

CYTRX CORP
Form S-3
December 30, 2015
Table of Contents

As filed with the Securities and Exchange Commission on December 30, 2015

Reg. No. 333-

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

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

CYTRX CORPORATION
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

58-1642750
(I.R.S. Employer
Identification No.)

Edgar Filing: CYTRX CORP - Form S-3

CytRx Corporation

11726 San Vicente Boulevard, Suite 650

Los Angeles, California 90049

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Steven A. Kriegsman

President and Chief Executive Officer

CytRx Corporation

11726 San Vicente Boulevard, Suite 650

Los Angeles, California 90049

(310) 826-5648

(Name, address, including zip code, and telephone number, including area code, of agent for service)

With copies to:

Benjamin S. Levin

General Counsel

CytRx Corporation

11726 San Vicente Boulevard, Suite 650

Los Angeles, California 90049

Telephone: (310) 826-5648

Facsimile: (310) 826-6139

Dale E. Short

TroyGould PC

1801 Century Park East, Suite 1600

Los Angeles, California 90067

Telephone: (310) 789-1259

Facsimile: (310) 789-1459

Approximate date of commencement of proposed sale to public: From time to time after the effective date of this registration statement.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer
 Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company

CALCULATION OF REGISTRATION FEE

| Title of each class of securities to be registered | Amount to be registered(1) | Proposed | Proposed | Amount of registration fee(2) |
|--|----------------------------|--|-------------------------------------|-------------------------------|
| | | maximum offering price per security(1) | maximum aggregate offering price(1) | |
| Common stock, par value \$0.001 per share(3) | (3) | | | |

Preferred stock, \$0.01 par value per share

Warrants

Units

| | | |
|-------|---------------|----------|
| Total | \$100,000,000 | \$10,070 |
|-------|---------------|----------|

- (1) The securities registered by this registration statement may be sold separately, together with other securities registered hereunder, or as units consisting of a combination of other securities registered hereunder. Pursuant to Rule 457(o) under the Securities Act of 1933 and General Instruction II.D to Form S-3 under the Securities Act of 1933, the numbers of shares, warrants and units are not specified. There is being registered hereunder an indeterminate amount of common stock, preferred stock, warrants and units of the registrant as may from time to time be issued at indeterminate prices. The maximum offering price per class of securities will be determined from time to time by the registrant in connection with the issuance of the securities. However, in no event will the maximum aggregate offering price of the securities issued exceed \$100,000,000 or such lesser aggregate amount permitted under General Instruction I.B.6 to Form S-3 under the Securities Act of 1933. Pursuant to Rule 416 under the Securities Act of 1933, this registration statement also registers such indeterminate amounts of securities as may be issued upon conversion of, or in exchange for, the securities registered hereunder and such indeterminate number of shares of common stock and preferred stock as may be issued from time to time upon conversion or exchange as a result of stock splits, stock dividends or similar transactions.
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933.
- (3) Each share of common stock will be accompanied by one Series A Junior Participating Preferred Stock Purchase Right that trades with the common stock. The value, if any, attributable to this right is reflected in the market price of common stock. Prior to the occurrence of certain events, none of which has occurred as of the date of this registration statement, the rights will not be exercisable or evidenced separately from the common stock.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(A) OF THE SECURITIES ACT OF 1933 OR UNTIL THIS REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(A), MAY DETERMINE.

Table of Contents

The information in this prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission becomes effective. This prospectus is not an offer to sell these securities, and it is not a solicitation of an offer to buy these securities, in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, December 30, 2015

PROSPECTUS

\$100,000,000

We may offer and sell from time to time up to \$100,000,000 in the aggregate of shares of our common stock, shares of our preferred stock and warrants in amounts, at prices and on terms that we will decide at the time of the offering. These securities may be offered and sold separately, together or as units with other securities. Each share of our common stock to be offered and sold is accompanied by one Series A Junior Participating Preferred Stock Purchase Right that trades with our common stock.

We will provide the specific terms of these offers and sales in supplements to this prospectus. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement. You should read this prospectus and the prospectus supplement carefully before you invest. We may offer securities directly to investors or through agents, underwriters or dealers. If any agents, underwriters or dealers are involved in the sale of any of our securities, their names and any applicable purchase prices, fees, commissions or discount arrangements will be set forth in the prospectus supplement.

Our common stock is traded on The NASDAQ Capital Market under the symbol CYTR. On December 29, 2015, the last sale price of our common stock as reported on The NASDAQ Capital Market was \$2.76.

An investment in our securities involves significant risks. Before purchasing any securities, you should consider carefully the risks referred to under Risk Factors on page 10 in this prospectus and in the prospectus supplement.

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

The date of this prospectus is _____, 2016

Table of Contents

TABLE OF CONTENTS

| | Page |
|--|------|
| <u>ABOUT THIS PROSPECTUS</u> | 1 |
| <u>NOTE ON FORWARD-LOOKING STATEMENTS</u> | 1 |
| <u>INDUSTRY DATA</u> | 1 |
| <u>TRADEMARKS</u> | 1 |
| <u>ABOUT CYTRX</u> | 2 |
| <u>RISK FACTORS</u> | 10 |
| <u>USE OF PROCEEDS</u> | 10 |
| <u>FINANCIAL RATIOS</u> | 11 |
| <u>DIVIDEND POLICY</u> | 11 |
| <u>THE SECURITIES THAT WE MAY OFFER</u> | 11 |
| <u>DESCRIPTION OF CAPITAL STOCK</u> | 12 |
| <u>DESCRIPTION OF WARRANTS</u> | 14 |
| <u>DESCRIPTION OF UNITS</u> | 15 |
| <u>PLAN OF DISTRIBUTION</u> | 16 |
| <u>WHERE YOU CAN FIND MORE INFORMATION</u> | 17 |
| <u>INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE</u> | 17 |
| <u>LEGAL MATTERS</u> | 18 |
| <u>EXPERTS</u> | 18 |

Table of Contents

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement utilizing the shelf registration process that we filed with the Securities and Exchange Commission, or the SEC, to permit us to offer and sell the securities described in this prospectus in one or more transactions. The plan of distribution of the securities is described in this prospectus under the heading Plan of Distribution.

As permitted by the rules and regulations of the SEC, the registration statement filed by us includes additional information not contained in this prospectus. You may read the registration statement and the other reports we file with the SEC at the SEC's web site or at the SEC's offices described below under the heading Where You Can Find More Information.

This prospectus provides you with a general description of the securities we may offer. Each time securities are sold, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and the prospectus supplement, together with additional information described in this prospectus under the heading Where You Can Find More Information.

You should rely only on the information provided in this prospectus and in the prospectus supplement, including any information incorporated by reference. For more details on information incorporated herein by reference, you should review the discussion contained under the heading Incorporation of Certain Documents by Reference. We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus and in the prospectus supplement. We are offering the securities only in jurisdictions where offers are permitted. You should not assume that the information in this prospectus or the prospectus supplement is accurate at any date other than the date indicated on the cover page of these documents.

NOTE ON FORWARD-LOOKING STATEMENTS

Some of the statements contained or incorporated by reference in this prospectus or in the prospectus supplement may include forward-looking statements that reflect our current views with respect to our research and development activities, business strategy, business plan, financial performance and other future events. These statements include forward-looking statements both with respect to us, specifically, and the biotechnology sector, in general. We make these statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Statements that include the words expect, intend, plan, believe, project, estimate, may, should, anticipate, similar statements of a future or forward-looking nature identify forward-looking statements for purposes of the federal securities laws or otherwise.

All forward-looking statements involve inherent risks and uncertainties, and there are or will be important factors that could cause actual results to differ materially from those indicated in these statements. We believe that these factors include, but are not limited to, those factors set forth under the caption Risk Factors in this prospectus and in any prospectus supplement and under the captions Business, Legal Proceedings, Management's Discussion and Analysis of Financial Condition and Results of Operations, Quantitative and Qualitative Disclosures About Market Risk and Controls and Procedures in our most recent Annual Report on Form 10-K and our most recent Quarterly Report on Form 10-Q, all of which you should review carefully. Please consider our forward-looking statements in light of those risks as you read this prospectus and the prospectus supplement. We undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise.

If one or more of these or other risks or uncertainties materializes, or if our underlying assumptions prove to be incorrect, actual results may vary materially from what we anticipate. All subsequent written and oral forward-looking statements attributable to us or individuals acting on our behalf are expressly qualified in their entirety by this Note. Before purchasing any of our securities, you should consider carefully all of the factors set forth or referred to in this prospectus and in the prospectus supplement that could cause actual results to differ.

INDUSTRY DATA

Unless otherwise indicated, information contained or incorporated by reference in this prospectus concerning our industry, including our general expectations and market opportunity, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry's future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those referred to under "Risk Factors" on page 10 of this prospectus. These and other factors could cause our future performance to differ materially from our assumptions and estimates.

TRADEMARKS

CytRx is one of our trademarks used in this prospectus. This prospectus also includes trademarks, trade names and service marks that are the property of other organizations. Solely for convenience, trademarks and trade names referred to in this prospectus sometimes appear without the ® and ™ symbols, but those references are not intended to indicate that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and trade names.

Table of Contents**ABOUT CYTRX****Company Overview**

CytRx Corporation (we, us or our) is a biopharmaceutical research and development company specializing in oncology. We currently are focused on the clinical development of aldoxorubicin (formerly known as INNO-206), our modified version of the widely-used chemotherapeutic agent, doxorubicin. We have reported positive top-line efficacy results (median progression-free survival, progression-free survival at six months, overall response rates, hazard ratios and overall survival) from our completed, global Phase 2b clinical trial with aldoxorubicin as a treatment for soft tissue sarcoma, or STS. Hazard ratios - the likelihood that the study endpoint (in this case tumor progression) will be reached during a given period - are an important measure of the reliability and uniformity of the absolute data for progression-free survival, or PFS. The trial investigated the efficacy and safety of aldoxorubicin compared with doxorubicin in subjects with first-line metastatic, locally advanced or unresectable STS. Aldoxorubicin combines the chemotherapeutic agent doxorubicin with a novel linker-molecule that binds specifically to albumin in the blood to allow for delivery of higher amounts of doxorubicin (3 ½ to 4 times) without the major dose-limiting toxicities seen with administration of doxorubicin alone.

In the first quarter of 2014, we initiated a pivotal Phase 3 trial of aldoxorubicin as a therapy for patients with STS whose tumors have progressed following treatment with chemotherapy, and we have received approval from the FDA to continue dosing patients with aldoxorubicin until disease progression in that clinical trial. The Phase 3 trial is being conducted under a Special Protocol Assessment, or SPA, granted by the U.S. Food and Drug Administration, or FDA. The SPA means that the FDA agrees that the design and analyses proposed in the Phase 3 trial protocol are acceptable to support regulatory approval of the product candidate with respect to effectiveness of the indication studied, and will not subsequently change its perspective on these matters, unless previously unrecognized public or animal health concerns were to arise or we were to subsequently modify the protocol. Thus, if the study demonstrates an acceptable benefit-risk profile as determined by the FDA, it would suffice as the single pivotal trial to demonstrate effectiveness and would support registration of aldoxorubicin for this indication.

We are currently evaluating aldoxorubicin in a global Phase 2b clinical trial in small cell lung cancer, a Phase 2 clinical trial in HIV-related Kaposi's sarcoma, a Phase 2 clinical trial in patients with late-stage glioblastoma (brain cancer), a Phase 1b trial in combination with ifosfamide in patients with soft tissue sarcoma, and a Phase 1b trial in combination with gemcitabine in subjects with metastatic solid tumors. We have completed a global Phase 2b clinical trial with aldoxorubicin as a first-line therapy for STS, a Phase 1b/2 clinical trial primarily in the same indication, a Phase 1b clinical trial of aldoxorubicin in combination with doxorubicin in patients with advanced solid tumors and a Phase 1b pharmacokinetics clinical trial in patients with metastatic solid tumors.

In addition to aldoxorubicin, CytRx is currently completing pre-clinical development for DK049, a novel anti-cancer drug conjugate that utilizes the Company's Linker Activated Drug Release (LADR[™]) technology. DK049 was created at our laboratory facility in Freiburg, Germany, and employs a proprietary linker that is both pH sensitive and requires a specific enzyme for the release of the cytotoxic payload. DK049 has demonstrated significant anti-tumor activity in multiple animal models implanted with human tumors, including non-small cell lung, ovarian and pancreatic cancers. CytRx anticipates filing an Investigational New Drug Application (IND) in the second half of 2016 prior to initiating a Phase 1 clinical trial.

We plan to expand our pipeline of oncology candidates utilizing our LADR[™] technology by creating both albumin-binding drug conjugates and antibody-drug conjugates at our laboratory in Freiburg, Germany. This technology allows for targeting to the tumor either by albumin or antibodies and can deliver anti-cancer agents that are 10-1000 times more potent than traditional chemotherapies.

Table of Contents**Our Product Candidate Pipeline**

The following table summarizes our product candidates and their current or impending stages of development:

| Technology | Product candidate | Indication(s) | Stage of Development |
|---|--------------------------|---|---|
| Doxorubicin conjugate | Aldoxorubicin | Soft Tissue Sarcoma Small-Cell Lung Cancer Glioblastoma Multiforme Kaposi s Sarcoma Combination with ifosfamide Combination with gemcitabine | Pivotal Global Phase 3 ongoing Global Phase 2b ongoing Phase 2 ongoing Phase 2 ongoing Phase 1b ongoing Phase 1b ongoing |
| LADR™ | DK049 | To be announced | Pre-clinical |
| LADR™ for albumin-binding drug conjugates | To be announced | To be announced | Pre-clinical |
| LADR™ for antibody-drug conjugates | To be announced | To be announced | Pre-clinical |

Our Clinical Development Programs

Our current clinical development programs are discussed below.

Aldoxorubicin

Aldoxorubicin is a conjugate of the commonly prescribed chemotherapeutic agent doxorubicin that binds to circulating albumin in the bloodstream and is believed to concentrate the drug at the site of tumors. Specifically, it is comprised of (6-maleimidocaproyl) hydrazine, an acid-sensitive molecule that is conjugated to doxorubicin. In the first quarter of 2014, we initiated under an SPA granted by the FDA a pivotal, global Phase 3 trial of aldoxorubicin as a therapy for patients with STS whose tumors have progressed following treatment with chemotherapy.

Aldoxorubicin for the Treatment of Cancer. Anthracyclines are a class of drugs that are among the most commonly used agents in the treatment of cancer. Doxorubicin, the first anthracycline to gain FDA approval, has demonstrated efficacy in a wide variety of cancers, including breast cancer, lung cancer, ovarian cancer, sarcomas, and lymphomas. However, due to the uptake of doxorubicin by various parts of the body, it is associated with side effects such as cumulative cardiotoxicity, myelosuppression (decreased production of blood cells by bone marrow), gastrointestinal disorders, mucositis (inflammation of the mucous membranes lining the mouth and digestive tract), stomatitis (inflammation of soft tissue of the mouth), and necrotizing extravasation (damage due to the leakage of intravenous drugs from the vein into the surrounding tissue).

We believe aldoxorubicin has attributes that may improve on doxorubicin, alone, which we sometimes refer to as native doxorubicin, including the potential to increase the total doxorubicin dose, reduce certain adverse events associated with native doxorubicin, achieve increased drug concentration at tumor sites and improve efficacy.

Our postulated mechanism of action for aldoxorubicin is as follows:

after administration, aldoxorubicin rapidly forms a covalent bond to circulating albumin through an acid-sensitive linker;

circulating albumin preferentially accumulates in tumors, bypassing concentration in other non-tumor sites, including the heart, liver and gastrointestinal tract due to a mechanism called Enhanced Permeability and Retention by Solid Tumors ;

once albumin-bound aldoxorubicin is taken up by the tumor, the acidic environment within the tumor and in the cancer cells themselves causes cleavage of the acid-sensitive linker; and

free doxorubicin is then released in the tumor.

Pre-clinical data. In a variety of preclinical models, aldoxorubicin was superior to doxorubicin at equitoxic doses in its ability to allow an increase in the total doxorubicin dose, its antitumor efficacy and its safety, including a reduction in cardiotoxicity. Animal studies conducted by aldoxorubicin inventor Dr. Felix Kratz demonstrated statistically significant efficacy compared to both placebo and native doxorubicin against breast, ovarian, pancreatic and small cell lung cancers growing in immunodeficient mice.

We have also announced additional data from a study of aldoxorubicin in immunodeficient mice transplanted with human glioblastoma cells in their brain that showed those animals treated with aldoxorubicin had a median survival rate of more than 63 days, compared with approximately 25 days for animals treated with doxorubicin or saline. The data, published in the journal *Neoplasia* in

Table of Contents

October 2014, also indicated evidence of drug concentration inside tumors growing in the brain, but not in normal brain tissue, and significant tumor regression in aldorubicin-treated animals, while doxorubicin did not appear to enter the tumor or brain to any significant degree and showed little or no efficacy in the progression of these brain tumors. Aldorubicin significantly reduced the number of dividing cells within the brain tumors in this trial and showed a statistically relevant increased expression of apoptosis or cell death markers.

Clinical data. A Phase 1 study of aldorubicin that demonstrated safety and objective clinical responses in several tumor types was completed in 2005, presented at the March 2006 Krebskongress meeting in Berlin, Germany, and published in *Clinical Cancer Research* in August 2007. In this study, doses were administered every three weeks at up to six times the standard dose of doxorubicin without an increase in the types of side effects compared with those historically observed with native doxorubicin. Of 35 evaluable patients, 23 had either an objective clinical (partial) response or stable disease. Objective clinical responses were observed in patients with STS, breast and small cell lung cancers.

We completed a Phase 1b/2 clinical trial with aldorubicin in patients with advanced solid tumors who had either relapsed or failed to respond to their prior chemotherapy and presented favorable data at the American Society for Clinical Oncology Meeting in June 2012. In that Phase 1b/2 clinical trial, clinical benefit (defined as partial response or stable disease of more than four months) was shown in ten of 13 (76.9%) evaluable patients with relapsed or refractory STS. The median number of cycles of aldorubicin administered at the maximum tolerable dose was eight. The results of this clinical trial were published in February 2015 in the peer-reviewed journal *Cancer* (*Cancer*, 2015 Feb 15; 121(4); 570-9).

In addition, best responses for the 13 evaluable STS trial subjects included the following: five (38.5%) achieved partial response, as defined as shrinkage of target tumors of more than 30%; six (46%) showed prolonged stable disease (defined as tumor shrinkage <30% from baseline or tumor growth <20% from the nadir); eight (61.5%) had tumor shrinkage; and five of eight patients (62.5%) who demonstrated either partial responses or prolonged stable disease after treatment with aldorubicin had been previously treated with doxorubicin and had failed to respond. There were no observed cardiac toxicities and no drug-related patient deaths. The most common adverse event, neutropenia, also observed with doxorubicin treatment, resolved prior to the start of the next treatment. Final observed median PFS for advanced STS patients in the trial was 11.25 months, and median overall survival was 21.71 months (Publication in *Cancer* Oct 13 2014). In addition, following 8 cycles of aldorubicin, two patients experienced no progression of disease for 23 and 15 months, respectively, despite no further treatment.

In connection with our Phase 1b pharmacokinetics clinical trial evaluating the pharmacokinetics and safety of aldorubicin in patients with metastatic solid tumors who have either relapsed or not responded to treatment with standard therapies, we announced data demonstrating that aldorubicin has a distribution half-life of approximately 20 to 24 hours, with a narrow volume of distribution to healthy tissue and slow clearance from the circulation. These characteristics distinguish aldorubicin from doxorubicin, which has a distribution half-life of about five minutes according to its package insert. Complete details from this Phase 1b trial were published online in the journal *Investigational New Drugs* in November 2014.

We completed our global Phase 2b clinical trial to evaluate the preliminary efficacy and safety of aldorubicin as a first-line therapy in patients with advanced STS who are ineligible for surgery, which was initiated in December 2011. The Phase 2b clinical trial provided the first direct clinical trial comparison of aldorubicin and native doxorubicin, which is dose-limited due to toxicity, as a first-line therapy.

The Phase 2b clinical trial with aldorubicin in patients with STS was an international trial in 31 treatment centers under the direction of Sant P. Chawla, M.D., F.R.A.C.P., Director of the Sarcoma Oncology Center in Santa Monica,

California. The Phase 2b clinical trial's primary objectives were to measure the PFS, tumor response and overall survival of patients with advanced STS treated with aldorubicin. This clinical trial also assessed the safety of aldorubicin compared to doxorubicin in this patient population through a number of indicators, including the frequency and severity of adverse events.

In our 123-subject clinical trial, subjects with advanced STS were administered either 350 mg/m² of aldorubicin (83 subjects) or 75 mg/m² of doxorubicin (40 subjects) every three weeks for up to six cycles. Subjects were followed every six weeks with CT scans to monitor tumor size. The primary endpoint was PFS as determined by a blinded radiology review performed at an independent central radiology laboratory. Secondary endpoints included overall response rates (complete and partial) and PFS at six months for each group, and overall survival. The results from this trial were published in the Journal of the American Medical Association (JAMA) Oncology in September 2015 (JAMA Oncol. 2015 Sep 17:1-9.).

The central radiology review, as well as the investigators' own assessments, showed an 80% to 100% improvement in PFS among patients treated with aldorubicin. In an intent-to-treat analysis, the investigator-assessed median PFS was 8.3 months for aldorubicin patients versus 4.6 months for doxorubicin patients (p=0.0006), while the blinded central radiology review indicated that median PFS for aldorubicin patients was 5.6 months versus 2.7 months for doxorubicin patients (p=0.0228). Per investigators, 68.1% of aldorubicin patients had not progressed at six months, compared with 33.0% of doxorubicin-treated patients (p=0.008). By blinded central radiology review, 45.7% of aldorubicin patients had not progressed at six months, compared with 22.9% of doxorubicin patients (p=0.02).

Table of Contents

The overall response rate as determined by the investigators was 22.9% for aldorubicin subjects (2.0% complete response and 21.3% partial response) versus 5.0% for doxorubicin subjects (0% complete response and 5.0% partial response). As assessed by blinded central radiology review, 25.0% of aldorubicin subjects had a partial response while none of the doxorubicin subjects exhibited any objective response.

Additional analysis determined hazard ratios for the primary endpoint of PFS by both investigators at study sites and by the blinded radiology review. The hazard ratio for investigator-read scans is 0.37 (95% confidence interval, range of 0.212 to 0.643) ($p=0.0004$), reflecting a 63% reduction in the risk of disease progression for patients treated with aldorubicin; and the hazard ratio for central lab scans is 0.586 (95% confidence interval, range of 0.358 to 0.960) ($p=0.034$), reflecting a 41% reduction in the risk of disease progression for the aldorubicin-treated patients. Hazard ratios are an important measure of the reliability and uniformity of the data for PFS, and where the upper limit is less than one indicates that there is a significant difference between the two study groups.

We also reported that a Kaplan-Meier analysis of the trial results, which analysis describes the time it takes for tumors to progress in individual patients, showed significant improvement in subjects treated with aldorubicin versus subjects treated with doxorubicin.

The overall survival results from the clinical trial demonstrated a 27 percent reduction in the risk of death compared to patients treated with doxorubicin (HR 0.73: 95% confidence interval 0.44-1.20), the current standard-of-care in this indication. In addition, aldorubicin-treated patients demonstrated a 41% likelihood of surviving more than 2 years, a 2-fold increase, compared to a 20% probability for doxorubicin-treated patients. Median overall survival was 15.8 months (95% confidence interval 13.1-not reached) for aldorubicin-treated patients versus 14.3 months (95% confidence interval 8.6-20.6) for doxorubicin treated patients ($p=0.21$). For treatment-naïve patients, representing 90% of the patients in the clinical trial, median overall survival was 15.8 months (95% confidence interval 13.0-not reached) for aldorubicin-treated patients versus 13.8 months (95% confidence interval 8.6-19.8) for doxorubicin treated patients ($p=0.14$).

In the Phase 2b clinical trial, aldorubicin was found to be relatively safe and well-tolerated. Subjects treated with aldorubicin had an approximately two-fold increase in severe neutropenia compared with doxorubicin-treated subjects, but there was no difference in the incidence of febrile neutropenia (indicating an infection may be present) between the two groups. All adverse events in subjects treated with aldorubicin were consistent with the known side effects of doxorubicin, usually resolved before the administration of the next dose and did not require treatment discontinuation. There were no treatment-related deaths in the aldorubicin group.

In the first quarter of 2014, we initiated a pivotal global Phase 3 clinical trial to evaluate the efficacy and safety of aldorubicin as a second-line treatment for patients with soft tissue sarcoma (STS) under a Special Protocol Assessment with the FDA. This multicenter, randomized, open-label Phase 3 clinical trial is designed to enroll approximately 400 patients with metastatic, locally advanced or unresectable soft tissue sarcomas who have either not responded to, or have progressed following treatment with, one or more systemic regimens of non-adjuvant chemotherapies. Trial patients will be randomized 1:1 to be treated with aldorubicin or the investigator's choice of an approved chemotherapeutic regimen, including doxorubicin, ifosfamide dacarbazine, pazopanib (Votrient®), or gemcitabine plus docetaxel, with up to three comparator regimens to be selected by the investigator at each clinical site. The primary endpoint of the study is progression-free survival (PFS), and secondary endpoints include overall survival, response rates and safety. In January 2014, the Company announced it has received approval from the FDA to amend the Phase 3 protocol to continue dosing patients with aldorubicin until disease progression (defined as an increase in the size of measurable tumors by 20% or the development of a new tumor lesion), which creates the potential for substantially improved Phase 3 efficacy results.

Following discussions with the FDA, the Phase 3 protocol has been agreed upon under a Special Protocol Assessment (SPA). As part of that assessment, the FDA agreed that the design and planned analysis of the study adequately addresses the objectives necessary to support a regulatory submission for approval.

The clinical trial has completed its target enrollment of 400 patients at approximately 79 clinical sites in the U.S., Europe, Canada, Latin America and Australia. CytRx expects to report the top-line results on progression-free survival, the trial's primary endpoint, in the first half of 2016.

In September 2014, we initiated a global Phase 2b clinical trial evaluating aldoxorubicin compared to topotecan in subjects with extensive-stage small cell lung cancer (SCLC) who have relapsed or were refractory to prior chemotherapy. The open-label Phase 2b clinical trial is expected to enroll approximately 132 patients (1:1 randomization). The primary endpoint is PFS and the secondary endpoints are OS, overall response rates (partial and complete) and the safety of aldoxorubicin compared to topotecan in this population. The study is expected to involve approximately 40 clinical trial sites in the U.S., Spain and Hungary.

We are conducting a Phase 2 clinical trial to evaluate the preliminary efficacy and safety of aldoxorubicin in patients with unresectable glioblastoma whose tumors have progressed following prior treatment with surgery, radiation and with the drug temozolomide. The clinical trial has enrolled its target of 28 patients at sites including the John Wayne Cancer Center in Santa Monica, California, City of Hope in Duarte, California, and the LSU Medical Center in New Orleans, Louisiana.

Table of Contents

We are conducting a Phase 2 clinical trial evaluating the preliminary efficacy of aldoxorubicin in patients with AIDS-related Kaposi's sarcoma, a tumor usually associated with HIV infection in the U.S. The current standard-of-care for severe dermatological and systemic Kaposi's sarcoma is liposomal doxorubicin (Doxil); however, a significant proportion of patients exhibit minimal or no clinical response to this agent, and the drug's toxicity often prevents continued therapy. The Phase 2 trial is expected to enroll up to 30 patients and is being conducted at the LSU Medical Center in New Orleans, Louisiana.

We are also conducting a Phase 1b trial in combination with ifosfamide in patients with soft tissue sarcoma, and a Phase 1b trial in combination with gemcitabine in subjects with metastatic solid tumors. Since most chemotherapy agents are administered in combination with other chemotherapeutics, these studies will demonstrate the dose of aldoxorubicin that can be safely combined with two other chemotherapies that are commonly used to treated patients with sarcomas, pancreatic cancer, ovarian cancer and lung cancer.

Drug Discovery Laboratory

In October 2014, we commenced operations at our laboratory, located in Freiburg, Germany. The laboratory is conducting discovery and translational research to create drug candidates that utilize our LADR™ technologies to couple cytotoxic agents and proteins either inside the body or externally, and then concentrate drug in tumors. Led by Felix Kratz, Ph.D., Vice President of Drug Discovery and inventor of aldoxorubicin, and Andre Warnecke, Ph.D., Senior Director of Drug Discovery, the discovery team is working to expand our novel albumin-binding anti-cancer drug pipeline and using LADR™ linkers to create unique antibody-drug conjugates.

Disposition of Molecular Chaperone Assets

Until 2011, we owned the rights to two drug candidates, arimoclomol and irovanadine, based on molecular chaperone regulation technology that were designed to repair or degrade mis-folded proteins associated with disease. On May 13, 2011, we sold all pre-clinical and clinical data, intellectual property rights and other assets relating to those compounds to Orphazyme ApS in exchange for a cash payment of \$150,000 and the right to receive various future payments that are contingent upon the achievement of specified regulatory and business milestones, as well as royalty payments based on a specified percentage of any eventual net sales of products derived from the assets.

Innovive Acquisition Agreement

On September 19, 2008, we completed our merger acquisition of Innovive Pharmaceuticals, Inc., or Innovive, and its clinical-stage cancer product candidates, including aldoxorubicin, bafetinib and tamibarotene. Under the merger agreement by which we acquired Innovive, we agreed to pay the former Innovive stockholders up to approximately \$18.3 million of future earnout merger consideration, subject to our achievement of specified net sales under the Innovive license agreements. The earnout merger consideration, if any, will be payable in shares of our common stock, subject to specified conditions, or, at our election, in cash or by a combination of shares of our common stock and cash. Our common stock will be valued for purposes of any future earnout merger consideration based upon the trading price of our common stock at the time the earnout merger consideration is paid. The earnout will be accrued if and when earned.

Research and Development

Expenditures for research and development activities related to continuing operations were \$36.7 million, \$17.5 million and \$12.7 million for the years ended December 31, 2014, 2013 and 2012, respectively, or approximately 74%, 63% and 60%, respectively, of our total expenses. For further information regarding our research and

development activities, see Management's Discussion and Analysis of Financial Condition and Results of Operations below.

Manufacturing

We do not have the facilities or expertise to manufacture supplies of aldoxorubicin or any of our other product candidates, and we lack the resources and capability to manufacture any of our product candidates on a clinical or commercial scale. Accordingly, we are dependent upon third-party manufactures, or potential future strategic alliance partners, to manufacture these supplies. We have manufacturing supply arrangements in place with respect to a portion of the clinical supplies needed for the clinical development programs for aldoxorubicin. However, we have currently no supply arrangements for the commercial manufacture of aldoxorubicin or any manufacturing supply arrangements for any other potential product candidates, and we may not be able to secure needed supply arrangements on attractive terms, or at all. Our failure to secure these arrangements as needed could have a material adverse effect on our ability to complete the development of our products or to commercialize them.

Commercialization and Marketing

We currently have no sales, marketing or commercial product distribution capabilities or experience in marketing products. If aldoxorubicin is approved, we expect to commercialize it in the United States.

Table of Contents

We have not yet defined our commercial strategy for aldoxorubicin for markets outside the United States, which strategy may include the use of strategic partners, distributors, a contract sales force or the establishment of our own sales force. We plan to further evaluate these alternatives as we approach approval for aldoxorubicin.

As additional product candidates advance through our pipeline, our commercial plans may change. In particular, some of our pipeline assets target potentially large solid tumor indications. Factors such as clinical data, the size of the development programs, the size of the target market, the size of a commercial infrastructure, and manufacturing needs may influence our strategies in the United States, the European Union, and other territories.

Patents and Proprietary Technology

We actively seek patent protection for our technologies, processes, uses, and ongoing improvements and consider our patents and other intellectual property to be critical to our business. We regularly evaluate the patentability of new inventions and improvements developed by us or our collaborators, and, whenever appropriate, will endeavor to file U.S. and international patent applications to protect these new inventions and improvements. We cannot be certain that any of the current pending patent applications we have filed or licensed, or any new patent applications we may file or license, will ever be issued in the U.S. or any other country. There also is no assurance that any issued patents will be effective to prevent others from using our products or processes. It is also possible that any patents issued to us, as well as those we have licensed or may license in the future, may be held invalid or unenforceable by a court, or third parties could obtain patents that we would need to either license or to design around, which we may be unable to do. Current and future competitors may have licensed or filed patent applications or received patents, and may acquire additional patents and proprietary rights relating to compounds, products or processes that may be competitive with ours.

In addition to patent protection, we attempt to protect our proprietary products, processes and other information by relying on trade secrets and non-disclosure agreements with our employees, consultants and certain other persons who have access to such products, processes and information. Under the agreements, all inventions conceived by employees are our exclusive property, but there is no assurance that these agreements will afford significant protection against misappropriation or unauthorized disclosure of our trade secrets and confidential information.

As of December 31, 2015, we held rights in four granted U.S. patents, 55 granted foreign patents, three pending U.S. applications, and twenty-two pending foreign patent applications covering aldoxorubicin and related technologies. Our intellectual property holdings relating to aldoxorubicin and related technologies include an exclusive license from KTB Tumorforschungs GmbH to U.S. and foreign patents and patent applications. Patents and applications that cover pharmaceutical compositions of aldoxorubicin, processes for their production, and their use in treatment methods (e.g., cancer, (including glioblastoma), viral diseases, autoimmune diseases, and acute or chronic inflammatory diseases) have unextended patent terms expiring between June 2020 and June 2034. Additionally, we have three pending U.S. provisional patent applications covering our LADRTM technology and DK049.

License Agreements

Aldoxorubicin

We have an agreement with KTB Tumorforschungs GmbH, or KTB, for the license of patent rights held by KTB for the worldwide development and commercialization of aldoxorubicin. The license is exclusive and worldwide, applies to all products that may be subject to the licensed intellectual property and may be used in all fields of use. We may sublicense the intellectual property in our sole discretion. Pursuant to an amendment to the license agreement entered into in March 2014, we also have a non-exclusive worldwide license to any additional technology that is claimed or

disclosed in the licensed patents and patent applications for use in the field of oncology.

Under the agreement, we must make payments to KTB in the aggregate of up to \$7.5 million upon meeting clinical and regulatory milestones, and up to and including the product's second final marketing approval. We also agreed to pay:

commercially reasonable royalties based on a percentage of net sales (as defined in the agreement);

a percentage of any non-royalty sub-licensing income (as defined in the agreement); and

milestones of \$1 million for each additional final marketing approval that we obtain.

Pursuant to the March 2014 license amendment, we additionally agreed to make a \$500,000 milestone payment upon first dosing of a patient in a first phase I clinical trial for each product using the additional technology. In the event that by February 28, 2017, no such payment has become due, we have agreed to pay KTB \$500,000, which payment can be made, in our discretion, in cash or in shares of our common stock. If we elect to make the payment in shares of common stock, our shares will be valued at the volume-weighted average price (VWAP) over the preceding 60 trading days, to be calculated on February 28, 2017.

In the event that we must pay a third party in order to exercise our rights to the intellectual property under the agreement, we are entitled to deduct a percentage of those payments from the royalties due KTB, up to an agreed upon cap.

Table of Contents

Under the agreement with KTB, we must use commercially reasonable efforts to conduct the research and development activities we determine are necessary to obtain regulatory approval to market aldoxorubicin in those countries that we determine are commercially feasible. Under the agreement, KTB is to use its commercially reasonable efforts to provide us with access to suppliers of the active pharmaceutical ingredient, or API, of aldoxorubicin, on the same terms and conditions as may be provided to KTB by those suppliers.

The agreement will expire on a product-by-product basis upon the expiration of the subject patent rights. We have the right to terminate the agreement on 30 days' notice, provided we pay a cash penalty to KTB. KTB may terminate the agreement if we are in breach and the breach is not cured within a specified cure period, or if we fail to use diligent and commercial efforts to meet specified clinical milestones.

Competition

Aldoxorubicin is a conjugate of doxorubicin, a widely used anti-cancer drug. Doxorubicin is part of the anthracycline class of chemotherapy agents. Anthracyclines, many of which, including doxorubicin are generic, have been used throughout the world to treat various cancers for several decades. Due to their track record of broad anti-cancer activity, new types of anthracyclines and modified or reformulated versions continue to be developed to overcome toxicities which limit the use of these drugs.

Aldoxorubicin is a chemically modified version of doxorubicin that incorporates an acid sensitive linker technology to improve concentration in the tumor. We believe that the albumin-binding ability of aldoxorubicin will allow the compound to overcome many of the side effect issues typically associated with anthracyclines. We also believe that using albumin as a targeted carrier will allow for higher dosing, greater concentration of the drug in tumors and greater efficacy.

STS patients are typically treated with surgery followed by radiation therapy. For patients ineligible for surgery, radiation or chemotherapy, or both, is the only option. Doxorubicin is the only approved first-line drug for treating STS patients who are ineligible for surgery and is often used in combination with radiation. The National Comprehensive Cancer Network also includes the use of ifosfamide, epirubicin, gemcitabine, gemcitabine with docetaxel, dacarbazine and liposomal doxorubicin marketed in the United States as Doxil® by Johnson & Johnson. GlaxoSmithKline's pazopanib (Votrient®) was approved in the United States and Europe in 2012 for the treatment of certain types of advanced STS following prior chemotherapy. In October 2015, the Janssen unit of Johnson & Johnson received approval for trabectedin (Yondelis®) for the treatment of patients with leiomyosarcoma and liposarcoma, that have previously received an anthracycline and ifosfamide or an anthracycline followed by another chemotherapy. In February 2015, Eisai announced that eribulin (Halaven®) met the primary endpoint of overall survival in patients with either adipocytic or leiomyosarcoma following prior treatment with an anthracycline and at least one additional regimen. There are other approaches to treating STS in clinical development, including Eli Lilly's solaratumab currently in a Phase 3 clinical trial and Tracoon Pharmaceuticals' TRC-105 in combination with pazopanib.

Patients with glioblastoma multiforme, or GBM, generally undergo invasive brain surgery, although disease progression following surgery is nearly 100%. The front-line therapy for GBM following surgery is radiation in combination with temozolomide (Temodar®). Bevacizumab (Avastin®) has been approved for the treatment of GBM in patients progressing after prior therapy. Drugs in development to treat GBM include rindopepimut by Celldex Therapeutics, nivolumab by Bristol-Myers Squibb, DCVax by Northwest Biotherapeutics, DelMar Pharmaceuticals VAL-083, TRC105 from Tracoon Pharmaceuticals, veliparib by AstraZeneca and buparlisib by Novartis.

Treatment for newly diagnosed small cell lung cancer (SCLC) typically consists of cisplatin or carboplatin in combination with etoposide. Radiation may also be given for extensive-stage disease. While first-line treatment can

yield overall response rates of 50-80%, the duration of response is often less than 90 days. For recurrent SCLC, topotecan (Hycamtin®) is standard therapy. SCLC patients who are sensitive to first-line treatment may receive topotecan or the generic chemotherapeutic drugs irinotecan, taxanes, gemcitabine or vinorelbine. Drugs in development for second-line SCLC include Bristol-Myers Squibb's nivolumab (Opdivo®) and ipilimumab (Yervoy®) and SC16LD6.5 by Stem CentRx, Inc.

Kaposi's sarcoma is generally treated with radiation, surgery and/or liposomal doxorubicin. Liposomal daunorubicin (DaunoXome®, Galen US), with or without paclitaxel, is also recommended as treatment for advanced disease. Other drugs in development for Kaposi's sarcoma include selumetinib by AstraZeneca and pomalidamide by Celgene.

Many companies, including large pharmaceutical and biotechnology firms with financial resources, research and development staffs, and facilities that may be substantially greater than those of ours or our strategic partners or licensees, are engaged in the research and development of pharmaceutical products that could compete with our potential products. To the extent that we seek to acquire, through license or otherwise, existing or potential new products, we will be competing with numerous other companies, many of which will have substantially greater financial resources, large acquisition and research and development staffs that may give those companies a competitive advantage over us in identifying and evaluating these drug acquisition opportunities. Any products that we acquire will be competing with products marketed by companies that in many cases will have substantially greater marketing resources than we have. The industry is characterized by rapid technological advances and competitors may develop their products more rapidly and such products may be more effective than those currently under development or that may be developed in the future

Table of Contents

by our strategic partners or licensees. Competitive products for a number of the disease indications that we have targeted are currently being marketed by other parties, and additional competitive products are under development and may also include products currently under development that we are not aware of or products that may be developed in the future.

Government Regulation

The United States and other developed countries extensively regulate the preclinical and clinical testing, manufacturing, labeling, storage, record-keeping, advertising, promotion, export, marketing and distribution of drugs and biologic products. The FDA, under the Federal Food, Drug, and Cosmetic Act, the Public Health Service Act and other federal statutes and regulations, regulates pharmaceutical and biologic products.

To obtain approval of our product candidates from the FDA, we must, among other requirements, submit data supporting safety and efficacy for the intended indication as well as detailed information on the manufacture and composition of the product candidate. In most cases, this will require extensive laboratory tests and preclinical and clinical trials. The collection of these data, as well as the preparation of applications for review by the FDA involve significant time and expense. The FDA also may require post-marketing testing to monitor the safety and efficacy of approved products or place conditions on any approvals that could restrict the therapeutic claims and commercial applications of these products. Regulatory authorities may withdraw product approvals if we fail to comply with regulatory standards or if we encounter problems at any time following initial marketing of our products.

The first stage of the FDA approval process for a new drug involves completion of preclinical studies and the submission of the results of these studies to the FDA. These data, together with proposed clinical protocols, manufacturing information, analytical data and other information submitted to the FDA, in an investigational new drug application, or IND, must become effective before human clinical trials may commence. Preclinical studies generally involve FDA regulated laboratory evaluation of product characteristics and animal studies to assess the efficacy and safety of the product candidate.

After the IND becomes effective, a company may commence human clinical trials. These are typically conducted in three sequential phases, but the phases may overlap. Phase 1 trials consist of testing of the product candidate in a small number of patients or healthy volunteers, primarily for safety at one or more doses. Phase 2 trials, in addition to safety, evaluate the efficacy of the product candidate in a patient population somewhat larger than Phase 1 trials. Phase 3 trials typically involve additional testing for safety and clinical efficacy in an expanded population at multiple test sites. A company must submit to the FDA a clinical protocol, accompanied by the approval of the Institutional Review Boards at the institutions participating in the trial, prior to commencement of each clinical trial.

To obtain FDA marketing authorization, a company must submit to the FDA the results of the preclinical and clinical testing, together with, among other things, detailed information on the manufacture and composition of the product candidate, in the form of a new drug application, or NDA.

The amount of time taken by the FDA for approval of an NDA will depend upon a number of factors, including whether the product candidate has received priority review, the quality of the submission and studies presented, the potential contribution that the compound will make in improving the treatment of the disease in question, and the workload at the FDA.

The FDA may, in some cases, confer upon an investigational product the status of a fast-track product. A fast-track product is defined as a new drug or biologic intended for the treatment of a serious or life-threatening condition that demonstrates the potential to address unmet medical needs for this condition. The FDA can base approval of an NDA

for a fast-track product on an effect on a surrogate endpoint, or on another endpoint that is reasonably likely to predict clinical benefit. If a preliminary review of clinical data suggests that a fast-track product may be effective, the FDA may initiate review of entire sections of a marketing application for a fast-track product before the sponsor completes the application.

We anticipate that our products will be manufactured by our strategic partners, licensees or other third parties. Before approving an NDA, the FDA will inspect the facilities at which the product is manufactured and will not approve the product unless the manufacturing facilities are in compliance with the FDA's cGMP, which are regulations that govern the manufacture, holding and distribution of a product. Our manufacturers also will be subject to regulation under the Occupational Safety and Health Act, the National Environmental Policy Act, the Nuclear Energy and Radiation Control Act, the Toxic Substance Control Act and the Resource Conservation and Recovery Act. Following approval, the FDA periodically inspects drug and biologic manufacturing facilities to ensure continued compliance with the good manufacturing practices regulations. Our manufacturers will have to continue to comply with those requirements. Failure to comply with these requirements subjects the manufacturer to possible legal or regulatory action, such as suspension of manufacturing or recall or seizure of product. Adverse patient experiences with the product must be reported to the FDA and could result in the imposition of marketing restrictions through labeling changes or market removal. Product approvals may be withdrawn if compliance with regulatory requirements is not maintained or if problems concerning safety or efficacy of the product occur following approval.

The labeling, advertising, promotion, marketing and distribution of a drug or biologic product also must be in compliance with FDA and Federal Trade Commission requirements which include, among others, standards and regulations for off-label promotion,

Table of Contents

industry sponsored scientific and educational activities, promotional activities involving the internet, and direct-to-consumer advertising. We also will be subject to a variety of federal, state and local regulations relating to the use, handling, storage and disposal of hazardous materials, including chemicals and radioactive and biological materials. In addition, we will be subject to various laws and regulations governing laboratory practices and the experimental use of animals. In each of these areas, as above, the FDA has broad regulatory and enforcement powers, including the ability to levy fines and civil penalties, suspend or delay issuance of product approvals, seize or recall products, and deny or withdraw approvals.

We will also be subject to a variety of regulations governing clinical trials and sales of our products outside the U.S. Whether or not FDA approval has been obtained, approval of a product candidate by the comparable regulatory authorities of foreign countries and regions must be obtained prior to the commencement of marketing the product in those countries. The approval process varies from one regulatory authority to another and the time may be longer or shorter than that required for FDA approval. In the European Union, Canada and Australia, regulatory requirements and approval processes are similar, in principle, to those in the U.S.

Employees

As of December 29, 2015, we had 27 employees, nine of whom were engaged in clinical development activities, nine of whom were engaged in preclinical research at our Freiburg, Germany laboratory, and nine of whom were involved in management and administrative operations.

Corporate Information

We are a Delaware corporation, incorporated in 1985. Our corporate offices are located at 11726 San Vicente Boulevard, Suite 650, Los Angeles, California 90049, and our telephone number is (310) 826-5648. Our web site is located on the worldwide web at <http://www.cytrx.com>. We do not incorporate by reference into this prospectus the information on, or accessible through, our website, and you should not consider it as part of this prospectus.

RISK FACTORS

Investing in our securities involves significant risks. The prospectus supplement relating to a particular offering will contain a discussion of risks applicable to an investment in the securities offered. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading Risk Factors in the applicable prospectus supplement together with all of the other information contained in the prospectus supplement or appearing or incorporated by reference in this prospectus.

USE OF PROCEEDS

Unless we state otherwise in the accompanying prospectus supplement, we intend to use the net proceeds from the sale of securities offered by this prospectus for pre-commercialization and, subject to regulatory approval, commercialization activities for aldoxorubicin and for other working capital and general corporate purposes, including the clinical trials of our product candidates. General corporate purposes also may include funding of capital expenditures, payments in connection with possible future acquisitions and strategic investments and repayment of future indebtedness.

We have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds from this offering. Pending application of the net proceeds as described above, we expect to invest the net proceeds in short-term,

interest-bearing, investment-grade securities pursuant to our investment policy.

Table of Contents**FINANCIAL RATIOS**

The following table sets forth our ratio of earnings, if any, to combined fixed charges and preference dividends for each of the periods presented:

| | Year Ended December 31 | | | | | Nine Months Ended |
|---|------------------------|------|------|------|------|--------------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | September 30, 2015 |
| Ratio of earnings to combined fixed charges and preference dividends | 5:1 | | | | | |
| Deficiency of earnings available to cover fixed charges and preferred dividends | | (a) | (b) | (c) | (d) | (e) |

- (a) Earnings in the fiscal year ended December 31, 2011 were inadequate to cover combined fixed charges and preference dividends. The coverage deficiency was approximately \$14.2 million.
- (b) Earnings in the fiscal year ended December 31, 2012 were inadequate to cover combined fixed charges and preference dividends. The coverage deficiency was approximately \$17.9 million.
- (c) Earnings in the fiscal year ended December 31, 2013 were inadequate to cover combined fixed charges and preference dividends. The coverage deficiency was approximately \$47.2 million.
- (d) Earnings in the fiscal year ended December 31, 2014 were inadequate to cover combined fixed charges and preference dividends. The coverage deficiency was approximately \$30.0 million.
- (e) Earnings in the nine months ended September 30, 2015 were inadequate to cover combined fixed charges and preference dividends. The coverage deficiency was approximately \$36.2 million.

The ratio is computed by dividing earnings by combined fixed charges and preference dividends. For this purpose, earnings are calculated as follows: (i) adding (a) net income (loss) from continuing operations before adjustment for any income or loss from any equity investees; (b) fixed charges; (c) amortization of any capitalized interest; (d) any distributed income of any equity investees; and (e) our share of any pre-tax losses of any equity investees for which charges arising from guarantees are included in fixed charges; and (ii) subtracting from such sum (a) any interest capitalized; (b) any preferred security dividend requirements of any consolidated subsidiaries; and (c) any non-controlling interest in the pre-tax income (loss) of any subsidiaries that have not incurred fixed charges. Equity investees, if any, are investments that we account for using the equity method of accounting.

Fixed charges consist of that portion of rental expense associated with certain facility and equipment leases considered to be a reasonable estimate of the interest factor. We did not pay or accrue any preference dividends for the periods presented.

DIVIDEND POLICY

Our board of directors sets our dividend policy. We have never paid any cash dividends on our common stock and do not intend to declare cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings for use in the operation and expansion of our business, but we may determine in the future to declare or pay cash dividends on our common stock. Any future determination as to the declaration and payment of dividends will be at the discretion of our board of directors and will be dependent upon our results of operations and cash flows, our financial position and capital requirements, general business conditions, legal, tax,

regulatory and any contractual restrictions on the payment of dividends, and any other factors our board of directors deems relevant.

THE SECURITIES THAT WE MAY OFFER

We, directly or through agents, dealers or underwriters designated from time to time, may offer, issue and sell, together or separately, up to \$100,000,000 in the aggregate of:

shares of our common stock, par value \$0.001 per share;

shares of our preferred stock, par value \$0.01 per share;

warrants to purchase our common stock or preferred stock; and

any combination of the securities listed above, separately or as units, each on terms to be determined at the time of sale.

The common stock, preferred stock, warrants and units collectively are referred to in this prospectus as the securities.

Table of Contents

We have summarized below the material terms of the various types of securities that we may offer. We will describe in the applicable prospectus supplement the detailed terms of the securities offered by that supplement. If indicated in the prospectus supplement, the terms of the offered securities may differ from the terms summarized below.

DESCRIPTION OF CAPITAL STOCK

As of December 29, 2015, our authorized capital stock consisted of 250,000,000 shares of common stock, \$0.001 par value per share, of which 66,480,465 shares were outstanding (exclusive of treasury shares), and 5,000,000 shares of preferred stock, \$0.01 par value per share, none of which was outstanding.

The following summary of certain provisions of our common and preferred stock does not purport to be complete. You should refer to our amended and restated certificate of incorporation and our restated bylaws, which are filed with or incorporated by reference in the registration statement relating to this offering filed by us with the SEC. The summary below is also qualified by reference to the provisions of applicable Delaware corporation law.

Common Stock

Holder of our common stock are entitled to one vote per share on matters on which our stockholders vote, including with respect to the election of directors. Holders of common stock are entitled to receive dividends, if declared by our board of directors, out of funds that we may legally use to pay dividends. See the section of this prospectus entitled **Dividend Policy** for further information. If we liquidate or dissolve, holders of common stock are entitled to share ratably in our assets once our debts and any liquidation preference owed to holders of any then-outstanding preferred stock are paid. No shares of preferred stock will be outstanding immediately after the closing of this offering. All shares of common stock that are outstanding as of the date of this prospectus supplement are, and all shares we are selling in this offering, upon their issuance and sale, will be, fully-paid and nonassessable. Holders of our common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions with respect to our common stock.

Preferred Stock

We are currently authorized to issue 5,000,000 shares of preferred stock, of which 25,000 shares have been designated as Series A Junior Participating Preferred Stock. We have reserved all of the shares of our Series A Junior Participating Preferred Stock for issuance upon the exercise of the rights under our Shareholder Protection Rights Agreement described below.

Our board of directors has the authority to issue shares of preferred stock in one or more series and to fix the rights of each series. These rights may include dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, redemption prices, liquidation preferences, sinking fund terms, and the number of shares that constitute any series. The board of directors may exercise this authority without any further action by our stockholders.

Our board of directors will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus in the certificate of designation relating to each such series. We will incorporate by reference as an exhibit to the registration statement of which this prospectus is a part or as an exhibit to one or more current reports on Form 8-K, the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. This description will include:

the title and stated value;

the number of shares we are offering;

the liquidation preference per share;

the purchase price per share;

the dividend rate per share, dividend period, payment date or dates and method of calculation of dividends;

whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;

our right, if any, to defer payment of dividends and the maximum length of any such deferral period;

the procedures for any auction and remarketing, if any;

the provisions for a sinking fund, if any;

the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;

any listing of the preferred stock on any securities exchange or market;

Table of Contents

whether the preferred stock will be convertible into our common stock or other securities of ours, including warrants, and, if applicable, the conversion price, or how it will be calculated, and under what circumstances and the mechanism by which it may be adjusted, and the conversion period;

whether the preferred stock will be exchangeable into debt securities or other securities of ours, and, if applicable, the exchange price, or how it will be calculated, and under what circumstances it may be adjusted, and the exchange period;

voting rights, if any;

preemptive rights, if any;

restrictions on transfer, sale or other assignment, if any;

a discussion of any material United States federal income tax considerations applicable to the preferred stock;

the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;

any limitations on issuances of any class or series of preferred stock ranking senior or on a parity with the series of preferred stock being issued as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and

any other specific terms, rights, preferences, privileges, qualifications or limitations of, or restrictions on, the preferred stock.

If we issue and sell shares of preferred stock pursuant to this prospectus, the shares will be fully paid and nonassessable and will not have, or be subject to, any preemptive or similar rights.

The laws of the State of Delaware, the state of our incorporation, provide that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of such preferred stock. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

We believe the power to issue preferred stock will provide our board of directors with flexibility in connection with certain possible corporate transactions. The issuance of preferred stock, however, could adversely affect the voting power of holders of our common stock, restrict their rights to receive payment upon liquidation, and have the effect of delaying, deferring, or preventing a change in control which may be beneficial to our stockholders.

Anti-Takeover Measures

Delaware Law

Section 203 of the Delaware General Corporation Law is applicable to takeovers of certain Delaware corporations, including us. Subject to exceptions enumerated in Section 203, Section 203 provides that a corporation shall not engage in any business combination with any interested stockholder for a three-year period following the date that the stockholder becomes an interested stockholder unless:

prior to that date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, though some shares may be excluded from the calculation; or

on or subsequent to that date, the business combination is approved by the board of directors of the corporation and by the affirmative votes of holders of at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

Except as specified in Section 203, an interested stockholder is generally defined to include any person who, together with any affiliates or associates of that person, beneficially owns, directly or indirectly, 15% or more of the outstanding voting stock of the corporation, or is an affiliate or associate of the corporation and was the owner of 15% or more of the outstanding voting stock of the corporation, any time within three years immediately prior to the relevant date. Under certain circumstances, Section 203 makes it more difficult for an interested stockholder to effect various business combinations with a corporation for a three-year period, although the stockholders may elect not to be governed by this section, by adopting an amendment to the certificate of incorporation or by-laws, effective 12 months after adoption. Our amended and restated certificate of incorporation and by-laws do not opt out from the restrictions imposed under Section 203. We anticipate that the provisions of Section 203 may encourage companies interested in acquiring us to negotiate in advance with the board because the stockholder approval requirement would be avoided if a majority of

Table of Contents

the directors then in office excluding an interested stockholder approve either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder. These provisions may have the effect of deterring hostile takeovers or delaying changes in control, which could depress the market price of our common stock and deprive stockholders of opportunities to realize a premium on shares of common stock held by them.

Charter and By-Law Provisions

In addition to the board of directors' ability to issue shares of preferred stock, our amended and restated certificate of incorporation and restated by-laws contain the following provisions that may have the effect of discouraging unsolicited acquisition proposals:

our restated by-laws classify the board of directors into three classes with staggered three-year terms;

under our restated by-laws, our board of directors may enlarge the size of the board and fill the vacancies;

our restated by-laws provide that a stockholder may not nominate candidates for the board of directors at any annual or special meeting unless that stockholder notifies us of its intention a specified period in advance and provides us with certain required information;

stockholders who wish to bring business before the stockholders at our annual meeting must provide advance notice; and

our restated by-laws provide that special meetings of stockholders may only be called by our board of directors or by an officer so instructed by our board.

Our restated by-laws also provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for:

any derivative action or proceeding brought on our behalf;

any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the company to us or our stockholders;

any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law; or

any action asserting a claim governed by the internal affairs doctrine.

Our restated by-laws further provide that any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the company is deemed to have notice of and consented to the foregoing provision.

Shareholder Protection Rights Agreement

Our board of directors adopted a Shareholder Protection Rights Agreement, or Rights Agreement, dated April 16, 1997, as amended, between us and American Stock Transfer & Trust Co., as Rights Agent. The Rights Agreement will expire on April 16, 2017, unless renewed or extended by our board of directors. A series of our preferred stock, designated as Series A Junior Participating Preferred Stock, par value \$.01 per share, was created in accordance with the Rights Agreement. The Rights Agreement is designed to deter coercive takeover tactics, including the accumulation of shares in the open market or through private transactions, and to prevent an acquirer from gaining control of us without offering a fair and adequate price and terms to all of our stockholders. As such, the Rights Agreement is intended to enhance our board of directors' ability to protect stockholder interests and help to assure that stockholders receive fair and equal treatment in the event any proposed takeover of CytRx is made in the future. Pursuant to the Rights Agreement, our board of directors declared a dividend distribution of one preferred stock purchase right for each outstanding share of our common stock. The preferred stock purchase rights are attached to, and trade with, our common stock. The purchase rights are exercisable only upon the occurrence of certain triggering events described in the Rights Agreement.

Transfer Agent

The transfer agent for our common stock is American Stock Transfer & Trust Company, 40 Wall Street, New York, New York 10005.

DESCRIPTION OF WARRANTS

We may offer and issue warrants to purchase shares of our common stock or preferred stock. The warrants may be issued independently or as a part of units consisting of shares of our common stock or preferred stock and warrants to purchase additional shares of our common stock or preferred stock. If the warrants are issued pursuant to warrant agreements, we will so specify in the prospectus supplement relating to the warrants being offered pursuant to the prospectus supplement.

Table of Contents

The following description will apply to the warrants offered by this prospectus unless we provide otherwise in the applicable prospectus supplement. The applicable prospectus supplement for a particular series of warrants may specify different or additional terms. The forms of any warrant certificates or warrant agreements evidencing the warrants that we issue will be filed with the SEC and incorporated by reference into this prospectus, and you should carefully review such documents.

The prospectus supplement will describe the following terms of warrants to purchase our common stock, preferred stock or debt securities to the extent applicable:

the title of the warrants;

the common stock or preferred stock for which the warrants are exercisable;

the price at which the warrants will be issued and the exercise price of the warrants;

the aggregate number of warrants offered;

the number of shares of common stock or preferred stock that may be purchased upon the exercise of each warrant;

whether the warrants are being offered separately or as a part of units consisting of shares of our common stock or preferred stock and warrants to purchase additional shares of our common stock or preferred stock;

the terms of any right by us to redeem the warrants;

the date on which the right to exercise the warrants will commence and the date on which this right will expire;

the procedures for exercising the warrants;

the terms on which the warrants may be amended;

the terms of any adjustments in the warrant exercise price and the number of shares of common stock or preferred stock purchasable upon the exercise of each warrant to be made in certain events, including the issuance of a stock dividend to holders of common stock or preferred stock or a stock split, reverse stock split, combination, subdivision or reclassification of common stock;

the effect on the warrants of our merger or consolidation with another entity or our sale of all or substantially all of our assets;

the maximum or minimum number of warrants which may be exercised at any time; and

the material United States federal income tax consequences applicable to the warrants and their exercise. Holders of warrants to purchase common stock or preferred stock will not be entitled, by virtue of being such holders, to vote, consent, receive dividends, receive notice as stockholders with respect to any meeting of stockholders for the election of our directors or any other matter, or to exercise any rights whatsoever as our stockholders.

Warrants may be exercised at any time up to the close of business on the expiration date set forth in the prospectus supplement relating to the warrants offered thereby. After the close of business on the expiration date, unexercised warrants will become void. Upon our receipt of the exercise price of the warrants upon the due exercise of the warrants, we will, as soon as practicable, forward the securities purchasable upon exercise. If less than all of the warrants represented by such warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

DESCRIPTION OF UNITS

We may offer and issue units that consist of shares of our common stock or preferred stock and warrants to purchase additional shares of our common stock or preferred stock. For example, we may elect to issue units for a specified price per unit, with each unit consisting of one share of our common stock or preferred stock and one warrant to purchase an additional share of our common stock or preferred stock at a specified price. The holder of a unit will also hold each of the securities that is included in the unit.

We have provided in the preceding sections of this prospectus a general description of our common stock, preferred stock, and warrants that we may offer. If we elect to offer units, we will describe the specific terms of the units in a supplement to this prospectus. Among other things, the prospectus supplement will describe, to the extent applicable:

the price of each unit;

the securities comprising each unit;

the exercise price of the warrants comprising part of the units;

the aggregate number of units offered;

Table of Contents

the number of shares of common stock or preferred stock that may be purchased upon the exercise of each warrant comprising part of a unit;

the terms of any right by us to redeem any of the securities comprising the units;

the date on which the right to exercise the warrants forming part of the units will commence and the date on which this right will expire;

any transfer restrictions on the units, including whether the securities comprising the units may be transferred separately;

the terms on which the units or warrants forming part of the units may be amended;

with respect to preferred stock forming part of the units, the other matters listed above under Description of Capital Stock Preferred Stock ;

with respect to warrants forming part of the units, the other matters listed above under Description of Warrants ; and

the material United States federal income tax consequences applicable to the units.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

through agents to the public or to investors;

to one or more underwriters for resale to the public or to investors;

in at the market offerings, within the meaning of Rule 415(a)(4) of the Securities Act of 1933, as amended, or the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;

directly to investors; or

through a combination of these methods of sale.

We will set forth in a prospectus supplement the terms of an offering of shares of our securities, including.

the name or names of any agents or underwriters;

the purchase price of the securities being offered and the proceeds we will receive from the sale;

any over-allotment options under which underwriters may purchase additional securities from us;

any agency fees or underwriting discounts and other items constituting agents or underwriters compensation;

the public offering price; and

any discounts or concessions allowed or reallocated or paid to dealers.

We may distribute the securities from time to time in one or more transactions;

at a fixed price or prices, which may be changed;

at market prices prevailing at the time of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

We may also, from time to time, authorize dealers, acting as our agents, to offer and sell securities upon the terms and conditions set forth in the applicable prospectus supplement. We, or the purchasers of securities for whom the underwriters may act as agents, may compensate underwriters in the form of underwriting discounts or commissions, in connection with the sale of securities. Underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters or commissions from the purchasers for whom they may act as agent. Unless otherwise indicated in a prospectus supplement, an agent will be acting on a best efforts basis and a dealer will purchase securities as a principal, and may then resell the common stock at varying prices to be determined by the dealer.

We will describe in the applicable prospectus supplement any compensation we will pay to underwriters or agents in connection with the offering of securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers. The

Table of Contents

dealers and agents participating in the distribution of securities may be deemed to be underwriters, and any discounts and commissions received by them and any profit realized by them on resale of the securities may be deemed to be underwriting discounts and commissions. We may enter into agreements to indemnify underwriters, dealers and agents against certain civil liabilities, including liabilities under the Securities Act and to reimburse these persons for certain expenses. We may grant underwriters who participate in the distribution of securities we are offering under this prospectus an option to purchase additional shares to cover over-allotments, if any, in connection with the distribution.

To facilitate the offering of securities, certain persons participating in the offering may engage in transactions that stabilize, maintain, or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involve the sale by persons participating in the offering of more securities than we sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if securities sold by them is repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

Any underwriters who are qualified market makers on The NASDAQ Capital Market may engage in passive market making transactions in the securities on The NASDAQ Capital Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. 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 maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

Certain underwriters, dealers or agents and their associates may engage in transactions with and perform services for us in the ordinary course of our business.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. The SEC's website contains reports, proxy and information statements and other information regarding issuers such as us that file electronically with the SEC. You may also read and copy any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549, and may obtain copies of these documents at prescribed rates by writing to the SEC. Please call the SEC at 1-800-SEC-0330 for further information on the operation of its Public Reference Room.

Information about us is also available at our website at www.cytrx.com; however, information on our website is not incorporated into this prospectus and is not a part of this prospectus.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference the information we have filed with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. You should read the information incorporated by reference because it is an important part of this prospectus. Any statement in a document we incorporate by reference into this prospectus will be considered to be modified or

superseded to the extent a statement contained in this prospectus or any other subsequently filed document that is incorporated by reference into this prospectus modifies or supersedes that statement. The modified or superseded statement will not be considered to be a part of this prospectus, except as modified or superseded.

We incorporate by reference the following information or documents that we have filed with the SEC (excluding those portions of any Form 8-K that are not deemed filed pursuant to the General Instructions of Form 8-K):

our Annual Report on Form 10-K for the year ended December 31, 2014 filed with the SEC on March 10, 2015;

our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2015, June 30, 2015 and September 30, 2015 filed with the SEC on May 1, 2015, August 3, 2015 and November 3, 2015, respectively;

our Current Reports on Form 8-K filed with the SEC on January 6, 2015, March 10, 2015, March 11, 2015, May 1, 2015, June 24, 2015, July 21, 2015, August 3, 2015, November 3, 2015 and December 10, 2015, respectively;

the description of our securities as described in our Registration Statement on Form 8-A filed under the Exchange Act on March 17, 1987 (File No. 0 15327), and any amendment or report filed for the purpose of updating any such description; and

the description of our Series A Junior Participating Preferred Stock Purchase Rights as described in our Registration Statement on Form 8-A filed under the Exchange Act on April 17, 1997 (File No. 000 15327), and any amendment or report filed for the purpose of updating any such descriptions.

Table of Contents

We also incorporate by reference all documents filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date on which we filed the registration statement of which this prospectus is a part and prior to the termination of this offering (excluding those portions of any Form 8-K that are not deemed filed pursuant to the General Instructions of Form 8-K).

Statements made in this prospectus or in any document incorporated by reference in this prospectus as to the contents of any contract or other document referred to herein or therein are not necessarily complete, and in each instance reference is made to the copy of such contract or other document filed as an exhibit to the documents incorporated by reference, each such statement being qualified in all material respects by such reference.

You may obtain a copy of the foregoing documents from us without charge by writing or calling us at the following address and telephone number: 11726 San Vicente Blvd., Suite 650 Los Angeles, California 90049, Attention: Corporate Secretary; (310) 826-5648.

LEGAL MATTERS

The validity of the securities being offered hereby has been passed upon for us by TroyGould PC, Los Angeles, California. TroyGould PC and some of its attorneys own shares of our common stock constituting in the aggregate less than 1% of our outstanding shares of common stock.

EXPERTS

The consolidated financial statements and schedule as of December 31, 2014 and 2013 and for each of the three years in the period ended December 31, 2014 and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2014 incorporated by reference in this prospectus have been so incorporated in reliance on the reports of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

Table of Contents

PROSPECTUS

\$100,000,000

The date of this prospectus is , 2016

Table of Contents**PART II****INFORMATION NOT REQUIRED IN PROSPECTUS****ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION**

We estimate that the expenses incurred in connection with the distribution described in this registration statement will be as set forth below. We will bear all of such expenses.

| | |
|------------------------------------|-------------------|
| SEC registration fee | \$ 10,070 |
| Transfer agent fees and expenses | * |
| Nasdaq Capital Market listing fees | * |
| FINRA corporate filing fees | * |
| Accounting fees and expenses | * |
| Legal fees and expenses | * |
| Printing expenses | * |
| Miscellaneous | * |
| Total | \$ 10,070* |

* Estimated expenses, if any, not presently known.

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 102(b)(7) of the Delaware General Corporation Law authorizes a corporation in its certificate of incorporation to eliminate or limit personal liability of directors of the corporation for violations of the directors' fiduciary duty of care. However, directors remain liable for breaches of duties of loyalty, failing to act in good faith, engaging in intentional misconduct, knowingly violating a law, paying a dividend or approving a stock repurchase which was illegal under Delaware General Corporation Law Section 174 or obtaining an improper personal benefit. In addition, equitable remedies for breach of fiduciary duty of care, such as injunction or recession, are available.

Our amended and restated certificate of incorporation eliminates the personal liability of the members of our board of directors to the fullest extent permitted by law. Specifically, Article Eleven of our amended and restated certificate of incorporation provides as follows:

A director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the Delaware General Corporation Law, or (iv) for any transaction from which the director derived any improper personal benefit. If the Delaware General Corporation Law is amended after approval by the stockholders of this Article to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the corporation shall be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law as so amended.

Any repeal or modification of the foregoing paragraph by the stockholders of the corporation shall not adversely affect any right or protection of a director of the corporation existing at the time of such repeal or modification.

In addition, our amended and restated certificate of incorporation and restated by-laws provide for indemnification of our officers and directors to the fullest extent permitted by law. In particular, Article Nine of our amended and restated certificate of incorporation provides as follows:

The corporation shall, to the fullest extent permitted by Section 145 of the General Corporation Law of the State of Delaware, as the same may be amended and supplemented, indemnify any and all persons whom it shall have power to indemnify under said section from and against any and all of the expenses, liabilities or other matters referred to in or covered by said section, and the indemnification provided for herein shall not be deemed exclusive of any other rights to which those indemnified may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in his official capacity and as to action in another capacity while holding such office, and shall continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

Section 145 of the Delaware General Corporation Law empowers a corporation to indemnify any person who was or is party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director, officer or agent of the corporation or another enterprise if serving at the request of the corporation. Depending on the character of the proceeding, a corporation may indemnify

Table of Contents

against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding if the person indemnified acted in good faith in respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. In the case of an action by or in the right of the corporation, no indemnification may be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine that despite the adjudication of liability such person is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper. Section 145 further provides that to the extent a director, officer, employee or agent of a corporation has been successful in the defense of any action, suit or proceeding referred to above or in the defense of any claim, issue or matter therein, he shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by him in connection therewith. Our restated by-laws permit us to purchase insurance on behalf of such person against any liability asserted against him and incurred by him in any such capacity, or arising out of his status as such, whether or not we would have the power to indemnify him against such liability under the foregoing provision of the restated by-laws.

We hold an insurance policy covering directors and officers under which the insurer agrees to pay, with some exclusions, for any claim made against our directors and officers for a wrongful act that they may become legally obligated to pay or for which we are required to indemnify our directors or officers.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, may be permitted for directors, officers and controlling persons of the Company under the above provisions, or otherwise, the Commission has advised us that, in its opinion, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Company of expenses incurred or paid by a director, officer or controlling person of the Company in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Company will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

ITEM 16. EXHIBITS

The exhibits listed in the accompanying Exhibit Index are filed or incorporated by reference as part of this registration statement.

ITEM 17. UNDERTAKINGS

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental

change in the information set forth in the registration statement; notwithstanding the foregoing, any increase or decrease in the volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the Calculation of Registration Fee table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement; provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the registration statement is on Form S-3 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the registrant pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

Table of Contents

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof; provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is a part of the registration statement will, as to a purchaser with a time of contract sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was a part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public

policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

Table of Contents**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement on Form S-3 to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Los Angeles, State of California, on December 30, 2015.

CYTRX CORPORATION

By: /s/ STEVEN A. KRIEGSMAN
 Steven A. Kriegsman
 President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Steven A. Kriegsman as his true and lawful attorney-in-fact and agent, with full power of substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement on Form S-3, and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act of 1933, and all post-effective amendments thereto, and to file the same and all prospectus supplements, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated:

| Signature | Title | Date |
|---|---|----------------------|
| /s/ STEVEN A. KRIEGSMAN Steven A Kriegsman | President and Chief Executive Officer and Director (principal executive officer) | December 30, 2015 |
| /s/ JOHN Y. CALOZ John Y. Caloz | Chief Financial Officer and Treasurer (principal financial and accounting officer) | December 30, 2015 |
| /s/ ANITA J. CHAWLA Anita J. Chawla, Ph.D. | Director | December 30, 2015 |
| /s/ CHERYL COHEN | Director | |

| | | |
|-------------------------|----------|----------------------|
| Cheryl Cohen | | December 30, 2015 |
| /s/ LOUIS J. IGNARRO | Director | December 30, 2015 |
| Louis J. Ignarro, Ph.D. | | |
| /s/ JOSEPH RUBINFELD | Director | December 30, 2015 |
| Joseph Rubinfeld | | |
| /s/ ERIC SELTER | Director | December 30, 2015 |
| Eric Selter | | |

Table of Contents**EXHIBIT INDEX**

The following exhibits are filed herewith or incorporated herein by reference.

| Exhibit Number | Description |
|-----------------------|---|
| 1.1 | Form of Underwriting Agreement.* |
| 3.1 | Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Registrant's Annual Report on Form 10-K filed on April 1, 2008). |
| 3.2 | Restated By-Laws (incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-8 (File No. 333-37171) filed on July 21, 1997). |
| 4.1 | Shareholder Protection Rights Agreement dated April 16, 1997 between CytRx Corporation and American Stock Transfer & Trust Company as Rights Agent (incorporated by reference to Exhibit 99.1 to the Registrant's Current Report on Form 8-K filed April 17, 1997). |
| 4.2 | Amendment No. 1 to Shareholder Protection Rights Agreement (incorporated by reference to Exhibit 4.2 to the Registrant's Annual Report on Form 10-K filed on April 1, 2002). |
| 4.3 | Amendment No. 2 to Shareholder Protection Rights Agreement (incorporated by reference to Exhibit 4.3 to the Registrant's Annual Report on Form 10-K filed on April 2, 2007). |
| 4.4 | Form of Preferred Stock Certificate.* |
| 4.5 | Certificate of Designation regarding the rights, preferences, privileges and restrictions with respect to any preferred stock issued under this registration statement.* |
| 4.6 | Form of Warrant Agreement for Common Stock, including form of Warrant.* |
| 4.7 | Form of Warrant Agreement for Preferred Stock, including form of Warrant.* |
| 4.8 | Form of Unit Certificate.* |
| 5.1 | Opinion of TroyGould PC. |
| 12.1 | Statement Regarding Computation of Ratios. |
| 23.1 | Consent of TroyGould PC (included in Exhibit 5.1). |
| 23.2 | Consent of BDO USA, LLP. |
| 24.1 | Power of Attorney (included on Page II-5). |

* To be filed, if applicable, subsequent to the effectiveness of this registration statement (1) by an amendment to this registration statement or (2) as an exhibit to a Current Report on Form 8-K and incorporated herein by reference.