective by the Securities and Exchange Commission (the SEC). Such registration statement contains a separate base prospectus, which is included herein. You should read and consider this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein before making an investment decision. You should also read and consider the information in the documents we have referred you to in the section of this prospectus supplement entitled **Where You Can Find More Information** and **Incorporation of Certain Documents by Reference**.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference therein. The second part is the accompanying prospectus, which gives more general information, some of which may not apply to this offering. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or any document incorporated by reference therein, on the other hand, you should rely on the information in this prospectus supplement.

The information contained in or incorporated by reference in this prospectus supplement or the accompanying prospectus is accurate only as of the respective dates of the applicable documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

Market data and industry statistics contained in or incorporated by reference in this prospectus supplement or the accompanying prospectus are based on independent industry publications, reports by market research firms and other published independent sources. Some data and other information are also based on our good faith estimates, which are derived from our review of internal surveys and independent sources. Although we believe these sources are credible, we have not independently verified the data or information obtained from these 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 supplement, the terms **CTI**, **Company**, **we**, **us**, **our** and similar terms refer to CTI BioPharma Corporation, 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 supplement and the documents incorporated herein by reference, as the same may be, supplemented or amended 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 Securities Exchange Act of 1934, as amended, or 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. With the exception of the reports specifically incorporated by reference in this prospectus supplement as set forth below, material contained on or accessible through our website is specifically not incorporated into this prospectus supplement. You may also read and copy any document we file with the SEC, including the registration statement on Form S-3 and copy any document we file with the SEC, at the public reference facilities maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the public reference facilities by calling the SEC at 1-800-SEC-0330.

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the SEC. This prospectus supplement and the accompanying prospectus omit some information contained in the registration statement 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 being offered hereby. Statements in this prospectus supplement or the accompanying 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.

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INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

SEC rules allow us to incorporate by reference into this prospectus supplement and the accompanying 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 supplement and the accompanying prospectus is considered to be part of this prospectus supplement and the accompanying prospectus. This prospectus supplement and the accompanying prospectus incorporate 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 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, March 13, 2017, April 25, 2017, May 16, 2017 as amended by that Current Report on Form 8-K/A filed with the SEC on June 16, 2017, June 5, 2017, June 9, 2017, July 24, 2017, August 22, 2017, September 26, 2017, November 28, 2017, December 5, 2017, December 15, 2017, January 24, 2018 and January 25, 2018;

the description of our common stock contained in our Registration Statements on Form 10 filed with the SEC on June 27, 1996, including any amendment or reports filed for the purpose of updating that description; 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.

It is specifically noted that any information that is deemed to be furnished, rather than filed, with the SEC is not incorporated by reference into this prospectus supplement, except as expressly incorporated herein.

Because we are incorporating by reference future filings with the SEC, this prospectus supplement and the accompanying prospectus are 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 supplement and the accompanying 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 supplement and the accompanying 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 supplement 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 supplement and the accompanying prospectus but not delivered with this prospectus supplement, 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

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein or therein may contain forward-looking statements within the meaning under the United States, or 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 expectations with respect to the timing and planned enrollment of and interim analysis for PAC203 and submission of responses to Day 120 list of questions;

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 statements regarding the Company's intent to continue efforts to commercialize PIXUVRI in Europe in partnership with Servier and expand the market potential for PIXUVRI;

any statements regarding whether positive outcomes to PIX306 could lead to label expansion, and timing of PIX306 top-line results;

any statements regarding the Company's plans to continue advancing the development of its pipeline candidates through strategic product collaborations or cooperative group and investigator-sponsored trials, as well as the identification and acquisition of additional pipeline opportunities;

any statements regarding the Company's ability to achieve its goals in 2018 and beyond, including achieving cost efficiency and year-on-year cost reduction goals;

any significant disruptions in our information technology systems;

any statements regarding compliance with the listing standards of the NASDAQ Capital 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 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. Our future financial condition and results of operations, as well as any forward-looking statements, are subject to inherent risks and uncertainties. Risks that contribute to the uncertain nature of the forward-looking statements include, among others, risks associated with the biopharmaceutical industry in general and with the Company and its product and product candidate portfolio in particular

including, among others, risks associated with the following: that the Company cannot predict or guarantee the outcome of preclinical and clinical studies, the potential failure of pacritinib to prove safe and effective as determined by the FDA and/or the European Medicines Agency, changes to study protocol or design or sample size to address any patient safety, efficacy or other issues raised by the FDA or otherwise, that top-line results observed to date may differ from future results or that different conclusions or considerations may qualify such results once existing data has been more fully evaluated, that the Company may not obtain favorable determinations by other regulatory, patent and administrative governmental authorities, that the Company may experience delays in the commencement of preclinical and clinical studies, that the costs of developing pacritinib and the Company's other product candidates may rise; other risks, including, without limitation, competitive factors, technological developments, that the Company may not be able to sustain its current cost controls or further reduce its operating expenses, that the Company may not achieve previously announced goals, contractual milestones and objectives as or when projected, that the Company's average net operating burn rate may increase, that the Company will continue to need to raise capital to fund its operating expenses, but may not be able to raise sufficient amounts to fund its continued operation, as well as the risk factors described in the section of this prospectus supplement entitled "Risk Factors," and those risks and uncertainties described in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus, or described from time to time in the Company's most recent filings with the SEC on Forms 10-K, 10-Q and 8-K. All forward-looking statements and reasons why results may differ included in this prospectus supplement are made as of the date hereof, and are based on assumptions about many important factors and information currently available to us to the extent we have thus far had an opportunity to evaluate such information in light of all surrounding facts, circumstances, recommendations and analyses. We assume no obligation to update any such forward-looking statement or reason why actual results might differ, except to the extent required by law.

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SUMMARY

The following summary highlights information contained elsewhere, or incorporated by reference, in this prospectus supplement and the accompanying prospectus. The following summary does not contain all of the information that you should consider before investing in our securities. To understand this offering fully, you should read this entire prospectus supplement and the accompanying prospectus carefully, including the financial statements and the documents incorporated by reference herein and therein.

Our 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 developing pacritinib for the treatment of adult patients with myelofibrosis and the further development of PIXUVRI worldwide, for which our partner, *Les Laboratoires Servier* and *Institut de Recherches Internationales Servier*, or collectively Servier, has commercialization rights outside the United States.

Corporate Information and History

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 this prospectus supplement or the accompanying prospectus.

PIXUVRI

PIXUVRI is a novel aza-anthracenedione with unique structural and physiochemical properties. In May 2012, the European Commission granted conditional marketing authorization in the European Union, or the E.U., for PIXUVRI as a monotherapy for the treatment of adult patients with multiply relapsed or refractory aggressive B-cell non-Hodgkin lymphoma, or NHL. PIXUVRI is the first approved treatment in the E.U. for patients with multiply relapsed or refractory aggressive B-cell NHL who have failed two or three prior lines of therapy. As a part of the conditional marketing authorization, we are required to conduct a post-authorization trial, which we refer to as PIX306, comparing PIXUVRI and rituximab with gemcitabine and rituximab in the setting of aggressive B-cell NHL and follicular grade 3 lymphoma. Enrollment for PIX306 was completed in August 2017 and top-line results are expected by the end of the first half of 2018. Although we do not have and are not currently pursuing regulatory approval of PIXUVRI in the U.S., we may reevaluate a possible submission strategy in the U.S. based on the data generated from the PIX306 study. Pursuant to our conditional marketing authorization in the E.U., and an extension granted in September 2016, we are required to submit the requisite clinical study report for PIX306 by December 2018.

In April 2017, we entered into an Amended and Restated Exclusive License and Collaboration Agreement, or the Restated Agreement, with Servier. Under the Restated Agreement, Servier will have rights to PIXUVRI in all markets except in the U.S. where we will retain the commercialization rights. Previously Servier had rights to commercialize the drug globally except in Austria, Denmark, Finland, Germany, Israel, Norway, Sweden, Turkey, the United Kingdom, or the U.K., and the U.S. Servier paid 12.0 million in 2017 to purchase a certain amount of PIXUVRI drug product for an additional 0.9 million within 30 days of the Restated Agreement. We are eligible to receive up to

76.0 million in additional sales and regulatory milestone payments as well as royalties on net product sales.

Pacritinib

Our lead development candidate, 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.

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Pacritinib was evaluated in two Phase 3 clinical trials, known as the PERSIST program, for patients with myelofibrosis, with one trial in a broad set of patients without limitations on platelet counts, the PERSIST-1 trial; and the other in patients with low platelet counts, the PERSIST-2 trial. In August 2014, pacritinib was granted Fast Track designation by the Food and Drug Administration, or the FDA, for the treatment of intermediate and high risk myelofibrosis including, but not limited to, patients with disease-related thrombocytopenia (low platelet counts); patients experiencing treatment-emergent thrombocytopenia on other JAK2 inhibitor therapy; or patients who are intolerant of or whose symptoms are not well controlled (sub-optimally managed) on other JAK2 therapy.

In May 2015, we announced the final results from PERSIST-1, our Phase 3 trial evaluating the efficacy and safety of pacritinib compared to BAT (Best Available Therapy), excluding JAK2 inhibitors, which included a broad range of currently utilized treatments, in 327 patients with myelofibrosis regardless of the patients' platelet counts. The study included patients with severe or life-threatening thrombocytopenia. Patients were randomized to receive 400 mg pacritinib once daily or BAT, excluding JAK2 inhibitors. The trial met its primary endpoint of spleen volume reduction (SVR) (35 percent or greater from baseline to Week 24 by magnetic resonance imaging (MRI) or computerized tomography (CT)). The most common treatment-emergent adverse events (AEs), occurring in 20 percent or more of patients treated with pacritinib within 24 weeks, of any grade, were gastrointestinal (generally manageable diarrhea and nausea) and anemia.

In February 2015, we received a recommendation from the independent Data Monitoring Committee, or IDMC, in place at the time to terminate the PERSIST-1 trial and hold enrollment of new patients in the PERSIST-2 trial. The IDMC's recommendation was based on non-statistically significant safety concerns, including mortality, in patients on pacritinib, particularly those who crossover after 24 weeks, which crossover potentially confounds evaluation of survival. The IDMC agreed that the recommendation would be only preliminary until we were unblinded to and could review the primary and secondary endpoint data as well as safety results from the PERSIST-1 trial. The PERSIST IDMC charter explicitly reserved the final decision regarding whether to implement the recommendations with us. The IDMC recommendation was reviewed with the PERSIST Steering Committee, comprised of external experts and the study's principal investigators. The PERSIST Steering Committee disagreed with the IDMC's recommendation and expressed the view that the studies should continue as planned. We also asked an independent clinician and a statistician experienced in oversight of clinical trial safety to evaluate the safety profile of pacritinib in the PERSIST-1 trial. Neither was told of the recommendation reached by either the IDMC or the Steering Committee. Both experts agreed with the Steering Committee that the studies could continue. Given the opinions of the external experts and the Steering Committee, the firm that assembled the IDMC and assisted it in its duties hired a second external independent statistician to review the IDMC's analyses and recommendation. The second statistician also disagreed with the IDMC recommendation and concurred that the studies need not be terminated or enrollment held. The IDMC made its recommendation final in June 2015, at which time we provided to the FDA the information reviewed by the IDMC, as well as the IDMC's meeting minutes, the written opinion of the Steering Committee co-chairs, the external experts, and the second independent statistician. In July 2015, we requested a meeting with the FDA to confirm whether the FDA agreed with our decision to continue the studies. The FDA assigned the request to a type C meeting and responded in writing to us. The FDA did not mandate any modifications to the studies or place pacritinib on clinical hold at that time, but indicated that it had not yet reviewed the data and noted the difficulty in attempting to draw meaningful conclusions from non-significant results, and that the crossover designs may confound the analysis of survival. We determined that no modifications to the ongoing trials were required. Because we had concerns about the original IDMC's impartiality, we decided to discharge it, and through an independent firm specializing in IDMCs, retained a new IDMC. The newly constituted IDMC met on several occasions, including following the FDA decision to place the pacritinib program on full clinical hold. Its recommendation was to continue PERSIST-2 as planned.

In December 2015, we submitted the new drug application, or NDA, to the FDA for pacritinib with an indication statement based on the PERSIST-1 trial data.

In February 2016, clinical studies under the investigational new drug (IND) for pacritinib were placed on a full clinical hold issued by the FDA. A full clinical hold is a suspension of the clinical work requested under the IND application. Under the full clinical hold, all patients currently on pacritinib were required to discontinue pacritinib immediately and no patients could be enrolled or start pacritinib as initial or crossover treatment. In its written notification, the FDA cited the reasons for the full clinical hold were that it noted interim overall survival results from the PERSIST-2 Phase 3 trial showing a detrimental effect on survival consistent with the results from PERSIST-1, as well as hemorrhagic/cardiac toxicities. The FDA had earlier put a partial hold on pacritinib on February 4, 2016.

In February 2016, prior to the clinical hold, we completed patient enrollment in the PERSIST-2 Phase 3 clinical trial. Under the full clinical hold, all patients participating in the PERSIST-2 clinical trial discontinued pacritinib treatment.

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In August 2016, we announced the top-line results from PERSIST-2, our Phase 3 trial of pacritinib for the treatment of patients with myelofibrosis whose platelet counts are less than or equal to 100,000 per microliter. Three hundred eleven (311) patients were enrolled in the study, which formed the basis for the safety analysis. Two hundred twenty-one (221) patients had a chance to reach Week 24 (the primary analysis time point) at the time the clinical hold was imposed and constituted the intent-to-treat analysis population utilized for the evaluation of efficacy. Results demonstrated that the PERSIST-2 trial met one of the co-primary endpoints showing a statistically significant response rate in SVR in patients with myelofibrosis treated with pacritinib compared to BAT, including the approved JAK2 inhibitor ruxolitinib. The co-primary endpoint of reduction of Total Symptom Score (TSS) was not achieved but trended toward improvement in TSS. There was no significant difference in overall survival across treatment arms, censored at the time of clinical hold. The most common treatment-emergent AEs, occurring in 20 percent or more of patients treated with pacritinib within 24 weeks, of any grade, were gastrointestinal (generally manageable diarrhea, nausea and vomiting) and hematologic (anemia and thrombocytopenia) and were generally less frequent for twice-daily (BID) versus once-daily (QD) administration. Details of the trial were presented in a late-breaking oral session at the American Society of Hematology Annual Meeting in December 2016.

In January 2017, the FDA removed the full clinical hold following review of our complete response submission which included, among other items, final Clinical Study Reports for both PERSIST-1 and 2 trials and a dose-exploration clinical trial protocol that the FDA requested. At that time, we reached agreement with the FDA on the design of a new trial, PAC203, that plans to enroll up to approximately 105 patients with primary and secondary myelofibrosis who have failed prior ruxolitinib therapy, and that includes new cardiac entry criteria, to evaluate the dose response relationship for safety and efficacy (SVR at 12 and 24 weeks) of three dose regimens: 100 mg QD, 100 mg BID and 200 mg BID. The 200 mg BID dose regimen was used in PERSIST-2. We enrolled our first patient in PAC203 in July 2017 and expect to complete enrollment in mid-2018. We expect to have interim data from PAC203 by the end of the second quarter of 2018 and topline data in the first quarter of 2019.

The Marketing Authorization Application, or MAA, for pacritinib was submitted to the European Medicines Agency, or EMA, in February 2016 with an indication statement based on the PERSIST-1 trial data. In its initial assessment report, the Committee for Medicinal Products for Human Use (CHMP) determined that the current application is not approvable at this point in the review cycle because of major objections in the areas of efficacy, safety (hematological and cardiovascular toxicity) and the overall risk-benefit profile of pacritinib. Subsequent to the filing of the MAA, data from the second phase 3 trial of pacritinib, PERSIST-2, were reported. These data suggest that pacritinib may show clinical benefit in patients who have failed or are intolerant to ruxolitinib therapy, a population for which there is no approved therapy. 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. Validation confirms that the submission is complete and initiates the centralized review process by the CHMP. The CHMP review period is 210 days, excluding question or opinion response periods, after which the CHMP opinion is reviewed by the European Commission, which usually issues a final decision on E.U. authorization within three months. If authorized, pacritinib would be granted a marketing license valid in all 28 E.U. member states, Norway, Iceland and Liechtenstein.

On January 25, 2018, we were granted a three month extension for submitting our response to the Day 120 List of Questions (D120 LoQ) from the CHMP of the EMA, with regard to the MAA for pacritinib. As a result of the extension, we anticipate submitting our response to the D120 LoQ in the second quarter of 2018. We primarily requested the extension in order to provide the EMA with new pharmacokinetic analyses that include data from the ongoing phase 2 PAC203 study. The Day 120 LoQ were received by the Company in November 2017 and included Major Objections in areas including efficacy, safety (including hematological, cardiovascular and infectious toxicities) and other concerns including the size of the data set and the pharmacokinetic analyses of the two dosing regimens studied in PERSIST-2. The extension request was submitted following a clarification meeting with the rapporteur and co-rapporteur and members of the EMA. We also plan to address with the EMA deficiencies identified in a January

2018 interim GCP inspection report which concluded that PERSIST-2 was in most aspects conducted in compliance with GCP and internationally accepted ethical standards, but compliance was not verified in the areas of protocol compliance, safety reporting and data integrity, where significant deficiencies were cited.

Other Pipeline Candidates

Tosedostat, is a novel oral, once-daily aminopeptidase inhibitor that has demonstrated significant responses in patients with AML. Enrollment in the randomized Phase 2 cooperative group-sponsored trials in elderly patients with AML (the LI1 trial) was halted in March after target recruitment had been attained. Following a Data Monitoring Committee meeting in November 2017, the trial Steering Committee decided to not reopen randomization as a sufficient survival benefit had not been demonstrated in patients receiving tosedostat combination therapy.

THE OFFERING

The following is a brief summary of certain terms of this offering and is qualified in its entirety by reference to the more detailed information appearing elsewhere in this prospectus supplement and the accompanying prospectus.

Common Stock offered by us	shares
Common stock to be outstanding after this offering	shares of common stock (shares if the underwriters exercise their option to purchase additional shares in full).
Option to purchase additional shares	We have granted the underwriters an option for a period of up to 30 days from the date of this prospectus supplement to purchase up to an additional shares of common stock at the public offering price less the underwriting discounts and commissions.
Use of proceeds	We plan to use the net proceeds from this offering to (i) complete the PAC203 clinical trial, (ii) complete the review of the pacritinib MAA by the EMA, (iii) conduct additional research concerning the possible application of pacritinib in indications outside of myelofibrosis, and (iv) complete the PIX306 clinical trial, as well as for general corporate purposes, which may include funding research and development, conducting preclinical and clinical trials, acquiring or in-licensing potential new pipeline candidates, preparing and filing possible new drug applications and general working capital. See Use of Proceeds.
NASDAQ symbol	CTIC
Risk factors	See the Risk Factors section contained in this prospectus supplement and in the documents we incorporate by reference in this prospectus supplement and the accompanying prospectus to read about factors you should consider before investing in our securities.

The number of shares of common stock expected to be outstanding after this offering and, unless otherwise indicated, the information in this prospectus supplement are based on 42,977,176 shares of common stock outstanding as of September 30, 2017, and excludes:

6,661,704 shares issuable upon the exercise of options outstanding as of September 30, 2017 at a weighted average exercise price of \$6.30 per share;

29,239 shares issuable upon the exercise of warrants;

383,333 shares issuable upon the conversion of 575 shares of Series N-3 Preferred Stock at a conversion price of \$3.00 per share;

185,664 shares reserved for issuance under our employee stock purchase plan;

7,038,228 shares reserved for issuance under our equity compensation plans;

one share of common stock reserved for issuance upon exercise of outstanding restricted share rights; and

the conversion of up to shares of common stock into a series of preferred stock if BVF elects to exercise in full its one-time rights under its letter agreements with us to exchange common stock into a series of preferred stock prior to the completion of this offering.

Except as otherwise indicated, we have presented the information in this prospectus supplement assuming no exercise by the underwriters in this offering of their option to purchase additional shares.

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RISK FACTORS

*In addition to the risks described below, you should carefully consider the risks under the heading **Risk Factors** beginning on page 23 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 supplement, and the additional risks and other information in this prospectus supplement, the accompanying prospectus and reports we file from time to time with the SEC that we incorporate by reference herein for a discussion of factors you should carefully consider 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.*

Risks Related to this Offering

Since we have broad discretion in how we use the net proceeds from this offering, we may use the net proceeds in ways in which you disagree.

We have not allocated specific amounts of the net proceeds from this offering for any specific purpose. We may use a portion of the net proceeds from this offering to fund possible investments in, or acquisitions of, complementary businesses, technologies or products. See **Use of Proceeds**. Our management will have significant flexibility in applying the net proceeds of this offering. You will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for our company. The failure of our management to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flow.

Shares of our common stock are subordinate to any preferred stock we may issue and to existing and any future indebtedness.

Shares of our common stock rank junior to any shares of our Series N Preferred Stock, any shares of our 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 senior secured term loan agreement restricts, and any future indebtedness and preferred stock may restrict, payment of dividends on our common stock.

Additionally, we entered into letter agreements with BVF Partners L.P. in 2015 and 2017, respectively, pursuant to which, we agreed to, upon BVF's election and subject to any board and committee approvals, exchange shares of (i) common stock underlying the Series N-2 Preferred Stock, (ii) common stock purchased by BVF directly from us or (iii) underlying convertible preferred stock purchased by BVF directly from us, including the shares of common stock underlying the Series N-3 Preferred Stock, into a series of convertible non-voting preferred stock with substantially similar terms as the Series N-2 Preferred Stock and Series N-3 Preferred Stock, including a blocker on conversion into common stock initially set at 9.99% of our common stock, but without automatic conversion provisions. In connection with this offering, BVF has indicated that it may elect to exercise its one-time exchange rights under the letter agreements to exchange all or a portion of the common stock currently held by BVF, such that its beneficial ownership of our common stock would not exceed 20% following the purchase of any shares by BVF in this offering. If BVF exercises such election, shares of such preferred stock to be issued to BVF will rank senior to shares of our common stock. Our Series N-2 Preferred Stock and Series N-3 Preferred Stock were subsequently reclassified as

Series N Preferred Stock in connection with our reincorporation in Delaware.

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.

We may not be able to maintain our listings on the NASDAQ Capital Market, or trading on this exchange 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.

We have in the past and may in the future fail to comply with the listing requirements of NASDAQ Stock Market LLC, or NASDAQ. If our common stock ceases to be listed for trading on the NASDAQ Capital Market for failure to comply with the minimum \$1.00 per share closing bid price requirement or for any other reason, 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 Capital Market may constitute an event of default under our senior secured term loan 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 Capital Market or if our public float falls below \$75 million, we will be limited in our ability to file new shelf registration statements on SEC Form S-3 and/or to fully use one or more registration statements on SEC Form S-3. We have relied significantly on shelf registration statements on SEC 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 both the NASDAQ Capital Market in the past and may also be halted or suspended in the future due to market or trading conditions at the discretion of the NASDAQ Stock Market. Any halt or suspension in the trading in our common stock may negatively impact the market price of 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 2, 2018, our stock price ranged from a low of \$2.45 to a high of \$4.90. 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;

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.

Anti-takeover provisions in our charter documents, in our shareholder rights agreement, or rights plan, and under Delaware law could make removal of incumbent management or an acquisition of us, which may be beneficial to our shareholders, more difficult.

Provisions of our certificate of incorporation and bylaws may have the effect of deterring or delaying attempts by our shareholders 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 shareholder nominations and proposals;

the ability of our board of directors to amend our bylaws without shareholder approval; and

the ability of our board of directors to issue shares of preferred stock without shareholder approval upon the terms and conditions and with the rights, privileges and preferences as our board of directors may determine. Pursuant to our rights plan, an acquisition of 20% or more of our common stock by a person or group, subject to certain exceptions, could result in the exercisability of the preferred stock purchase right accompanying each share of our common stock (except those held by a 20% shareholder, which become null and void), thereby 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. The existence of our rights plan could have the

effect of delaying, deterring or preventing a third party from making an acquisition proposal for us and may inhibit a change in control that some, or a majority, of our shareholders might believe to be in their best interest or that could give our shareholders the opportunity to realize a premium over the then-prevailing market prices for their shares.

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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 shareholders. 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.

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 you purchase shares in this offering, you will suffer immediate and substantial dilution.

If you purchase shares of our common stock in this offering, you will incur immediate and substantial dilution in the as adjusted net tangible book value of your stock of \$ per share as of September 30, 2017, based on the public offering price of \$ per share, because the price that you pay will be substantially greater than the net tangible book value per share of the shares you acquire. See Dilution.

The issuance of additional shares of our common stock could be dilutive to stockholders if they do not invest in future offerings. In addition, we have a significant number of options to purchase shares of our common stock outstanding. If these options are exercised, you may incur further dilution. Moreover, to the extent that we issue additional options or warrants to purchase, or securities convertible into or exchangeable for, shares of our common stock in the future and those options, warrants or other securities are exercised, converted or exchanged, stockholders may experience further dilution.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, we may in the future offer additional shares of common stock or other securities convertible into or exchangeable for our shares of common stock at prices that may not be the same as the prices per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing shareholders. The price per share at which we sell additional shares of common stock, or securities convertible or exchangeable into shares of common stock, in future transactions may be higher or lower than the prices per share paid by investors in this offering.

USE OF PROCEEDS

We estimate that the net proceeds to us from this offering, after deducting underwriting discounts and commissions and estimated expenses, will be approximately \$ million (or approximately \$ million if the underwriters option to purchase additional shares is exercised in full).

We plan to use the net proceeds from this offering to (i) complete the PAC203 clinical trial, (ii) complete the review of the pacritinib MAA by the EMA, (iii) conduct additional research concerning the possible application of pacritinib in indications outside of myelofibrosis, and (iv) complete the PIX306 clinical trial, as well as for general corporate purposes, which may include funding research and development, conducting preclinical and clinical trials, acquiring or in-licensing potential new pipeline candidates, preparing and filing possible new drug applications and general working capital.

The amounts and timing of the expenditures for general corporate purposes may vary significantly, depending on numerous factors, including the progress of our clinical trials and other development efforts, as well as the amount of cash used in our operations. Accordingly, our management will have broad discretion in the application of the net proceeds of this offering. We reserve the right to change the use of proceeds as a result of certain contingencies such as competitive developments and other factors. Pending the uses described above, we may temporarily invest the net proceeds of this offering in short- and medium-term interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

DILUTION

If you purchase shares of common stock in this offering, your interest will be diluted 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 after this offering. We calculate net tangible book value per share by dividing the net tangible book value, tangible assets less total liabilities, by the number of outstanding shares of common stock.

Our net tangible book deficit as of September 30, 2017 was \$28.4 million, or \$0.66 per share of common stock. After giving effect to the sale of shares of common stock at the public offering price of \$, less the underwriting discounts and commissions and our estimated offering expenses, our as adjusted net tangible book value as of September 30, 2017 would have been approximately \$ million, or approximately \$ per share of common stock. This represents an immediate increase in the net tangible book value of \$ per share to existing stockholders and an immediate dilution of \$ per share to new investors purchasing common stock in this offering at the public offering price. The following table illustrates this per share dilution:

Public offering price per share of common stock	\$
Net tangible book value (deficit) per share of common stock as of September 30, 2017	\$ (0.66)
Increase in net tangible book value per share attributable to new investors in this offering	\$
As adjusted net tangible book value per share of common stock	\$
Dilution per share of common stock to new investors in this offering	\$

If the underwriters exercise their option to purchase shares of common stock in full at the public offering price, the as adjusted net tangible book value after this offering would be approximately \$ per share, representing an increase in net tangible book value of approximately \$ per share to existing stockholders and immediate dilution in net tangible book value of approximately \$ per share to investors purchasing our common stock in this offering at the public offering price.

The above discussion is based on 42,977,176 shares of common stock outstanding as of September 30, 2017, and excludes:

6,661,704 shares issuable upon the exercise of options outstanding as of September 30, 2017 at a weighted average exercise price of \$6.30 per share;

29,239 shares issuable upon the exercise of warrants;

383,333 shares issuable upon the conversion of 575 shares of Series N-3 Preferred Stock at a conversion price of \$3.00 per share;

185,664 shares reserved for issuance under our employee stock purchase plan;

7,038,228 shares reserved for 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 the options, warrants or rights outstanding as of September 30, 2017 have been or are exercised, or other shares are issued, investors purchasing shares of common stock in this offering could experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our shareholders.

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.

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DESCRIPTION OF THE SECURITIES WE ARE OFFERING

The material terms and provisions of the common stock 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 common stock set forth in the certificate of incorporation filed as an exhibit to our Current Report on Form 8-K filed on January 24, 2018.

Description of Common Stock

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 September 30, 2017, there were 42,977,176 shares of common stock outstanding and 575 shares of preferred stock (convertible into approximately 383,333 shares of common stock) outstanding and warrants to purchase 29,239 shares of common stock outstanding. In addition, as of September 30, 2017, 7,038,228 shares of common stock were reserved for issuance under our equity compensation plans, 185,664 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 8,596 shares of Series ZZ Junior Participating Cumulative Preferred Stock were reserved for issuance pursuant to our shareholders' rights plan.

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.

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

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 the 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.

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

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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.

UNDERWRITING

Leerink Partners LLC is acting as representative of each of the underwriters named below and as sole bookrunning manager for this offering. Subject to the terms and conditions set forth in the underwriting agreement among us and the underwriters, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of shares of common stock set forth opposite its name below.

Underwriter	Number of Shares
Leerink Partners LLC	
JMP Securities LLC	
Needham & Company, LLC	
Oppenheimer & Co. Inc.	
Total	

Subject to the terms and conditions set forth in the underwriting agreement, the underwriters have agreed, severally and not jointly, to purchase all of the shares sold under the underwriting agreement if any of the shares are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those liabilities.

The underwriters are offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, including the validity of the shares, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officers' certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commissions and Discounts

The representative has advised us that the underwriters propose initially to offer the shares to the public at the public offering price set forth on the cover page of this prospectus and to dealers at that price less a concession not in excess of \$ per share. After the initial offering of the shares, the public offering price, concession or any other term of the offering may be changed by the representative.

The following table shows the public offering price, underwriting discounts and commissions and proceeds before expenses to us. The information assumes either no exercise or full exercise by the underwriters of their option to purchase additional shares of our common stock.

	Per Share	Without Option	Total With Option
Public offering price	\$	\$	\$
Underwriting discounts and commissions	\$	\$	\$

Proceeds, before expenses, to us	\$	\$	\$
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We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately \$. We also have agreed to reimburse the underwriters for up to \$20,000 for their FINRA counsel fee. In accordance with FINRA Rule 5110, this reimbursed fee is deemed underwriting compensation for this offering.

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Option to Purchase Additional Shares

We have granted an option to the underwriters, exercisable for 30 days after the date of this prospectus, to purchase up to additional shares at the public offering price, less the underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to conditions contained in the underwriting agreement, to purchase a number of additional shares proportionate to that underwriter's initial amount reflected in the above table.

No Sales of Similar Securities

We, our executive officers and directors have agreed not to sell or transfer any common stock or securities convertible into or exchangeable or exercisable for common stock, for 90 days after the date of this prospectus without first obtaining the written consent of Leerink Partners LLC on behalf of the underwriters. Specifically, we and these other persons have agreed, with certain limited exceptions, not to directly or indirectly:

sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, lend, or establish an open put equivalent position within the meaning of Rule 16a-1(h) under the Exchange Act with respect to, any of our common stock;

otherwise dispose of any of our common stock; or

publicly announce an intention to do any of the foregoing for a period of 90 days after the date of this prospectus supplement.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition.

NASDAQ Capital Market Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol CTIC.

Price Stabilization, Short Positions and Penalty Bids

Until the distribution of the shares is completed, SEC rules may limit underwriters and selling group members from bidding for and purchasing our common stock. However, the representative may engage in transactions that stabilize the price of the common stock, such as bids or purchases to peg, fix or maintain that price.

In connection with the offering, the underwriters may purchase and sell our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. Covered short sales are sales made in an amount not greater than the underwriters option described above. The underwriters may close out any covered short position by either exercising their option or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option granted to them. Naked short sales are sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the

open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of our common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of shares of common stock made by the underwriters in the open market prior to the closing of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representative has repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. The underwriters may conduct these transactions on The NASDAQ Capital Market, in the over-the-counter market or otherwise.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. In addition, neither we nor any of the underwriters make any representation that the representative will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

The underwriters may also engage in passive market making transactions in our common stock on the NASDAQ Capital Market in accordance with Rule 103 of Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

Electronic Distribution

In connection with the offering, certain of the underwriters or securities dealers may distribute prospectuses by electronic means, such as e-mail.

Other Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Some of the underwriters and certain of their affiliates may in the future engage in investment banking and other commercial dealings in the ordinary course of business with us and our affiliates, for which they may in the future receive customary fees, commissions and expenses.

In addition, in the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

Canada

(A) Resale Restrictions

The distribution of shares of our common stock in Canada is being made only in the provinces of Ontario, Quebec, Alberta and British Columbia on a private placement basis exempt from the requirement that we prepare and file a prospectus with the securities regulatory authorities in each province where trades of these securities are made. Any resale of the shares of our common stock in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the securities.

(B) Representations of Canadian Purchasers

By purchasing shares of our common stock in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to us and the dealer from whom the purchase confirmation is received that:

the purchaser is entitled under applicable provincial securities laws to purchase the shares of our common stock without the benefit of a prospectus qualified under those securities laws as it is an accredited investor as defined under National Instrument 45-106 Prospectus Exemptions,

the purchaser is a permitted client as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations,

where required by law, the purchaser is purchasing as principal and not as agent, and the purchaser has reviewed the text above under Resale Restrictions.

(C) Conflicts of Interest

Canadian purchasers are hereby notified that Leerink Partners LLC is relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105 Underwriting Conflicts from having to provide certain conflict of interest disclosure in this document.

(D) Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the offering memorandum (including any amendment thereto) such as this document contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser of these securities in Canada should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

(E) Enforcement of Legal Rights

All of our directors and officers as well as the experts named herein may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon us or those persons. All or a substantial portion of our assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against us or those persons in Canada or to enforce a judgment obtained in Canadian courts against us or those persons outside of Canada.

(F) Taxation and Eligibility for Investment

Canadian purchasers of shares of our common stock should consult their own legal and tax advisors with respect to the tax consequences of an investment in our common stock in their particular circumstances and about the eligibility of our common stock for investment by the purchaser under relevant Canadian legislation.

European Economic Area

In relation to each Member State of the European Economic Area (each, a Relevant Member State), no offer of shares may be made to the public in that Relevant Member State other than:

- A. to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- B. to fewer than 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representative; or
- C. in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of shares shall require the Company or the representative to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

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Each person in a Relevant Member State who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed that it is a qualified investor within the meaning of the law in that Relevant Member State implementing Article 2(1)(e) of the Prospectus Directive. In the case of any shares being offered to a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Relevant Member State to qualified investors as so defined or in circumstances in which the prior consent of the representative has been obtained to each such proposed offer or resale.

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CERTAIN U.S. FEDERAL INCOME TAX CONSIDERATIONS

All purchasers of shares of common stock in this offering are advised to consult their own tax advisors regarding the federal, state, local and foreign tax consequences of the purchase, ownership or conversion, as the case may be, and disposition of the shares of common stock and the ownership and disposition of shares of common stock issuable upon conversion of the common stock in their particular situations.

LEGAL MATTERS

O Melveny & Myers LLP, San Francisco, California, will pass upon the validity of the common stock offered hereby. Covington & Burling LLP, New York, New York is counsel for the underwriters in connection with this offering.

EXPERTS

Marcum LLP, an independent registered public accounting firm, has audited our consolidated financial statements at December 31, 2016 and 2015 and for each of 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 supplement and the accompanying prospectus. 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.

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 7 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 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 pacritinib 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 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 depository 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 reallocated 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.

Shares

Common Stock

PROSPECTUS SUPPLEMENT

Sole Book-Running Manager

Leerink Partners

Senior Lead Manager

JMP Securities

Lead Managers

Needham & Company

Oppenheimer & Co.

, 2018