

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

**FORM S-1**  
**REGISTRATION STATEMENT**  
**UNDER THE SECURITIES ACT OF 1933**  
**CYTORI THERAPEUTICS, INC.**

(Exact Name of Registrant as Specified in Its Charter)

<b>Delaware</b> (State or Other Jurisdiction of Incorporation or Organization)	<b>3841</b> (Primary Standard Industrial Classification Code Number)	<b>33-0827593</b> (I.R.S. Employer Identification Number)
---	---	--

**3020 Callan Road**  
**San Diego, CA**  
**(858) 458-0900**

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

**Marc H. Hedrick, MD**  
**President and Chief Executive Officer**  
**Cytori Therapeutics, Inc.**  
**3020 Callan Road**  
**San Diego, CA 92121**

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

**Copies to:**

Cheston J. Larson, Esq.  
Latham & Watkins LLP  
12670 High Bluff Dr.  
San Diego, CA 92130  
Tel: (858) 523-5400  
Fax: (858) 523-5450

**Approximate date of commencement of proposed sale to the public:** As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

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

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

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

---

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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

<b>Title of each class of securities to be registered</b>	<b>Amount to be registered(1)</b>	<b>Proposed maximum aggregate offering price per share(2)</b>	<b>Proposed maximum aggregate offering price</b>	<b>Amount of registration fee</b>
Common stock, \$0.001 par value per share	6,509,677	\$1.445	\$9,406,483	\$1,091

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended, this registration statement shall be deemed to cover the additional securities of the same class as the securities covered by this registration statement issued or issuable prior to completion of the distribution of the securities covered by this registration statement as a result of a split of, or a stock dividend on, the registered securities.
- (2) Estimated solely for the purpose of calculating the registration fee. Pursuant to Rule 457(c) under the Securities Act of 1933, as amended, the proposed maximum offering price per share is based on the average of the high and low sale prices of the registrant's common stock on the NASDAQ Capital Market on December 28, 2016.

**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 that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.**

**The information in this prospectus is not complete and may be changed. The selling stockholder may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.**

**Subject to Completion, dated December 29, 2016**

**PROSPECTUS**



**6,509,677 Shares**

**Common Stock**

This prospectus relates to the sale or other disposition from time to time of up to 6,509,677 shares of our common stock, \$0.001 par value per share, issued and issuable to Lincoln Park Capital Fund, LLC, the selling stockholder named in this prospectus, also referred to as Lincoln Park. We are not selling any shares of common stock under this prospectus and will not receive any of the proceeds from the sale of shares of common stock by the selling stockholder.

The shares of common stock being offered by the selling stockholder have been or may be issued pursuant to the purchase agreement dated December 22, 2016 that we entered into with Lincoln Park, which we refer to in this prospectus as the Purchase Agreement. Please refer to the section of this prospectus entitled “The Lincoln Park Transaction” for a description of the Purchase Agreement and the section entitled “Selling Stockholder” for additional information regarding Lincoln Park. The prices at which Lincoln Park may sell the shares will be determined by the prevailing market price for the shares or in negotiated transactions.

The selling stockholder may sell or otherwise dispose of the shares of common stock covered by this prospectus in a number of different ways and at varying prices. We provide more information about how the selling stockholder may sell or otherwise dispose of their shares of common stock in the section entitled “Plan of Distribution.” The selling stockholder will pay all brokerage fees and commissions and similar expenses. We will pay all expenses (except brokerage fees and commissions and similar expenses) relating to the registration of the shares with the Securities and Exchange Commission.

Our common stock is listed on the NASDAQ Capital Market under the ticker symbol “CYTX.” On December 28, 2016, the closing price of our common stock as reported on the NASDAQ Capital Market was \$1.36.

Lincoln Park is an underwriter within the meaning of Section 2(a)(11) of the Securities Act of 1933, as amended.

**Investing in our common stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading “Risk Factors” beginning on page 11 of this prospectus, and under similar headings in any amendments or supplements to this prospectus.**

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

The date of this prospectus is December , 2016.

## TABLE OF CONTENTS

	<b>Page</b>
<a href="#">About This Prospectus</a>	<b>i</b>
<a href="#">Prospectus Summary</a>	<b>1</b>
<a href="#">Risk Factors</a>	<b>11</b>
<a href="#">Forward-Looking Statements</a>	<b>18</b>
<a href="#">The Lincoln Park Transaction</a>	<b>19</b>
<a href="#">Use of Proceeds</a>	<b>23</b>
<a href="#">Selling Stockholder</a>	<b>24</b>
<a href="#">Dilution</a>	<b>25</b>
<a href="#">Market Price of our Common Stock and Related Stockholder Matters</a>	<b>26</b>
<a href="#">Dividend Policy</a>	<b>27</b>
<a href="#">Description of Capital Stock</a>	<b>28</b>
<a href="#">Plan of Distribution</a>	<b>31</b>
<a href="#">Experts</a>	<b>33</b>
<a href="#">Legal Matters</a>	<b>33</b>
<a href="#">Where You Can Find More Information</a>	<b>34</b>
<a href="#">Incorporation By Reference</a>	<b>34</b>

---

## ABOUT THIS PROSPECTUS

The registration statement of which this prospectus forms a part that we have filed with the Securities and Exchange Commission, or SEC, includes exhibits that provide more detail of the matters discussed in this prospectus. You should read this prospectus and the related exhibits filed with the SEC, together with the additional information described under the headings “Where You Can Find More Information” and “Incorporation by Reference” before making your investment decision.

You should rely only on the information provided in this prospectus or in any prospectus supplement or any free writing prospectuses or amendments thereto. Neither we, nor the selling stockholder, have authorized anyone else to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. You should assume that the information in this prospectus is accurate only as of the date hereof. Our business, financial condition, results of operations and prospects may have changed since that date.

Neither we, nor the selling stockholder, are offering to sell or seeking offers to purchase these securities in any jurisdiction where the offer or sale is not permitted. Neither we, nor the selling stockholder, have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities as to distribution of the prospectus outside of the United States.

Unless the context otherwise requires, references in this prospectus to “Cytori,” “the Company,” “we,” “us” and “our” refer to Cytori Therapeutics, Inc. Solely for convenience, our trademarks and tradenames referred to in this registration statement, such as Cytori Cell Therapy, Celution, Celase and Intravase, may appear without the ® or ™ symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights to these trademarks and tradenames. All other trademarks, service marks and trade names included or incorporated by reference into this prospectus are the property of their respective owners.

Unless the context otherwise requires, references in this prospectus to shares of our common stock, including prices per share of our common stock, reflect the 1-for-15 reverse split that was approved by our stockholders and board of directors on May 10, 2016. Our common stock commenced trading on a split-adjusted basis on May 12, 2016.

## PROSPECTUS SUMMARY

*This summary contains basic information about us and this offering. Because it is a summary, it does not contain all of the information that you should consider before investing. Before you decide to invest in our common stock, you should read this entire prospectus carefully, including the section entitled "Risk Factors" and any information incorporated by reference herein.*

### **Our Business**

We develop cellular therapeutics uniquely formulated and optimized for specific diseases and medical conditions and related products. Lead therapeutics in our pipeline are currently targeted for impaired hand function in scleroderma, osteoarthritis of the knee, stress urinary incontinence, and deep thermal burns including those complicated by radiation exposure.

Our cellular therapeutics are collectively known by the trademarked name, Cytori Cell Therapy, and consist of a mixed population of specialized cells including stem cells that are involved in response to injury, repair and healing. These cellular therapeutics are extracted from an adult patient's own adipose (fat) tissue using our fully automated Celution System, which includes a device, proprietary enzymes, and sterile consumable sets utilized at the point-of-therapeutic application or potentially at an off-site processing center. Cytori Cell Therapy can either be administered to the patient the same day or cryopreserved for future use.

Our primary near-term goal is for Cytori Cell Therapy to be the first cell therapy to market for the treatment of impaired hand function in scleroderma, through Cytori-sponsored and supported clinical development efforts. The Cytori-sponsored STAR trial is a 48-week, randomized, double blind, placebo-controlled phase III pivotal clinical trial in the U.S. The trial evaluates the safety and efficacy of a single administration of Cytori Cell Therapy (ECCS-50) in patients with scleroderma affecting the hands and fingers. The first sites for the scleroderma study were initiated in July 2015, and final enrollment of 88 patients was completed in June 2016. We anticipate obtaining 48-week follow-up data in mid-2017.

With respect to the remainder of our clinical pipeline, we received Investigational Device Exemption, or IDE, approval from the U.S. Food and Drug Administration, or the FDA, in late 2014 for our phase II ACT-OA osteoarthritis clinical trial and in early 2015 we initiated this study, and enrollment was completed in June 2015. The 48-week analysis was performed as planned and the top-line data are described in the "Osteoarthritis" section below. In July 2015, a Company-supported male stress urinary incontinence, or SUI, trial in Japan for male prostatectomy patients (after prostate surgery) received approval to begin enrollment from the Japanese Ministry of Health, Labor and Welfare, or MHLW. Patient enrollment is ongoing. Partial funding of this study has been provided by the Japan Agency for Medical Research and Development, or AMED. The goal of this investigator-initiated trial is to gain regulatory approval in Japan of Cytori Cell Therapy for this indication. We are also developing a treatment for thermal burns combined with radiation injury under a contract from the Biomedical Advanced Research Development Authority, or BARDA, a division of the U.S. Department of Health and Human Services. We are also exploring other development opportunities in a variety of other conditions.

In addition to our targeted therapeutic development, we have continued to commercialize our Cytori Cell Therapy technology under select medical device approvals, clearances and registrations to research and commercial customers in Europe, Japan and other regions. Many of these customers are research customers evaluating new therapeutic applications of Cytori Cell Therapy. The sale of systems, consumables and ancillary products contributes a margin that partially offsets our operating expenses and will continue to play a role in fostering familiarity within the medical community with our technology. These sales have also facilitated the discovery of new applications for Cytori Cell Therapy by customers conducting investigator-initiated and funded research.

### **Lead Indication: Scleroderma**

Scleroderma is a rare and chronic autoimmune disorder associated with fibrosis of the skin, and destructive changes in blood vessels and multiple organ systems as the result of a generalized overproduction of collagen. Scleroderma affects approximately 50,000 patients in the U.S. (women are affected four times more frequently than men) and is typically detected between the ages of 30 and 50. More than 90 percent of scleroderma patients have hand involvement that is typically progressive and can result in chronic pain, blood flow changes and severe dysfunction. The limited availability of treatments for scleroderma may provide some benefit but do little to modify disease progression or substantially improve symptoms. Treatment options are directed at protecting the hands from injury and detrimental environmental conditions as well as the use of vasodilators. When the disease is advanced, immunosuppressive and other medications may be used but are often accompanied by significant side effects.

In January 2015, the FDA granted IDE approval for a pivotal clinical trial, named the “STAR” trial, to evaluate Cytori Cell Therapy as a potential treatment for impaired hand function in scleroderma. The STAR trial is a 48-week, randomized, double blind, placebo-controlled pivotal clinical trial of 88 patients in the U.S. The trial evaluates the safety and efficacy of a single administration of ECCS-50 in patients with scleroderma affecting the hands and fingers. The STAR trial uses the Cochin Hand Function Scale, or CHFS, a validated measure of hand function, as the primary endpoint measured at six months after a single administration of ECCS-50 or placebo. Patients in the placebo group will be eligible for crossover to the active arm of the trial after all patients have completed 48 weeks of follow up. The enrollment of this trial began in August 2015 and was completed in June 2016. We anticipate that we will receive 48-week follow-up data on this phase III pivotal clinical trial in mid-2017.

The STAR trial is predicated on a completed, investigator-initiated pilot 12-patient, open-label, phase I trial performed in France termed SCLERADEC I. The SCLERADEC I trial received partial support from Cytori. The six-month results were published in the *Annals of the Rheumatic Diseases* in May 2014 and demonstrated approximately a 50 percent improvement at six months across four important and validated endpoints used to assess the clinical status in patients with scleroderma with impaired hand function. Patients perceived their health status to be improved as shown by a 45.2% and 42.4% decrease of the Scleroderma Health Assessment Questionnaire, or SHAQ, at month 2 (p=0.001) and at month 6 (p=0.001), respectively. A 47% and 56% decrease of the CHFS at month 2 and month 6 in comparison to baseline was observed (p<0.001 for both). Grip strength increased at month 6 with a mean improvement of +4.8±6.4 kg for the dominant hand (p=0.033) and 4.0±3.5 kg for the non-dominant hand (p=0.002). Similarly, an increase in pinch strength at month 6 was noted with a mean improvement of 1.0±1.1 kg for the dominant hand (p=0.009) and 0.8±1.2 kg for the non-dominant hand (p=0.050). Among subjects having at least one digital ulcer, or DU, at inclusion, total number of DU decreased, from 15 DUs at baseline, 10 at month 2 and 7 at month 6. The average reduction of the Raynaud’s Condition Score from baseline was 53.7% at month 2 (p<0.001) and 67.5% at month 6 (p<0.001). Hand pain showed a significant decrease of 63.6% at month 2 (p=0.001) and 70% at month 6 (p<0.001). One year results were published in September 2015 in the journal *Rheumatology*. Relative to baseline, the CHFS and the SHAQ improved by 51.3% and 46.8% respectively (p<0.001 for both). The Raynaud’s score improved by 63.2% from baseline (p<0.001). Other findings at one-year included a 30.5% improvement in grip strength (p=0.002) and a 34.5% improvement in hand pain (p=0.052). Two-year follow up data in the SCLERADEC I trial was presented at the Systemic Sclerosis World Congress in February 2016 and published in the journal *Current Research in Translational Medicine* in November 2016, demonstrated sustained improvement in the following four key endpoints: CHFS, SHAQ, Raynaud’s Condition Score (which assesses severity of Raynaud’s Phenomenon), and hand pain, as assessed by a standard visual analogue scale. The major findings at 24 months following a single administration of ECCS-50 were as follows:

- Hand dysfunction assessed by the CHFS, showed a 62% reduction in hand dysfunction at two years (p<0.001).
- Raynaud’s Condition Score decreased by an average of 89% over baseline at two years (p<0.001).
- Hand pain, as measured by a 100 mm Visual Analogue Scale, and the SHAQ score at two years both showed improvement of 50% over baseline (p=0.01 and p<0.001 respectively).
- Improvement of 20% in grip strength and 330% in pinch strength at two years (p=0.05 and p=0.004 respectively).
- Continued reduction in the number of ulcers from 15 at baseline to 9 at one year and 6 at two years.

Further, on December 5, 2016, Cytori released topline results for three-year follow-up data showing sustained benefits materially consistent with those shown on two-year data.

In 2014, Drs. Guy Magalon and Brigitte Granel, under the sponsorship of the Assistance Publique-Hôpitaux de Marseille, submitted a study for review for a follow-up phase III randomized, double-blind, placebo-controlled trial in France using Cytori Cell Therapy, to be supported by Cytori. The trial name is SCLERADEC II and was approved by the French government in April 2015. Enrollment of this trial commenced in October 2015 and is ongoing. Patients will be assessed at a six-month post-precudre time point.

In January 2016, we entered into an agreement with Idis Managed Access, part of Clinigen Group plc, or Idis, to establish a managed access program, or MAP, in select countries across Europe, the Middle East and Africa, or EMEA, for patients with impaired hand function due to scleroderma. We established this MAP, also known as an “early access” or “named patient” program, to make our ECCS-50 therapy available to patients in advance of obtaining regulatory clearance. We believe this MAP is justified and needed based on a number of factors, including scleroderma’s status as a rare disease, the favorable risk-benefit profile reported by the 12-patient, open-label SCLERADEC I clinical study results, the STAR and SCLERADEC II scleroderma phase III trials currently enrolling, and clear unmet scleroderma patient needs. We hope to offer our ECCS-50 therapy to patients who are unable to participate in our scleroderma clinical trials, generally due to a lack of geographic proximity to a site. Beyond the benefit of helping patients in need of new therapies for scleroderma, the MAP will increase awareness of and facilitate a positive experience with Cytori Cell Therapy among healthcare providers in advance of commercialization, will allow for tracking and collection of key program data and documentation which will provide valuable insight regarding the demand for and use of Cytori Cell Therapy, and will provide us with pricing insight for our ECCS-50 therapy.

In April 2016, the European Commission, acting on the positive recommendation from the European Medicines Agency Committee for Orphan Medicinal Products, issued orphan drug designation to a broad range of Cytori Cell Therapy formulations when used for the treatment of systemic sclerosis under Community Register of Orphan Medicinal Products number EU/3/16/1643.

### ***Osteoarthritis***

Osteoarthritis is a disease of the entire joint involving the cartilage, joint lining, ligaments and underlying bone. The breakdown of tissue leads to pain, joint stiffness and reduced function. It is the most common form of arthritis and affects an estimated 13.9% of US adults over the age of 25, and 33.6% of U.S. adults over the age of 65. Current treatments include physical therapy, non-steroidal anti-inflammatory medications, viscosupplement injections, and total knee replacement. A substantial medical need exists as present medications have limited efficacy and joint replacement is a relatively definitive treatment for those with the most advanced disease.

In the later part of 2014, we received approval by the FDA to begin an exploratory U.S. IDE pilot (phase II) trial of Cytori Cell Therapy (ECCO-50) in patients with osteoarthritis of the knee. The trial, called ACT-OA, is a 94-patient, randomized, double-blind, placebo controlled study involving two doses of Cytori Cell Therapy, a low dose and a high dose, and was conducted over 48 weeks. The randomization is 1:1:1 between the control, low and high dose groups. Enrollment on this trial began in February 2015 and was completed in June 2015. The goal of this proof-of-concept trial is to help determine: (1) safety and feasibility of the ECCO-50 therapeutic for osteoarthritis, (2) provide dosing guidance and (3) explore key trial endpoints useful for a phase III trial.

Top-line analysis of the final 48-week data has recently been completed. A total of 94 patients were randomized (33 placebo, 30 low dose ECCO-50, 31 high dose ECCO-50). In general, a clear difference between low and high dose ECCO-50 was not observed and therefore the data for both groups have been combined. Numerous endpoints were evaluated that can be summarized as follows:

- Intraarticular application of a single dose of ECCO-50 is feasible in an outpatient day-surgery setting; no serious adverse events were reported related to the fat harvest, cell injection or to the cell therapy.



- Consistent trends observed in most secondary endpoints at 12, 24 and 48 weeks in the target knee of the treated group relative to placebo control group; 12-week primary endpoint of single pain on walking question did not achieve statistical significance.
- Consistent trends observed in all 6 pre-specified MRI Osteoarthritis Knee Score (MOAKS) classification scores suggesting a lower degree of target knee joint pathological worsening at 48 weeks for the treated group relative to placebo control group. The differences against placebo favored ADRCs specifically in the number of bone marrow lesions, the percentage of the bone marrow lesion that is not a cyst, the size of the bone marrow lesions as a percentage of the total sub-region volume, percentage of full thickness cartilage loss, cartilage loss as a percentage of cartilage surface area and the size of the largest osteophyte.

In summary, the ACT-OA phase II trial demonstrated feasibility of same day fat harvesting, cell processing and intraarticular administration of autologous ADRCs (ECCO-50) with a potential for a beneficial effect of ECCO-50. Additional analyses are ongoing. The accumulated data and experienced gained will be critical in considering designs of further clinical trials in osteoarthritis and other potential indications.

#### ***Stress Urinary Incontinence***

Another therapeutic target under evaluation by Cytori in combination with the University of Nagoya and the Japanese MHLW is stress urinary incontinence in men following surgical removal of the prostate gland, which is based on positive data reported in a peer reviewed journal resulting from the use of adipose-derived regenerative cells processed by our Celution System. The ADRESU trial is a 45 patient, open-label, multi-center, single arm trial that was approved by Japan's MHLW in July 2015 and is being led by both Momokazu Gotoh, MD, Ph.D., Professor and Chairman of the Department of Urology, and Tokunori Yamamoto, MD, Ph.D., Associate Professor Department of Urology at University of Nagoya Graduate School of Medicine. Enrollment of this trial began in September 2015, and in December 2016, we announced that the trial was 50% enrolled. This clinical trial is primarily sponsored and funded by the Japanese government, including a grant provided by AMED. The goal of this investigator-initiated trial will be to apply for product approval for Cytori Cell Therapy technology for this indication.

#### ***Cutaneous and Soft Tissue Thermal and Radiation Injuries***

Cytori Cell Therapy is also being developed for the treatment of thermal burns combined with radiation injury. In the third quarter of 2012, we were awarded a contract valued at up to \$106 million with BARDA to develop a medical countermeasure for thermal burns. The initial base period included \$4.7 million over two years and covered preclinical research and continued development of Cytori's Celution System to improve cell processing.

In 2014, an in-process review meeting was held with BARDA at which Cytori confirmed completion of the objectives of the initial phase of the contract. In August 2014, BARDA exercised its first contract option in the amount of approximately \$12 million. In December 2014 and September 2016, BARDA exercised additional contract options pursuant to which it provided \$2 million and \$2.5 million in supplemental funds, respectively. These additional funds supported continuation of research, regulatory, clinical and other activities required for submission of an Investigational Device Exemption, or IDE, request to the FDA for a pilot clinical trial using Cytori Cell Therapy (DCCT-10) for the treatment of thermal burns. Upon receipt of IDE approval, if granted, we anticipate that BARDA will provide funding to cover costs associated with execution of the clinical trial and related activities, currently estimated at approximately \$8.3 million.

Our contract with BARDA contains two additional options exercisable at BARDA's discretion, to fund a pivotal clinical trial and additional preclinical work in thermal burn complicated by radiation exposure. These options are valued at up to \$45 million and \$23 million, respectively.

The total award under the BARDA contract is intended to support all clinical, preclinical, regulatory and technology development activities needed to complete the FDA approval process for use of DCCT-10 in thermal burn injury under a device-based PMA regulatory pathway and to provide preclinical data in burn complicated by radiation exposure.

***Other Clinical Indications***

Heart failure due to ischemic heart disease does not represent a current clinical target for us at this time. Our ATHENA and ATHENA II trials related to that indication were truncated and we have minimized expenses related to initiatives in this area. While the safety data from these trial programs have been used for regulatory support for our other indications and also for publication in peer reviewed forums, we are not actively pursuing indications related to these trials. The 12 month results of the ATHENA Trials were presented by the investigators at the Society of Cardiac Angiography and Interventions Annual Scientific Meeting on May 5, 2016 and data was published in the *Catheterization and Cardiovascular Interventions* journal in June 2016.

**Corporate Information**

We were initially formed as a California general partnership in July 1996, and incorporated in the State of Delaware in May 1997. We were formerly known as MacroPore Biosurgery, Inc., and before that as MacroPore, Inc. Our corporate offices are located at 3020 Callan Road, San Diego, CA 92121. Our telephone number is (858) 458-0900. We maintain an Internet website at [www.cytori.com](http://www.cytori.com). The information contained on, or that can be accessed through, our website is not part of this prospectus. Through this site, we make available free of charge our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. In addition, we publish on our website all reports filed under Section 16(a) of the Exchange Act by our directors, officers and 10% stockholders. These materials are accessible via the Investor Relations—Reports and Filings section of our website within the “SEC Filings” link. Some of the information is stored directly on our website, while other information can be accessed by selecting the provided link to the section on the SEC website, which contains filings for our company and its insiders.

## THE OFFERING

This prospectus relates to the resale by Lincoln Park Capital Fund, LLC, the selling stockholder identified in this prospectus, of up to 6,509,677 shares of our common stock, as follows:

- 127,419 shares of common stock issued in December 2016 upon the entry into the Purchase Agreement with the selling stockholder, as an initial commitment fee;
- up to 6,000,000 shares of common stock that may be issued and sold to the selling stockholder pursuant to the Purchase Agreement; and
- up to 382,258 shares of common stock required to be issued proportionally in the future, as an additional commitment fee, if and when we sell shares to Lincoln Park pursuant to the Purchase Agreement.

Common stock offered by the selling stockholder	6,509,677 shares
Common stock outstanding before the offering <sup>(1)</sup>	21,706,490 shares
Common stock to be outstanding after the offering <sup>(2)</sup>	28,088,748 shares
NASDAQ Capital Market Symbol	CYTX

- (1) Based on the number of shares outstanding as of December 28, 2016 and includes the 127,419 shares issued to Lincoln Park in December 2016.
- (2) Assumes the issuance of all of the shares issuable under the Purchase Agreement that are being offered by this prospectus.

On December 22, 2016, we entered into the Purchase Agreement, pursuant to which we can sell to Lincoln Park an aggregate of up to \$20.0 million of our common stock, together with a registration rights agreement, which we refer to in this prospectus as the Registration Rights Agreement. In connection with the execution of the Purchase Agreement, we issued to Lincoln Park 127,419 shares of our common stock as an initial commitment fee. Furthermore, for each additional purchase by Lincoln Park, additional commitment shares in commensurate amounts up to a total of 382,258 shares will be issued as an additional commitment fee based upon the relative proportion of the aggregate amount of \$20.0 million of shares of our common stock purchased by Lincoln Park.

Under the terms and subject to the conditions of the Purchase Agreement, we have the right to sell to Lincoln Park and Lincoln Park is obligated to purchase up to \$20.0 million of shares, as described below, of our common stock, subject to certain limitations, from time to time, over the 30-month period commencing on the date that the registration statement, of which this prospectus is a part, is declared effective by the SEC, and a final prospectus in connection therewith is filed. We may direct Lincoln Park, in our sole discretion and subject to certain conditions, to purchase up to 100,000 shares of our common stock on any business day (such purchases, Regular Purchases), provided that at least one business day has passed since the most recent purchase, and provided that the amount we may sell to Lincoln Park under a single Regular Purchase may increase under certain circumstances as described in the Purchase Agreement but in no event will the amount of a single Regular Purchase exceed \$1.0 million. The purchase price of shares of our common stock related to the future funding will be based on the prevailing market prices of such shares at the time of sales. In addition, we may direct Lincoln Park to purchase other amounts as “accelerated purchases” and “additional purchases” under certain circumstances. Our sales of shares of common stock to Lincoln Park under the Purchase Agreement are limited to the number of shares that would result in the beneficial ownership by Lincoln Park and its affiliates, at any single point in time, of no more than 9.99% of the then outstanding shares of our common stock.

Under the rules of the NASDAQ Capital Market, in no event may we issue more than 19.99% of our shares outstanding (which is approximately 4,315,814 shares based on 21,579,071 shares outstanding prior to the signing of the Purchase Agreement and which we refer to as the Exchange Cap) under the Purchase Agreement unless we obtain stockholder approval or an exception pursuant to the rules of the NASDAQ Capital Market is obtained to issue more than 19.99%. This limitation will not apply if, at any time the Exchange Cap is reached and at all times thereafter, the average price paid for all shares issued and sold under the Purchase Agreement is equal to or greater than \$1.6674, which was the consolidated closing bid price of our common stock on December 22, 2016 including an increment for the commitment shares we issued and may issue to Lincoln Park. We are not required or permitted to issue any shares of common stock under the Purchase Agreement if such issuance would breach our obligations under the rules or regulations of the NASDAQ Capital Market.

We have the right to terminate the Purchase Agreement at any time, at no cost or penalty. Actual sales of shares of common stock to Lincoln Park under the Purchase Agreement will depend on a variety of factors to be determined by us from time to time, including, among others, market conditions, the trading price of the common stock and determinations by us as to the appropriate sources of funding for us and our operations. Lincoln Park has no right to require any sales by us, but is obligated to make purchases from us as we direct in accordance with the Purchase Agreement. Lincoln Park has covenanted not to cause or engage in any manner whatsoever, any direct or indirect short selling or hedging of our shares.

For a more detailed description of the Purchase Agreement, see “The Lincoln Park Transaction.”

The net proceeds under the Purchase Agreement to us will depend on the frequency and prices at which we sell shares of our stock to Lincoln Park. We expect that any proceeds received by us from such sales to Lincoln Park under the Purchase Agreement will be used for working capital and general corporate purposes.

Under the Purchase Agreement we may sell up to \$20.0 million of our common stock to Lincoln Park. While we do not know what the purchase price for our common stock will be, and therefore cannot be certain as to the number of shares we might issue to Lincoln Park in the future under the Purchase Agreement, a total of 6,509,677 shares of our common stock are being offered under this prospectus, which is less than the amount of shares issuable under the Purchase Agreement. If all of the 6,509,677 shares issuable to and offered by Lincoln Park under this prospectus were issued and outstanding as of December 28, 2016, such shares would represent approximately 30% of the total number of shares of our common stock outstanding and approximately 31% of the total number of outstanding shares held by non-affiliates, in each case as of December 28, 2016; however, these percentages do not give effect to the prohibition contained in the Purchase Agreement that prevents us from selling and issuing to Lincoln Park shares such that, after giving effect to such sale and issuance, Lincoln Park and its affiliates would beneficially own, at any single point in time, more than 9.99% of the then outstanding shares of our common stock. If we elect to issue and sell more than the 6,509,677 shares issuable in the future to and offered under this prospectus to Lincoln Park, which we have the right, but not the obligation, to do, we must first register for resale under the Securities Act of 1933, as amended, or the Securities Act, any such additional shares, which could cause additional substantial dilution to our stockholders. The number of shares ultimately offered for resale by Lincoln Park is dependent upon the number of shares we sell to Lincoln Park under the Purchase Agreement.

Issuances of our common stock in this offering will not affect the rights or privileges of our existing stockholders, except that the economic and voting interests of each of our existing stockholders will be diluted as a result of any such issuance. Although the number of shares of common stock that our existing stockholders own will not decrease, the shares owned by our existing stockholders will represent a smaller percentage of our total outstanding shares after any such issuance to Lincoln Park.

## SUMMARY CONSOLIDATED FINANCIAL DATA

The following summary consolidated balance sheets and statements of operations as of December 31, 2015 and 2014 and for the years ended December 31, 2015, 2014 and 2013, respectively, have been derived from our audited consolidated financial statements that are included in the documents incorporated by reference into this prospectus. The summary consolidated balance sheet and statements of operations as of and for the nine months ended September 30, 2016 are derived from our unaudited consolidated financial statements that are included in the documents incorporated by reference into this prospectus. The historical financial data presented below is not necessarily indicative of our financial results in future periods. You should read the summary consolidated financial data in conjunction with those financial statements and the accompanying notes and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in the documents incorporated by reference into this prospectus. Our consolidated financial statements are prepared and presented in accordance with United States generally accepted accounting principles, or U.S. GAAP. All share and per share information presented herein has been retroactively restated to reflect a 1-for-15 reverse split that was approved by our stockholders and board of directors on May 10, 2016.

**CYTORI THERAPEUTICS, INC.**  
**CONSOLIDATED CONDENSED BALANCE SHEETS**

	As of September 30, 2016 (Unaudited)	As of December 31, 2015      2014	
<b>Assets</b>			
Current assets:			
Cash and cash equivalents	\$ 14,924,000	\$ 14,338,000	\$ 14,622,000
Accounts receivable, net of reserves of \$173,000, \$797,000 and \$1,523,000 as of September 30, 2016, December 31, 2015, and December 31, 2014, respectively	918,000	1,052,000	1,243,000
Inventories, net	3,946,000	4,298,000	4,829,000
Other current assets	1,253,000	1,555,000	992,000
<b>Total current assets</b>	<b>21,041,000</b>	<b>21,243,000</b>	<b>21,686,000</b>
Property and equipment, net	1,292,000	1,631,000	1,583,000
Restricted cash and cash equivalents	350,000	350,000	350,000
Other assets	1,474,000	1,521,000	1,763,000
Intangibles, net	8,763,000	9,031,000	9,415,000
Goodwill	3,922,000	3,922,000	3,922,000
<b>Total assets</b>	<b>\$ 36,842,000</b>	<b>\$ 37,698,000</b>	<b>\$ 38,719,000</b>
<b>Liabilities and Stockholders' Equity (Deficit)</b>			
Current liabilities:			
Accounts payable and accrued expenses	\$ 5,637,000	\$ 6,687,000	\$ 5,546,000
Current portion of long-term obligations, net of discount	5,267,000	—	7,363,000
Joint Venture purchase obligation	—	1,750,000	3,008,000
<b>Total current liabilities</b>	<b>10,904,000</b>	<b>8,437,000</b>	<b>15,917,000</b>
Warrant liability	—	—	9,793,000
Deferred revenues	97,000	105,000	112,000
Long-term deferred rent	41,000	269,000	558,000
Long-term obligations, net of discount, less current portion	12,130,000	16,681,000	18,041,000
<b>Total liabilities</b>	<b>23,172,000</b>	<b>25,492,000</b>	<b>44,421,000</b>
Commitments and contingencies			
Stockholders' equity:			
Series A 3.6% convertible preferred stock, \$0.001 par value; 5,000,000 shares authorized; 13,500 shares issued and no shares outstanding as of September 30, 2016 and December 31, 2015; 13,500 shares issued and 5,311 outstanding as of December 31, 2014	—	—	—
Common stock, \$0.001 par value; 75,000,000 shares authorized; 20,495,069 shares issued and outstanding as of September 30, 2016, 13,003,893 and 6,623,226 shares issued and outstanding as of December 31, 2015 and 2014, respectively	20,000	13,000	7,000
Additional paid-in capital	387,119,000	368,214,000	331,864,000
Accumulated other comprehensive income	675,000	996,000	700,000
Accumulated deficit	(374,144,000)	(357,017,000)	(338,273,000)
<b>Total stockholders' equity (deficit)</b>	<b>13,670,000</b>	<b>12,206,000</b>	<b>(5,702,000)</b>
<b>Total liabilities and stockholders' equity (deficit)</b>	<b>\$ 36,842,000</b>	<b>\$ 37,698,000</b>	<b>\$ 38,719,000</b>

**CYTORI THERAPEUTICS, INC.**  
**CONSOLIDATED CONDENSED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS**

	Nine-Month Period Ended September 30 2016 (Unaudited)	2015	Years Ended December 31,	
			2014	2013
Product revenues:				
Related party	\$ —	\$ —	\$ —	\$ 1,845,000
Third party	3,190,000	4,838,000	4,953,000	5,277,000
	<u>3,190,000</u>	<u>4,838,000</u>	<u>4,953,000</u>	<u>7,122,000</u>
Cost of product revenues	1,770,000	3,186,000	2,940,000	3,421,000
Gross profit	1,420,000	1,652,000	2,013,000	3,701,000
Development revenues:				
Development, related party	—	—	—	638,000
Development	—	—	—	1,179,000
Government contracts and other	5,163,000	6,821,000	2,645,000	3,257,000
Total Development Revenues	5,163,000	6,821,000	2,645,000	5,074,000
Operating expenses:				
Research and development	13,334,000	19,000,000	15,105,000	17,065,000
Sales and marketing	2,742,000	2,662,000	6,406,000	9,026,000
General and administrative	6,625,000	9,765,000	15,953,000	16,031,000
Change in fair value of warrants	—	(7,668,000)	(369,000)	(418,000)
Change in fair value of option liability	—	—	—	(2,250,000)
Total operating expenses	22,701,000	23,759,000	37,095,000	39,454,000
Operating loss	(16,118,000)	(15,286,000)	(32,437,000)	(30,679,000)
Other income (expense):				
Gain (loss) on asset disposal	2,000	3,000	42,000	(257,000)
Loss on debt extinguishment	—	(260,000)	—	(708,000)
Interest income	8,000	9,000	6,000	4,000
Interest expense	(1,947,000)	(3,379,000)	(4,371,000)	(3,396,000)
Other income (expense), net	928,000	169,000	(608,000)	(438,000)
Gain on Puregraft divestiture	—	—	—	4,453,000
Gain on previously held equity interest in joint venture	—	—	—	4,892,000
Equity loss from investment in joint venture	—	—	—	(48,000)
Total other (expense) income	(1,009,000)	(3,458,000)	(4,931,000)	4,502,000
Net loss	(17,127,000)	(18,744,000)	(37,368,000)	(26,177,000)
Beneficial conversion feature for convertible preferred stock	—	(661,000)	(1,169,000)	—
Net loss allocable to common stockholders	(17,127,000)	(19,405,000)	(38,537,000)	(26,177,000)
Basic and diluted net loss per share allocable to common stockholders	\$ (1.06)	\$ (2.07)	\$ (7.15)	\$ (5.79)
Basic and diluted weighted average shares used in calculating net loss per share allocable to common stockholders	16,147,042	9,386,488	5,388,714	4,518,758
Comprehensive loss:				
Net loss	\$ (17,127,000)	\$ (18,744,000)	\$ (37,368,000)	\$ (26,177,000)
Other comprehensive income – foreign currency translation adjustments	(321,000)	296,000	444,000	256,000
Comprehensive loss	\$ (17,448,000)	\$ (18,448,000)	\$ (36,924,000)	\$ (25,921,000)

## RISK FACTORS

*Investing in our securities involves a high degree of risk. Before making an investment decision with respect to our securities, we urge you to carefully consider the risks described in the “Risk Factors” sections of our most recent Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q filed with the SEC and incorporated by reference into this prospectus. These risk factors relate to our business, intellectual property, regulatory matters, and ownership of our common stock. In addition, the following risk factors present material risks and uncertainties associated with this offering. The risks and uncertainties incorporated by reference into this prospectus or described below are not the only ones we face. Additional risks and uncertainties not presently known or which we consider immaterial as of the date hereof may also have an adverse effect on our business. If any of the matters discussed in the following risk factors were to occur, our business, financial condition, results of operations, cash flows or prospects could be materially adversely affected, the market price of our securities could decline and you could lose all or part of your investment in our securities.*

### **Risks Related to the Offering**

***We may not be able to access the full amounts available under the Lincoln Park Purchase Agreement, which could prevent us from accessing the capital we need to continue our operations, which could have an adverse effect on our business.***

We intend to rely on the Purchase Agreement that we entered into with Lincoln Park in December 2016 for our near-term capital needs. We may direct Lincoln Park to purchase up to \$20.0 million of shares of our common stock over a 30-month period, commencing upon the satisfaction of certain conditions, including that the registration statement is declared effective by the SEC. Thereafter, on any trading day selected by us, we may sell shares of common stock to Lincoln Park in amounts up to 100,000 shares per regular sale (such purchases, Regular Purchases) up to the aggregate commitment of \$20.0 million. If the market price of our common stock is not below \$2.00 per share on the purchase date, then the Regular Purchase amount may be increased to 150,000 shares. If the market price is not below \$3.00 per share on the purchase date, then the Regular Purchase amount may be increased to 300,000 shares. Although there are no upper limits on the per share price Lincoln Park may pay to purchase our common stock, we may not sell more than \$1.0 million in shares of common stock to Lincoln Park per any individual Regular Purchase. The purchase price of Regular Purchases will be based on the prevailing market prices of shares of our common stock, which shall be equal to the lesser of the lowest sale price of the common shares during the purchase date and the average of the three lowest closing sale prices of the common shares during the 10 business days prior to the purchase date.

In addition to Regular Purchases, we may in our sole discretion direct Lincoln Park on each purchase date to make accelerated purchases on the following business day up to the lesser of (i) three times the number of shares purchased pursuant to such Regular Purchase or (ii) 30% of the trading volume on the accelerated purchase date at a purchase price equal to the lesser of (i) the closing sale price on the accelerated purchase date and (ii) 97% of the accelerated purchase date’s volume weighted average price (such purchases, Accelerated Purchases). We cannot submit an Accelerated Purchase notice if the market price of our common stock is below \$1.00.

In addition to Regular Purchases and Accelerated Purchases described above, we may also direct Lincoln Park, on any business day that the closing price of our common stock is not below \$1.00, to purchase additional amounts of our common stock, which we refer to as an Additional Purchase whereby, pursuant to each Additional Purchase we may sell up to \$1.0 million of common stock in each Additional Purchase notice, provided, however, that (i) we may not deliver to Lincoln Park more than two separate Additional Purchase notices and (ii) at least 30 business days must pass between the Company’s delivery of the first Additional Purchase notice to Lincoln Park and our delivery of the second Additional Purchase notice. The purchase price for each such Additional Purchase shall be equal to the lower of (i) 97% of the purchase price under a Regular Purchase on the date we give notice for the related Additional Purchase, or (ii) \$2.00 per share.



Depending on the prevailing market price of our common stock, we may not be able to sell shares to Lincoln Park for the maximum \$20.0 million over the term of the Purchase Agreement. For example, under the rules of the NASDAQ Capital Market, in no event may we issue more than 19.99% of our shares outstanding (which is approximately 4,315,814 shares based on 21,579,071 shares outstanding prior to the signing of the Purchase Agreement) under the Purchase Agreement unless we obtain stockholder approval or an exception pursuant to the rules of the NASDAQ Capital Market is obtained to issue more than 19.99%. This limitation will not apply if, at any time the Exchange Cap is reached and at all times thereafter, the average price paid for all shares issued and sold under the Purchase Agreement is equal to or greater than \$1.6674, which was the consolidated closing bid price of our common stock on December 22, 2016 including an increment for the commitment shares we issued and may issue to Lincoln Park. We are not required or permitted to issue any shares of common stock under the Purchase Agreement if such issuance would breach our obligations under the rules or regulations of the NASDAQ Capital Market. In addition, Lincoln Park will not be required to purchase any shares of our common stock if such sale would result in Lincoln Park's beneficial ownership exceeding 9.99% of the then outstanding shares of our common stock. Our inability to access a portion or the full amount available under the Purchase Agreement, in the absence of any other financing sources, could have a material adverse effect on our business.

***The sale or issuance of our common stock to Lincoln Park may cause dilution and the sale of the shares of common stock acquired by Lincoln Park, or the perception that such sales may occur, could cause the price of our common stock to fall.***

On December 22, 2016, we entered into the Purchase Agreement with Lincoln Park, pursuant to which Lincoln Park has committed to purchase up to \$20.0 million of our common stock. Concurrently with the execution of the Purchase Agreement, we issued 127,419 shares of our common stock to Lincoln Park as an initial fee for its commitment to purchase shares of our common stock under the Purchase Agreement. Furthermore, for each additional purchase by Lincoln Park, additional commitment shares in commensurate amounts up to a total of 382,258 shares will be issued based upon the relative proportion of the aggregate amount of \$20.0 million purchased by Lincoln Park. The purchase shares that may be sold pursuant to the Purchase Agreement may be sold by us to Lincoln Park at our discretion from time to time over a 30-month period commencing after the SEC has declared effective the registration statement that includes this prospectus. The purchase price for the shares that we may sell to Lincoln Park under the Purchase Agreement will fluctuate based on the price of our common stock. Depending on market liquidity at the time, sales of such shares may cause the trading price of our common stock to fall.

We generally have the right to control the timing and amount of any sales of our shares to Lincoln Park. Additional sales of our common stock, if any, to Lincoln Park will depend upon market conditions and other factors to be determined by us. Lincoln Park may ultimately purchase all, some or none of the shares of our common stock that may be sold pursuant to the Purchase Agreement and, after it has acquired shares, Lincoln Park may sell all, some or none of those shares. Therefore, sales to Lincoln Park by us could result in substantial dilution to the interests of other holders of our common stock. Additionally, the sale of a substantial number of shares of our common stock to Lincoln Park, or the anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect sales.

***There is currently a limited market for our securities, and any trading market that exists in our securities may be highly illiquid and may not reflect the underlying value of our net assets or business prospects.***

Although our common stock is traded on the NASDAQ Capital Market, there is currently a limited market for our common stock and an active market may never develop. Investors are cautioned not to rely on the possibility that an active trading market may develop.

***We could be delisted from the NASDAQ Capital Market, which could seriously harm the liquidity of our stock and our ability to raise capital.***

Following notice from the NASDAQ Stock Market LLC staff in June 2015 and December 2015, we had a hearing in January 2016 relating to our noncompliance with the \$1.00 minimum bid price per share requirement. The NASDAQ Hearing Panel granted us until May 31, 2016 to come into compliance with the minimum bid price

requirement, including requirements relating to obtaining stockholders approval of a reverse stock split that would bring our stock price above \$1.00 per share for a minimum of 10 consecutive trading days. We transferred the listing of our common stock from the NASDAQ Global Market to the NASDAQ Capital Market in February 2016. In May 2016, we consummated a 1-for-15 reverse stock split pursuant to which the minimum bid price per share of our common stock rose above \$1.00. Pursuant to a letter dated May 26, 2016, the NASDAQ Stock Market LLC staff delivered notice to us that we had regained compliance with the NASDAQ Stock Market LLC's minimum bid price rule. However, we may be unable to maintain compliance with our current minimum bid price obligation or the other listing requirements, which could cause us to lose eligibility for continued listing on the NASDAQ Capital Market or any comparable trading market. If we cease to be eligible to trade on the NASDAQ Capital Market:

- We may have to pursue trading on a less recognized or accepted market, such as the OTC Bulletin Board or the "pink sheets."
- The trading price of our common stock could suffer, including an increased spread between the "bid" and "asked" prices quoted by market makers.
- Shares of our common stock could be less liquid and marketable, thereby reducing the ability of stockholders to purchase or sell our shares as quickly and as inexpensively as they have done historically. If our stock is traded as a "penny stock," transactions in our stock would be more difficult and cumbersome.
- We may be unable to access capital on favorable terms or at all, as companies trading on alternative markets may be viewed as less attractive investments with higher associated risks, such that existing or prospective institutional investors may be less interested in, or prohibited from, investing in our common stock. This may also cause the market price of our common stock to decline.

***Our share price is volatile, and you may not be able to resell our shares at a profit or at all.***

The market price of our common stock could be subject to wide fluctuations in response to numerous factors, some of which are beyond our control. These factors include, among other things:

- fluctuations in our operating results or the operating results of our competitors;
- changes in estimates of our financial results or recommendations by securities analysts;
- variance in our financial performance from the expectations of securities analysts;
- changes in the estimates of the future size and growth rate of our markets;
- changes in accounting principles or changes in interpretations of existing principles, which could affect our financial results;
- conditions and trends in the markets we serve;
- changes in general economic, industry and market conditions;
- success of competitive products and services;
- changes in market valuations or earnings of our competitors;
- announcements of significant new products, contracts, acquisitions or strategic alliances by us or our competitors;
- the outcome of clinical trials involving the use of our products, including our sponsored trials;
- our continuing ability to list our securities on an established market or exchange;
- the timing and outcome of regulatory reviews and approvals of our products;
- the commencement or outcome of litigation involving our company, our general industry or both;
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;
- actual or expected sales of our common stock by the holders of our common stock; and
- the trading volume of our common stock.

The market price of our common stock may decline after you purchase shares in this offering. Moreover, following your purchase you may not be able to sell your common stock at a price equal to or greater than the price you paid for such shares of common stock.

***We may be or become the target of securities litigation, which is costly and time-consuming to defend.***

In the past, following periods of market volatility in the price of a company's securities or the reporting of unfavorable news, security holders have often instituted class action litigation. If the market value of our securities experience adverse fluctuations and we become involved in this type of litigation, regardless of the outcome, we could incur substantial legal costs and our management's attention could be diverted from the operation of our business, causing our business to suffer.

***There may be future sales or other dilution of our equity, which may adversely affect the market price of our common stock.***

We are generally not restricted from issuing additional common stock, including any securities that are convertible into or exchangeable for, or that represent the right to receive, common stock. The market price of our common stock could decline as a result of sales of common stock or securities that are convertible into or exchangeable for, or that represent the right to receive, common stock after this offering or the perception that such sales could occur. For example, we have a currently effective registration statement that permits us to sell shares of our common stock from time to time at prevailing market prices, which could result in dilution to investors in the offering.

***We presently do not intend to pay cash dividends on our common stock.***

We have never paid cash dividends in the past, and we currently anticipate that no cash dividends will be paid on the common stock in the foreseeable future. Furthermore, our loan agreement with Oxford Finance LLC, or the Lender, currently prohibits our issuance of cash dividends. This could make an investment in the Company inappropriate for some investors, and may serve to narrow our potential sources of additional capital. While our dividend policy will be based on the operating results and capital needs of the business, it is anticipated that all earnings, if any, will be retained to finance the future expansion of our business.

***Our stockholders may experience substantial dilution in the value of their investment if we issue additional shares of our capital stock.***

Our charter allows us to issue up to 75,000,000 shares of our common stock and to issue and designate the rights of, without stockholder approval, up to 5,000,000 shares of preferred stock. To raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share paid by other investors, and dilution to our stockholders could result. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by other investors.

***We may issue debt and equity securities or securities convertible into equity securities, any of which may be senior to our common stock as to distributions and in liquidation, which could negatively affect the value of our common stock.***

In the future, we may attempt to increase our capital resources by entering into debt or debt-like financing that is unsecured or secured by up to all of our assets, or by issuing additional debt or equity securities, which could include issuances of secured or unsecured commercial paper, medium-term notes, senior notes, subordinated notes, guarantees, preferred stock, hybrid securities, or securities convertible into or exchangeable for equity securities. In the event of our liquidation, our lenders and holders of our debt and preferred securities would receive distributions of our available assets before distributions to the holders of our common stock. Because our decision to incur debt and issue securities in future offerings may be influenced by market conditions and other factors beyond our control, we cannot predict or estimate the amount, timing or nature of our future offerings or debt financings. Further, market conditions could require us to accept less favorable terms for the issuance of our securities in the future.

***The report of our predecessor independent registered public accounting firm contains an emphasis paragraph regarding the substantial doubt about our ability to continue as a “going concern.”***

The audit report of our predecessor independent registered public accounting firm covering the December 31, 2015 consolidated financial statements contains an explanatory paragraph that states that our recurring losses from operations, liquidity position, and debt service requirements raises substantial doubt about our ability to continue as a going concern. To date, our operating losses have been funded primarily from outside sources of invested capital and gross profits. We have had, and we will likely continue to have, an ongoing need to raise additional cash from outside sources to fund our future operations. However, our ability to raise capital was adversely affected once FDA put a hold on our Athena trials in mid-2014, which had an adverse impact to stock price performance and our corresponding ability to restructure our debt. More recently, a continued downward trend in our stock price resulting from a number of factors, including (i) general economic and industry conditions, (ii) challenges faced by the regenerative medicine industry as a whole, (iii) the market’s unfavorable view of certain of our recent equity financings conducted in 2014 and 2015 (which financings were priced at a discount to market and included 100% warrant coverage), (iv) market concerns regarding our continued need for capital (and the effects of any future capital raising transactions we may consummate) (v) market perceptions of our ATHENA and ACT-OA clinical trial data; and (vi) our recent NASDAQ listing deficiency issues and resultant 1-for-15 reverse stock split, have made it more difficult to procure additional capital on terms reasonably acceptable to us. In addition to our Purchase Agreement with Lincoln Capital, we may continue to provide for our capital requirements by issuing additional equity and/or debt. No assurance can be given that additional capital will be available when required or on terms acceptable to us. If we are unsuccessful in our efforts to raise any such additional capital, we will be required to significantly reduce our research, development and administrative operations, including reduction of our employee base, in order to offset the lack of available funding. We also cannot give assurance that we will achieve sufficient revenues in the future to achieve profitability and cash flow positive operations.

***We will need to raise more cash in the future.***

We have almost always had negative cash flows from operations. Our business will continue to result in a substantial requirement for research and development expenses for several years, during which we may not be able to bring in sufficient cash and/or revenues to offset these expenses. We have had, and we will continue to have, an ongoing need to raise additional cash from outside sources to continue funding our operations to profitability. We do not currently believe that our cash balance and the revenues from our operations will be sufficient to fund the development and marketing efforts required to reach profitability without raising additional capital from accessible sources of financing in the very near future, including, for example, through sales of our common stock to the selling stockholder pursuant to the Purchase Agreement.

To date, these operating losses have been funded primarily from outside sources of invested capital and gross profits. We have had, and we will likely continue to have, an ongoing need to raise additional cash from outside sources to fund our future operations. However, our ability to raise capital was adversely affected once FDA put a hold on our Athena trials in mid-2014, which had an adverse impact to stock price performance and our corresponding ability to restructure our debt. More recently, a continued downward trend in our stock price resulting from a number of factors, including (i) general economic and industry conditions, (ii) challenges faced by the regenerative medicine industry as a whole, (iii) the market’s unfavorable view of certain of our recent equity financings conducted in 2014 and 2015 (which financings were priced at a discount to market and included 100% warrant coverage), (iv) market concerns regarding our continued need for capital (and the effects of any future capital raising transactions we may consummate) (v) market perceptions of our ATHENA and ACT-OA clinical trial data; and (vi) our recent NASDAQ listing deficiency issues and resultant 1-for-15 reverse stock split, have made it more difficult to procure additional capital on terms reasonably acceptable to us. If we are unsuccessful in our efforts to raise any such additional capital, we will be required to significantly reduce our research, development and administrative operations, including reduction of our employee base, in order to offset the lack of available funding. We expect to continue to utilize our cash and cash equivalents to fund operations at least through June 2017, subject to minimum cash and cash liquidity requirements contained in that certain Loan and Security Agreement, dated May 29, 2015, or the Loan and Security Agreement, with Oxford Finance, LLC, or Oxford, as further described below, which requires that we maintain at least \$5 million of cash on hand to avoid an event of default under the Loan and Security Agreement.

We have been placing, and will continue to place, significant effort into raising additional capital that will provide adequate capital resources to allow us to continue to fund our future operations. Based on our cash and cash equivalents on hand of approximately \$14.9 million at September 30, 2016, and our minimum liquidity requirements under the Loan and Security Agreement with Oxford that requires us to make interest payments of \$136,000 per month (but which will require us to make payments of principal of \$590,000 plus accrued interest in monthly installments commencing January 2017) and our obligation to maintain at least \$5 million of cash on hand, we estimate that we must raise additional capital and/or obtain a waiver or restructure the Loan and Security Agreement on or before May 2017 to avoid an event of default under it. If we are unable to avoid an event of default under the Loan and Security Agreement, Oxford would have the right to cause the outstanding loan amount of approximately \$17.7 million to become immediately due and payable. Our financing plans include pursuing additional cash through use of our at-the-market offering program, strategic corporate partnerships, licensing and sales of equity, including sales of our common stock to the selling stockholder pursuant to the Purchase Agreement. While we have an established history of accessing capital through these platforms, there is no guarantee that adequate funds will be available when needed from additional debt or equity financing, development and commercialization partnerships or from other sources, or on terms acceptable to us. There is also no guarantee that we will be able to service our existing debt to Oxford. If our efforts to obtain sufficient additional funds are not successful, in addition to Oxford's ability to cause the loan amount to be immediately due and payable, we would at a minimum be required to delay, scale back, or eliminate some or all of our research or product development, manufacturing operations, administrative operations, including our employee base, and clinical or regulatory activities, which could negatively affect our ability to achieve certain corporate goals. In addition, the indebtedness under our Loan and Security Agreement with Oxford is secured by a security interest in substantially all of our existing and after-acquired assets, excluding our intellectual property assets which are subject to a negative pledge, and therefore, if we are unable to repay such indebtedness, the lender could foreclose on these assets, which would, at a minimum, have a severe material adverse effect on our ability to operate our business.

In addition to the funding sources previously mentioned, we continue to seek additional capital through product revenues, and State and Federal development programs, including additional funding opportunities through our current BARDA contract.

***Our level of indebtedness, and covenant restrictions under such indebtedness, could adversely affect our operations and liquidity.***

Under our Loan and Security Agreement with Oxford, as collateral agent and lender, Oxford agreed to make a term loan to us in an aggregate principal amount of \$17,700,000, or the Term Loan, subject to the terms and conditions set forth in the Loan and Security Agreement, or the Loan Facility. In connection with securing the Loan Facility, we prepaid all outstanding amounts under our Loan and Security Agreement, dated June 28, 2013, with Oxford and Silicon Valley Bank.

The Term Loan accrues interest at a floating rate equal to the three-month LIBOR rate (with a floor of 1.00%) plus 7.95% per annum. In February 2016, Oxford acknowledged that we had received positive data on our ACT-OA clinical trial, which acknowledgement automatically deferred commencement of the Amortization Commencement Date under the Loan and Security Agreement from July 1, 2016 to January 1, 2017, thus extending our interest-only payment period for six months. Commencing January 2017, we are required to make payments of principal of \$590,000 plus accrued interest in monthly installments through June 1, 2019, the maturity date. All unpaid principal and accrued and unpaid interest with respect to the Term Loan is due and payable in full on June 1, 2019.

As security for our obligations under the Loan and Security Agreement, we granted a security interest in substantially all of our existing and after-acquired assets, subject to certain exceptions set forth in the Loan and Security Agreement and excluding our intellectual property assets, which are subject to a negative pledge by us. If we are unable to discharge these obligations, Oxford could foreclose on these assets, which would, at a minimum, have a severe material effect on our ability to operate our business.

Our indebtedness to Oxford could adversely affect our operations and liquidity, by, among other things:

- causing us to use a larger portion of our cash flow to fund interest payments and, beginning on January 1, 2017, principal payments, reducing the availability of cash to fund working capital and capital expenditures and other business activities;
- making it more difficult for us to take advantage of significant business opportunities, such as acquisition opportunities, and to react to changes in market or industry conditions; and
- limiting our ability to borrow additional monies in the future to fund working capital and capital expenditures and for other general corporate purposes.

The Loan and Security Agreement requires us to maintain at least three months of cash on hand and includes certain reporting and other covenants, that, among other things, restrict our ability to: (i) dispose of assets, (ii) change the business we conduct, (iii) make acquisitions, (iv) engage in mergers or consolidations, (v) incur additional indebtedness, (vi) create liens on assets, (vii) maintain any collateral account, (viii) pay dividends, (ix) make investments, loans or advances, (x) engage in certain transactions with affiliates, and (xi) prepay certain other indebtedness or amend other financing arrangements. If we fail to comply with any of these covenants or restrictions, such failure may result in an event of default, which if not cured or waived, could result in the lender accelerating the maturity of our indebtedness. If the maturity of our indebtedness is accelerated, we may not have sufficient cash resources to satisfy our debt obligations and such acceleration would adversely affect our business and financial condition.

## FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated herein by reference contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are based on our management’s current beliefs, expectations and assumptions about future events, conditions and results and on information currently available to us. Discussions containing these forward-looking statements may be found, among other places, in the Sections entitled “Business,” “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” incorporated by reference from our most recent Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q, as well as any amendments thereto, filed with the SEC.

All statements, other than statements of historical fact, included or incorporated herein regarding our strategy, future operations, financial position, future revenues, projected costs, plans, prospects and objectives are forward-looking statements. Words such as “expect,” “anticipate,” “intend,” “plan,” “believe,” “seek,” “estimate,” “think,” “may,” “could,” “will,” “would,” “should,” “continue,” “potential,” “likely,” “opportunity” and similar expressions or variations of such words are intended to identify forward-looking statements, but are not the exclusive means of identifying forward-looking statements. Additionally, forward-looking statements include statements concerning future matters such as our anticipated expenditures, including those related to clinical research studies and general and administrative expenses, the potential size of the market for our products, future development and/or expansion of our products and therapies in our markets, our ability to generate product revenues or effectively manage our gross profit margins, our ability to obtain regulatory clearance, expectations as to our future performance, liquidity and capital resources, including our potential need for additional financing and the availability thereof, and the potential enhancement of our cash position through development, marketing, and licensing arrangements. Such statements are based on currently available operating, financial and competitive information and are subject to various risks, uncertainties and assumptions that could cause actual results to differ materially from those anticipated or implied in our forward-looking statements due to a number of factors including, but not limited to, our need and ability to raise additional cash, our joint ventures, risks associated with laws or regulatory requirements applicable to us, market conditions, product performance, potential litigation, competition within the regenerative medicine field, and other factors set forth above under the section entitled “Risk Factors” in this prospectus. Given these risks, uncertainties and other factors, many of which are beyond our control, you should not place undue reliance on these forward-looking statements.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to revise any forward-looking statements to reflect events or developments occurring after the date of this prospectus, even if new information becomes available in the future.

**General**

On December 22, 2016, we entered into the Purchase Agreement and the Registration Rights Agreement with Lincoln Park. Pursuant to the terms of the Purchase Agreement, Lincoln Park has agreed to purchase from us up to \$20.0 million in the aggregate of our common stock (subject to certain limitations) from time to time over a 30-month period from the date the registration statement of which this prospectus forms a part is declared effective by the SEC. Pursuant to the terms of the Registration Rights Agreement, we have filed with the SEC the registration statement that includes this prospectus to register for resale under the Securities Act the shares that have been or may be issued to Lincoln Park under the Purchase Agreement. The registration statement of which this prospectus is a part, does not register all of the shares issuable pursuant to the Purchase Agreement. To sell additional shares to Lincoln Park under the Purchase Agreement, we will have to file one or more additional registration statements for those additional shares.

Other than 127,419 shares of our common stock that we have already issued to Lincoln Park pursuant to the terms of the Purchase Agreement as consideration for its commitment to purchase shares of our common stock under the Purchase Agreement, we do not have the right to commence any sales to Lincoln Park under the Purchase Agreement until the SEC has declared effective the registration statement of which this prospectus forms a part. Thereafter and upon satisfaction of the other conditions set forth in the Purchase Agreement, we may, from time to time and at our sole discretion, direct Lincoln Park to purchase shares of our common stock in amounts up to 100,000 shares on any single business day so long as at least one business day has passed since the most recent purchase. We can also increase the amount of our common stock to be purchased under certain circumstances to up to 300,000 shares but not exceeding \$1.0 million per purchase plus additional “accelerated amounts” and “additional amounts” under certain circumstances. The purchase price per share is based on the market price of our common stock immediately preceding the time of sale as computed under the Purchase Agreement. Lincoln Park may not assign or transfer its rights and obligations under the Purchase Agreement.

**Purchase of Shares Under the Purchase Agreement**

Under the Purchase Agreement, on any business day selected by us, we may direct Lincoln Park to purchase up to 100,000 shares of our common stock on any such business day so long as one business day has passed since the last purchase. On any day that the closing sale price of our common stock is not below (a) \$2.00, the purchase amount may be increased, at our sole discretion, to up to 150,000 shares of our common stock per purchase, and (b) \$3.00, the purchase amount may be increased, at our sole discretion, to up to 300,000 shares of our common stock per purchase, provided in each instance that the amount cannot exceed \$1.0 million (such purchases, Regular Purchases). Lincoln Park will not be required to purchase any shares of our common stock if such sale would result in Lincoln Park’s beneficial ownership exceeding 9.99% of the then outstanding shares of our common stock. The purchase price per share for each such Regular Purchase will be equal to the lower of:

- the lowest sale price for our common stock on the purchase date of such shares; or
- the arithmetic average of the three lowest closing sale prices for our common stock during the 10 consecutive business days ending on the business day immediately preceding the purchase date of such shares.

In addition to Regular Purchases described above, we may also direct Lincoln Park, on any business day on which we have properly submitted a Regular Purchase notice and the closing price of our common stock is not below \$1.00 per share, to purchase an additional amount of our common stock (such purchase, an Accelerated Purchase), not to exceed the lesser of:

- 30% of the aggregate shares of our common stock traded during normal trading hours on the purchase date; and
- three times the number of purchase shares purchased pursuant to the corresponding Regular Purchase.



The purchase price per share for each such Accelerated Purchase will be equal to the lower of:

- 97% of the volume weighted average price during (i) the entire trading day on the purchase date, if the volume of shares of our common stock traded on the purchase date has not exceeded a volume maximum calculated in accordance with the Purchase Agreement, or (ii) the portion of the trading day of the purchase date (calculated starting at the beginning of normal trading hours) until such time at which the volume of shares of our common stock traded has exceeded such volume maximum; or
- the closing sale price of our common stock on the purchase date.

In addition to Regular Purchases and Accelerated Purchases described above, we may also direct Lincoln Park, on any business day that the closing price of our common stock is not below \$1.00, to purchase additional amounts of our common stock, which we refer to as an Additional Purchase whereby, pursuant to each Additional Purchase we may sell up to \$1.0 million of common stock in each Additional Purchase notice, provided, however, that (i) we may not deliver to Lincoln Park more than two separate Additional Purchase notices and (ii) at least 30 business days must pass between the Company's delivery of the first Additional Purchase notice to Lincoln Park and our delivery of the second Additional Purchase notice. The purchase price for each such Additional Purchase shall be equal to the lower of (i) 97% of the purchase price under a Regular Purchase on the date we give notice for the related Additional Purchase, or (ii) \$2.00 per share.

In the case of Regular Purchases, Accelerated Purchases and Additional Purchases, the purchase price per share will be equitably adjusted for any reorganization, recapitalization, non-cash dividend, stock split, reverse stock split or other similar transaction occurring during the business days used to compute the purchase price.

Other than as set forth above, there are no trading volume requirements or restrictions under the Purchase Agreement, and we will control the timing and amount of any sales of our common stock to Lincoln Park.

### Events of Default

Events of default under the Purchase Agreement include the following:

- the effectiveness of the registration statement of which this prospectus forms a part, or any future registration statement relating to the resale of shares issuable pursuant to the Purchase Agreement, lapses for any reason (including, without limitation, the issuance of a stop order), or any required prospectus supplement and accompanying prospectus are unavailable for the resale by Lincoln Park of our common stock offered hereby, and such lapse or unavailability continues for a period of 10 consecutive business days or for more than an aggregate of 30 business days in any 365-day period;
- suspension by our principal market of our common stock from trading for a period of one business day;
- the de-listing of our common stock from the NASDAQ Capital Market, provided our common stock is not immediately thereafter trading on the New York Stock Exchange, the NYSE MKT, the NYSE Arca, the NASDAQ Global Market, the NASDAQ Global Select Market, the OTC Bulletin Board or OTC Markets (or nationally recognized successor thereto);
- the transfer agent's failure for three business days to issue to Lincoln Park shares of our common stock which Lincoln Park is entitled to receive under the Purchase Agreement;
- our breach of any representation, warranty, covenant, or other term or condition contained in the Purchase Agreement or any related agreement which has or which would reasonably be expected to have a material adverse effect on us subject to a cure period of five business days;
- any voluntary or involuntary participation or threatened participation in insolvency or bankruptcy proceedings by or against us;
- if at any time we are not eligible to transfer our common stock electronically; or
- if at any time the Exchange Cap is reached (to the extent the Exchange Cap is applicable).

Lincoln Park does not have the right to terminate the Purchase Agreement upon any of the events of default set forth above. During an event of default, all of which are outside of Lincoln Park's control, we cannot initiate any Regular Purchases or Accelerated Purchases under the Purchase Agreement.

## **Our Termination Rights**

We have the unconditional right, at any time, for any reason and without any payment or liability to us, to give notice to Lincoln Park to terminate the Purchase Agreement. In the event of bankruptcy proceedings by or against us, the Purchase Agreement will automatically terminate without action of any party.

## **No Short-Selling or Hedging by Lincoln Park**

Lincoln Park has agreed that neither it nor any of its affiliates shall engage in any direct or indirect short-selling or hedging of our common stock during any time prior to the termination of the Purchase Agreement.

## **No Variable Rate Transactions**

We agreed with Lincoln Park that we will not enter into any “variable rate” transactions with any third party from the date of the Purchase Agreement until the 30-month anniversary of the date of the Purchase Agreement, subject to certain exceptions set forth in the Purchase Agreement. Additionally, we agreed with Lincoln Park that we will not effect any issuance of shares of our common stock in any “continuous offering” in which we enter into any agreement, including, but not limited to, an equity line of credit, whereby we may sell securities at a future determined price until the expiration of the 30-month period following the date of the Purchase Agreement.

## **Effect of Performance of the Purchase Agreement on Our Stockholders**

All shares of common stock registered in this offering are expected to be freely tradable. It is anticipated that shares registered in this offering will be sold over a period of up to 30 months commencing on the date that the registration statement including this prospectus becomes effective. The sale by Lincoln Park of a significant amount of shares registered in this offering at any given time could cause the market price of our common stock to decline and to be highly volatile. Lincoln Park may ultimately purchase all, some or none of the shares of common stock not yet issued but registered in this offering. If we sell these shares to Lincoln Park, Lincoln Park may sell all, some or none of such shares. Therefore, sales to Lincoln Park by us under the Purchase Agreement may result in substantial dilution to the interests of other holders of our common stock. In addition, if we sell a substantial number of shares to Lincoln Park under the Purchase Agreement, or if investors expect that we will do so, the actual sales of shares or the mere existence of our arrangement with Lincoln Park may make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect such sales. However, we have the right to control the timing and amount of any sales of our shares to Lincoln Park and the Purchase Agreement may be terminated by us at any time at our discretion without any cost to us.

Pursuant to the terms of the Purchase Agreement, we have the right, but not the obligation, to direct Lincoln Park to purchase up to \$20.0 million of our common stock. We have registered only a portion of the shares issuable under the Purchase Agreement and, therefore, we may seek to issue and sell to Lincoln Park under the Purchase Agreement more shares of our common stock than are offered under this prospectus. If we choose to do so, we must first register for resale under the Securities Act any such additional shares, which could cause additional substantial dilution to our stockholders. The number of shares ultimately offered for resale by Lincoln Park under this prospectus is dependent upon the number of shares we direct Lincoln Park to purchase under the Purchase Agreement.

The following table sets forth the amount of proceeds we would receive from Lincoln Park from the sale of shares at varying purchase prices:

<b>Assumed Average Purchase Price Per Share<sup>(1)(2)</sup></b>	<b>Number of Registered Shares to be Issued if Full Purchase<sup>(3)(4)</sup></b>	<b>Percentage of Outstanding Shares After Giving Effect to the Issuance to Lincoln Park<sup>(4)</sup></b>	<b>Additional Proceeds from the Sale of Registered Shares to Lincoln Park Under the Purchase Agreement</b>
\$1.00	6,000,000	21.66%	\$6,000,000
\$1.36	6,000,000	21.66%	\$8,160,000
\$2.00	6,000,000	21.66%	\$12,000,000
\$3.00	6,000,000	21.66%	\$18,000,000
\$4.00	5,000,000	18.72%	\$20,000,000

- (1) Although the Purchase Agreement provides that we may sell up to \$20.0 million of our common stock to Lincoln Park, we are only registering 6,509,677 shares (inclusive of the 127,419 initial commitment shares issued to Lincoln Park and the 382,258 additional commitment shares that may be issued to Lincoln Park as a commitment fee) under this prospectus, which may or may not cover all of the shares we ultimately sell to Lincoln Park under the Purchase Agreement. As a result, we have included in this column only those shares that we are registering in this offering.
- (2) The closing price of our common stock on December 28, 2016 was \$1.36.
- (3) The number of registered shares to be issued excludes the 127,419 commitment shares previously issued and registered hereunder and 382,258 additional commitment shares that may be issued to Lincoln Park because no proceeds will be attributable to such shares.
- (4) The denominator is based on 21,706,490 shares outstanding as of December 28, 2016, adjusted to include the issuance of up to 127,419 initial commitment shares issued to Lincoln Park, and the number of shares set forth in the adjacent column which we would have sold to Lincoln Park, assuming the purchase price in the adjacent column including any related pro rata additional commitment shares. The numerator is based on the number of shares issuable under the Purchase Agreement at the corresponding assumed purchase price set forth in the adjacent column. The number of shares in such column does not include shares that may be issued to Lincoln Park under the Purchase Agreement which are not registered in this offering. The table does not give effect to the prohibition contained in the Purchase Agreement that prevents us from selling and issuing to Lincoln Park shares such that, after giving effect to such sale and issuance, Lincoln Park and its affiliates would beneficially own more than 9.99% of the then outstanding shares of our common stock.

## USE OF PROCEEDS

The 127,419 shares currently outstanding that are being offered for resale by Lincoln Park, the selling stockholder, will be sold for the account of Lincoln Park. As a result, all proceeds from the sales of the 127,419 shares of common stock currently outstanding and offered for resale hereby will go to Lincoln Park and we will not receive any proceeds from the resale of those shares of common stock by Lincoln Park.

We may receive up to \$20.0 million in gross proceeds if we issue to Lincoln Park all of the additional shares issuable pursuant to the Purchase Agreement. However, we are not registering for sale and are not offering under this prospectus all of the shares issuable pursuant to the Purchase Agreement. As we are unable to predict the timing or amount of potential issuances of all of the shares offered hereby, we have not allocated any proceeds of such issuances to any particular purpose. Accordingly, all such proceeds are expected to be used for working capital and general corporate purposes. It is possible that no shares will be issued under the Purchase Agreement.

After the issuance of any of the shares issuable under the Purchase Agreement, we would not receive any proceeds from the resale of those shares by Lincoln Park because those shares will be sold for the account of Lincoln Park.

We will incur all costs associated with this registration statement and prospectus.

## SELLING STOCKHOLDER

The following table sets forth certain information regarding Lincoln Park, the selling stockholder, and the shares of common stock beneficially owned by it, which information is available to us as of December 28, 2016. Lincoln Park may offer the shares under this prospectus from time to time and may elect to sell some, all or none of the shares set forth under this prospectus. However, for the purposes of the table below, we have assumed that, after completion of the offering, none of the shares covered by this prospectus will be held by Lincoln Park. In addition, Lincoln Park may have sold, transferred or otherwise disposed of all or a portion of its shares of common stock since the date on which it provided information for this table. We have not made independent inquiries about such transfers or dispositions. See the section entitled “Plan of Distribution.”

Beneficial ownership is determined in accordance with Rule 13d-3(d) promulgated by the SEC under the Exchange Act. The percentage of shares beneficially owned before the offering is based on 21,706,490 shares of our common stock outstanding as of December 28, 2016.

<u>Selling Stockholder</u>	<u>Number of Shares Beneficially Owned Before this Offering</u>	<u>Percentage of Outstanding Shares Beneficially Owned Before this Offering</u>	<u>Shares to be Sold in this Offering Assuming we issue the Maximum Number of Shares under the Purchase Agreement</u>	<u>Percentage of Outstanding Shares Beneficially Owned After this Offering</u>
Lincoln Park Capital Fund, LLC (1)	206,084 <sup>(2)</sup>	*(3)	6,509,677 <sup>(4)</sup>	*

\* Less than 1%.

- (1) Josh Scheinfeld and Jonathan Cope, the Managing Members of Lincoln Park Capital, LLC, are deemed to be beneficial owners of all of the shares of common stock owned by Lincoln Park Capital Fund, LLC. Messrs. Cope and Scheinfeld have shared voting and investment power over the shares being offered under the prospectus filed with the SEC in connection with the transactions contemplated under the Purchase Agreement. Lincoln Park Capital, LLC is not a licensed broker dealer or an affiliate of a licensed broker dealer.
- (2) Represents (i) 127,419 shares of our common stock issued to Lincoln Park on December 22, 2016 as an initial fee for its commitment to purchase shares of our common stock under the Purchase Agreement, all of which shares are covered by the registration statement that includes this prospectus and (ii) 78,665 shares and warrants to acquire shares previously acquired by Lincoln Park. See the description under the heading “The Lincoln Park Transaction” for more information about the Purchase Agreement.
- (3) Based on 21,706,490 outstanding shares of our common stock as of December 28, 2016, which includes 127,419 shares of our common stock issued to Lincoln Park on December 22, 2016 as an initial fee for its commitment to purchase additional shares of our common stock under the Purchase Agreement. Although we may at our discretion elect to sell to Lincoln Park up to an aggregate amount of \$20.0 million of our common stock under the Purchase Agreement, such shares are not included in determining the percentage of shares beneficially owned before this offering.
- (4) Assumes issuance of the maximum 6,509,677 shares being registered hereby.

## DILUTION

Purchasers of our common stock in this offering will experience an immediate dilution of the net tangible book value per share of our common stock. Our net tangible book value as of September 30, 2016 was approximately \$1.0 million, or \$0.05 per share of our common stock (based upon 20,495,069 shares of our common stock outstanding). Net tangible book value per share is equal to our total tangible assets less our total liabilities, divided by the number of shares of our outstanding common stock.

Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of common stock in this offering, assuming a purchase price of \$1.36 per share (the closing price of our common stock on December 28, 2016), and the as adjusted net tangible book value per share of common stock immediately after the completion of this offering. Therefore, after giving effect to our assumed receipt of \$8.0 million in estimated net proceeds from the issuance of 6,000,000 shares of common stock under the Purchase Agreement and registered in this offering (assuming a purchase price of \$1.36 per share for 6,000,000 shares, the issuance of 283,380 commitment shares for no additional cash consideration, offering expenses of \$115,000, and assuming all such sales and issuances were made on September 30, 2016), our as adjusted net tangible book value as of September 30, 2016 would have been \$9.0 million, or \$0.34 per share. This would represent an immediate increase in the net tangible book value of \$0.29 per share to existing stockholders and an immediate dilution of \$1.02 per share to new investors purchasing shares of our common stock in this offering. The following table illustrates this per share dilution:

Assumed public offering price per share of common stock		\$	1.36
Net tangible book value per share as of September 30, 2016		\$	0.05
Increase in net tangible book value per share attributable to this offering			<u>0.29</u>
As adjusted net tangible book value per share after this offering			<u>0.34</u>
Dilution per share to new investors		\$	<u>1.02</u>

The information above is as of September 30, 2016 and excludes:

- 747,692 shares of common stock issuable upon the exercise of stock options outstanding as of September 30, 2016 with a weighted average exercise price of \$22.51 per share;
- 17,266 shares of common stock issuable upon the vesting of restricted stock awards outstanding as of September 30, 2016;
- 435,514 shares of common stock available for future grants under our 2014 Equity Incentive Plan as of September 30, 2016;
- 33,333 shares of common stock available for future grants under our 2015 New Employee Incentive Plan as of September 30, 2016;
- 3,571,765 shares of our common stock issuable upon the exercise of outstanding warrants as of September 30, 2016 with a weighted-average exercise price of \$4.24 per share; and
- 1,073,800 shares of our common stock issued after September 30, 2016 pursuant to our at-the-market sales agreement.

## MARKET PRICE OF OUR COMMON STOCK AND RELATED STOCKHOLDER MATTERS

From August 2000 (our initial public offering in Germany) until September 2007 our common stock was quoted on the Frankfurt Stock Exchange under the symbol “XMPA” (formerly XMP). In September 2007 our stock closed trading on the Frankfurt Stock Exchange. In December 2005, our common stock commenced trading on NASDAQ Capital Market under the symbol “CYTX.” From December 2005 until February 2006 our common stock traded on the NASDAQ Capital Market, from February 2006 until February 2016 it traded on the NASDAQ Global Market, and since February 2016 it has traded on the NASDAQ Capital Market. Our common stock has, from time to time, traded on a limited, sporadic and volatile basis. The following tables show the high and low sales prices for our common stock for the periods indicated. These prices do not include retail markups, markdowns or commissions.

	Price Ranges	
	High	Low
<b><i>Fiscal Year Ended December 31, 2016</i></b>		
First Quarter	\$3.30	\$1.95
Second Quarter	\$5.25	\$2.00
Third Quarter	\$2.25	\$1.83
Fourth Quarter (through December 28, 2016)	\$2.00	\$1.36
<b><i>Fiscal Year Ended December 31, 2015</i></b>		
First Quarter	\$20.55	\$6.60
Second Quarter	\$20.25	\$8.40
Third Quarter	\$8.25	\$4.50
Fourth Quarter	\$6.30	\$2.85
<b><i>Fiscal Year Ended December 31, 2014</i></b>		
First Quarter	\$49.80	\$37.35
Second Quarter	\$42.45	\$32.85
Third Quarter	\$36.00	\$10.20
Fourth Quarter	\$10.35	\$5.70

The closing price of our common stock on December 28, 2016 was \$1.36 per share. All of our outstanding shares have been deposited with the Depository Trust & Clearing Corporation, or DTCC, since December 2005. As of December 28, 2016, we had approximately 25 record holders of our common stock. Because many of our shares are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of individual stockholders represented by these record holders.

## **DIVIDEND POLICY**

We have never paid cash dividends on our common stock in the past and we currently anticipate that no cash dividends will be paid on common stock in the foreseeable future. Furthermore, our Loan and Security Agreement with Oxford Finance LLC currently prohibits our issuance of cash dividends. We expect as of the date hereof to retain any future earnings to fund the operation and expansion of our business.



## DESCRIPTION OF CAPITAL STOCK

### Common Stock

This section describes the general terms and provisions of the shares of our common stock, \$0.001 par value. This description is only a summary and is qualified in its entirety by reference to the description of our common stock included in our amended and restated of incorporation, as amended, and our amended and restated bylaws, as amended, which have been filed as exhibits to the registration statement of which this prospectus is a part. You should read our amended and restated of incorporation and our amended and restated bylaws for additional information before you buy any of our common stock or other securities. See “Where You Can Find More Information” and “Incorporation by Reference.”

We have 75,000,000 shares of authorized common stock. As of December 28, 2016, there were 21,706,490 shares of common stock issued and outstanding, warrants to purchase 3,571,765 shares of common stock outstanding, options to purchase 747,692 shares of common stock outstanding and 17,266 shares of common stock issuable upon vesting of restricted stock awards. The holders of common stock possess exclusive voting rights in us, except to the extent our board of directors specifies voting power with respect to any other class of securities issued in the future. Each holder of our common stock is entitled to one vote for each share held of record on each matter submitted to a vote of stockholders, including the election of directors. Stockholders do not have any right to cumulate votes in the election of directors.

Subject to preferences that may be granted to the holders of preferred stock, each holder of our common stock is entitled to share ratably in distributions to stockholders and to receive ratably such dividends as may be declared by our board of directors out of funds legally available therefor. In the event of our liquidation, dissolution or winding up, the holders of our common stock will be entitled to receive, after payment of all of our debts and liabilities and of all sums to which holders of any preferred stock may be entitled, the distribution of any of our remaining assets. Holders of our common stock have no conversion, exchange, sinking fund, redemption or appraisal rights (other than such as may be determined by our board of directors in its sole discretion) and have no preemptive rights to subscribe for any of our securities.

All of the outstanding shares of our common stock are, and the shares of common stock issued upon the conversion of any securities convertible into our common stock will be, fully paid and non-assessable. The shares of common stock offered by this prospectus or upon the conversion of any preferred stock or debt securities or exercise of any warrants offered pursuant to this prospectus, when issued and paid for, will also be, fully paid and non-assessable.

Our common stock is listed on the NASDAQ Capital Market under the symbol “CYTX.”

### Preferred Stock

We have 5,000,000 shares of authorized preferred stock, \$0.001 par value, 13,500 shares of which were issued and none of which were outstanding as of December 28, 2016. Of this amount, 13,500 shares have been designated Series A convertible preferred stock, none of which are outstanding as of December 28, 2016. Our board of directors is authorized, without action by our stockholders, to classify or reclassify any unissued portion of our authorized shares of preferred stock to provide for the issuance of shares of other classes or series, including preferred stock in one or more series. Our board of directors may fix or alter the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption (including sinking fund provisions), the redemption price or prices, the liquidation preferences of any wholly unissued series of Preferred Stock, and the number of shares constituting any such series and the designation thereof, or any of them. Our board of directors may also increase or decrease the number of shares of any series subsequent to the issue of shares of that series, but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be so decreased, the shares constituting such decrease shall resume the status which they had prior to the adoption of the resolution originally fixing the number of shares of such series.

## Possible Anti-Takeover Effects of Delaware Law and our Certificate of Incorporation and Bylaws

### ***Delaware Anti-Takeover Statute***

We are subject to Section 203 of the Delaware General Corporation Law, or DGCL, an anti-takeover statute. In general, Section 203 of the DGCL prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years following the time the person became an interested stockholder, unless the business combination or the acquisition of shares that resulted in a stockholder becoming an interested stockholder is approved in a prescribed manner. Generally, a “business combination” includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. Generally, an “interested stockholder” is a person who, together with affiliates and associates, owns (or within three years prior to the determination of interested stockholder status did own) 15% or more of a corporation’s voting stock. The existence of this provision would be expected to have an anti-takeover effect with respect to transactions not approved in advance by our board of directors, including discouraging attempts that might result in a premium over the market price for the shares of common stock held by our stockholders.

### ***Board Vacancies***

Our amended and restated bylaws provide that any vacancy or vacancies in our board of directors shall be deemed to exist in the case of the death, resignation or removal of any director, or if the authorized number of directors be increased. Vacancies may be filled by a majority of the remaining directors, though less than a quorum, or by a sole remaining director, unless otherwise provided in our amended and restated of incorporation, as amended. The stockholders may elect a director or directors at any time to fill any vacancy or vacancies not filled by the directors.

### ***Undesignated Preferred Stock***

The authority possessed by our board of directors to issue preferred stock could potentially be used to discourage attempts by third parties to obtain control of our company through a merger, tender offer, proxy contest or otherwise by making such attempts more difficult or more costly. Our board of directors may issue preferred stock with voting rights or conversion rights that, if exercised, could adversely affect the voting power of the holders of our common stock.

### ***Special Meeting Requirements***

Our amended and restated bylaws provide that special meetings of our stockholders may only be called at the request of our president, chief executive officer or chairman of the board or by a majority of our Board of Directors.

### ***No Cumulative Voting***

The DGCL provides that stockholders are denied the right to cumulate votes in the election of directors unless our amended and restated of incorporation, as amended, provides otherwise. Our amended and restated of incorporation does not provide for cumulative voting.

### ***Authorized but Unissued Shares***

Our authorized but unissued shares of common stock and preferred stock will be available for future issuance without stockholder approval. We may use additional shares for a variety of purposes, including future public offerings to raise additional capital, to fund acquisitions and as employee compensation. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

The above provisions may deter a hostile takeover or delay a change in control or management of us.

**Transfer Agent**

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

## PLAN OF DISTRIBUTION

An aggregate of up to 6,509,677 shares of our common stock may be offered by this prospectus by Lincoln Park pursuant to the Purchase Agreement. The common stock may be sold or distributed from time to time by Lincoln Park directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. The sale of the common stock offered by this prospectus could be affected in one or more of the following methods:

- ordinary brokers' transactions;
- transactions involving cross or block trades;
- through brokers, dealers, or underwriters who may act solely as agents;
- "at-the-market" into an existing market for the common stock;
- in other ways not involving market makers or established business markets, including direct sales to purchasers or sales effected through agents;
- in privately negotiated transactions; or
- any combination of the foregoing.

In order to comply with the securities laws of certain states, if applicable, the shares may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares may not be sold unless they have been registered or qualified for sale in the state or an exemption from the state's registration or qualification requirement is available and complied with.

Lincoln Park is an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act.

Lincoln Park has informed us that it intends to use an unaffiliated broker-dealer to effectuate all sales, if any, of the common stock that it may purchase from us pursuant to the Purchase Agreement. Such sales will be made at prices and at terms then prevailing or at prices related to the then current market price. Each such unaffiliated broker-dealer will be an underwriter within the meaning of Section 2(a)(11) of the Securities Act. Lincoln Park has informed us that each such broker-dealer will receive commissions from Lincoln Park that will not exceed customary brokerage commissions.

Brokers, dealers, underwriters or agents participating in the distribution of the shares as agents may receive compensation in the form of commissions, discounts, or concessions from Lincoln Park and/or purchasers of the common stock for whom the broker-dealers may act as agent. The compensation paid to a particular broker-dealer may be less than or in excess of customary commissions. Neither we nor Lincoln Park can presently estimate the amount of compensation that any agent will receive. We know of no existing arrangements between Lincoln Park or any other stockholder, broker, dealer, underwriter or agent relating to the sale or distribution of the shares offered by this prospectus. At the time a particular offer of shares is made, a prospectus supplement, if required, will be distributed that will set forth the names of any agents, underwriters or dealers and any compensation from Lincoln Park, and any other required information.

We will pay the expenses incident to the registration, offering, and sale of the shares to Lincoln Park. We have agreed to indemnify Lincoln Park and certain other persons against certain liabilities in connection with the offering of shares of common stock offered hereby, including liabilities arising under the Securities Act or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. Lincoln Park has agreed to indemnify us against liabilities under the Securities Act that may arise from certain written information furnished to us by Lincoln Park specifically for use in this prospectus or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities.

Lincoln Park has represented to us that at no time prior to the Purchase Agreement has it or its agents, representatives or affiliates engaged in or effected, in any manner whatsoever, directly or indirectly, any short sale (as such term is defined in Rule 200 of Regulation SHO of the Exchange Act) of our common stock or any hedging transaction, which establishes a net short position with respect to our common stock. Lincoln Park has agreed that during the term of the Purchase Agreement, it, its agents, representatives or affiliates will not enter into or effect, directly or indirectly, any of the foregoing transactions.

We have advised Lincoln Park that it is required to comply with Regulation M promulgated under the Exchange Act. With certain exceptions, Regulation M precludes Lincoln Park, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the securities offered by this prospectus.

This offering will terminate on the date that all shares offered by this prospectus have been sold by Lincoln Park.

## **EXPERTS**

The consolidated financial statements and schedule of Cytori Therapeutics, Inc. and subsidiaries as of December 31, 2015 and 2014, and for each of the years in the three-year period ended December 31, 2015, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2015, have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The audit report covering the December 31, 2015 consolidated financial statements contains an explanatory paragraph that states that our recurring losses from operations, liquidity position, and debt service requirements raises substantial doubt about our ability to continue as a going concern. The consolidated financial statements and financial statement schedule do not include any adjustments that might result from the outcome of that uncertainty.

## **LEGAL MATTERS**

The validity of the shares of common stock being offered by this prospectus will be passed upon for us by Latham & Watkins LLP, San Diego, California.

## WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-1 with the SEC under the Securities Act. This prospectus is part of the registration statement but the registration statement includes additional information and exhibits. We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement and any document we file with the SEC at the public reference room maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the public reference room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a web site that contains reports, proxy and information statements and other information regarding companies, such as ours, that file documents electronically with the SEC. The website address is [www.sec.gov](http://www.sec.gov). The information on the SEC's website is not part of this prospectus, and any references to this website or any other website are inactive textual references only.

## INCORPORATION BY REFERENCE

The SEC permits us to "incorporate by reference" the information contained in documents we have filed with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus and you should read it with the same care that you read this prospectus.

We incorporate by reference our documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act between the date of this prospectus and the termination of the offering of the securities described in this prospectus. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed below or filed in the future, that are not deemed "filed" with the SEC, including our Compensation Committee report and performance graph or any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

This prospectus incorporates by reference the documents set forth below that have previously been filed with the SEC:

- our Annual Report on Form 10-K for the year ended December 31, 2015, filed on March 11, 2016, as amended by our Annual Report on Form 10-K/A, filed on March 24, 2016, and our Annual Report on Form 10-K/A, filed on September 30, 2016;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2016, June 30, 2016, and September 30, 2016, filed on May 10, 2016, August 5, 2016, and November 9, 2016, respectively;
- our definitive proxy statement, filed on March 15, 2016;
- our Current Reports on Form 8-K filed on January 5, 2016, January 29, 2016, February 4, 2016, February 24, 2016, March 2, 2016, May 10, 2016, May 31, 2016, June 13, 2016, June 15, 2016, July 14, 2016, August 4, 2016, September 19, 2016, December 28, 2016 and December 29, 2016; and
- the description of our common stock contained in our registration statement on Form 10/A filed on July 16, 2001 and any amendment or report filed with the SEC for the purpose of updating the description.

Any statement contained in any document incorporated by reference herein will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or any prospectus supplement modifies or supersedes such statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

We will provide without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, a copy of any or all documents that are incorporated by reference into this prospectus, but not delivered with the prospectus, other than exhibits to such documents unless such exhibits are specifically incorporated by reference into the documents that this prospectus incorporates. You should direct written requests to: Cytori Therapeutics, Inc., 3020 Callan Road, San Diego, CA 92121, Attn: Investor Relations, or you may call us at (858) 458-0900.



**6,509,677 Shares**

**CYTORI THERAPEUTICS, INC.**

**Common Stock**



**PROSPECTUS**

**December , 2016**

---

**PART II**  
**Information Not Required In Prospectus**

**Item 13. Other Expenses of Issuance and Distribution.**

The following is a statement of estimated expenses in connection with the offering described in this registration statement. All expenses incurred with respect to the registration of the common stock will be borne by us. All amounts are estimates except the SEC registration fee.

	<b>Amount to be Paid</b>
SEC Registration Fee	\$ 1,091
Printing Expenses*	5,000
Legal Fees and Expenses*	75,000
Accounting Fees and Expenses*	30,000
Miscellaneous Expenses*	3,909
Total	<u>\$ 115,000</u>

\*Estimated solely for the purpose of this Item. Actual expenses may vary.

**Item 14. Indemnification of Directors and Officers.**

Section 145 of the DGCL authorizes a court to award or a corporation's board of directors to grant indemnification to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities (including reimbursement for expenses incurred) arising under the Securities Act of 1933, as amended, or the Securities Act.

Our amended and restated certificate of incorporation, as amended, or our Certificate, includes a provision that, to the fullest extent permitted by the Delaware General Corporation Law, eliminates the personal liability of our directors for monetary damages for breach of fiduciary duty as a director. In addition, together our Certificate and our amended and restated bylaws, as amended, or our Bylaws, require us to indemnify, to the fullest extent permitted by law, any person made or threatened to be made a party to an action or proceeding (whether criminal, civil, administrative or investigative) by reason of the fact that such person is or was a director, officer or employee of Cytori or any predecessor of ours, or serves or served at any other enterprise as a director, officer or employee at our request or the request of any predecessor of ours, against expenses (including attorneys' fees), judgments, fines, settlements and other amounts actually and reasonably incurred in connection with any proceeding, arising by reason of the fact that such person is or was an agent of ours. Our Bylaws also provide that we may, to the fullest extent provided by law, indemnify any person against expenses (including attorneys' fees), judgments, fines, settlements and other amounts actually and reasonably incurred in connection with any proceeding, arising by reason of the fact that such person is or was an agent of ours. We are required to advance expenses incurred by our directors, officers, employees and agents in defending any action or proceeding for which indemnification is required or permitted, subject to certain limited exceptions. The indemnification rights conferred by our Bylaws are not exclusive.

**Item 15. Recent Sales of Unregistered Securities.**

The following is a summary of all securities that we have sold within the past three years without registration under the Securities Act.

- Effective May 13, 2014, we and 47 holders of warrants dated May 14, 2009 to purchase a total of 210,416 shares of our common stock issued in a private offering in 2009 agreed to extend the expiration date of the warrants from May 14, 2014 to May 14, 2015 and increase the exercise price of the warrants from \$39.30 per share to \$52.50 per share pursuant to an Amendment to Warrant to
-

Purchase Common Stock. To the extent the amendments constitute an issuance of securities, the deemed exchange of the original warrants for warrants with the modified terms for no additional consideration and without paying remuneration for soliciting such exchange was exempt under Section 3(a)(9) of the Securities Act.

- On September 11, 2014, in connection with and pursuant to an amendment entered into on September 4, 2014 with 13 holders of existing warrants, we issued warrants to purchase 268,826 shares of common stock having an exercise price of \$30.00 per share, exercisable on the date that is six months and one day from the date of issuance and expiring five years from the date of issuance. The warrants also contain a cashless exercise feature. The warrants were issued in reliance on an exemption from registration under Section 4(a)(2) of the Securities Act based on the offering of such securities to thirteen investors and the lack of any general solicitation or advertising in connection with such issuance.
- On September 19, 2014, pursuant to the terms and conditions of a letter agreement with Oxford Finance LLC and Silicon Valley Bank, we cancelled the warrants issued June 28, 2013 and issued new warrants to purchase an aggregate of up to 39,771 shares of our common stock at an exercise price equal to \$10.05 per share. The warrants were immediately exercisable for cash or by net exercise and will expire seven years after their issuance, which is June 28, 2020. The warrants were offered and sold to accredited investors in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D promulgated thereunder.
- On May 29, 2015, pursuant to the terms and conditions of the Loan and Security Agreement with Oxford Finance LLC, as collateral agent and as a lender, we issued to Oxford warrants to purchase an aggregate of up to 94,442 shares of our common stock at an exercise price equal to \$10.305 per share. The warrants were exercisable on or after November 30, 2015 for cash or by net exercise and will expire 10 years after their issuance on May 29, 2025. The warrants were offered and sold to accredited investors in reliance upon exemptions from registration under Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D promulgated thereunder.
- On December 22, 2016, we issued 127,491 shares of common stock to Lincoln Park Capital Fund, LLC as an initial fee for its commitment to purchase shares of our common stock pursuant to the Purchase Agreement dated December 22, 2016 between us and Lincoln Park Capital Fund, LLC. The shares were issued in reliance on an exemption from registration under Section 4(a)(2) of the Securities Act.

**Item 16. Exhibits and Financial Statement Schedules.**

(a) Exhibits

The exhibits to the registration statement are listed in the Exhibit Index to this registration statement and are incorporated herein by reference.

(b) Financial statement schedules

All schedules have been omitted because either they are not required, are not applicable or the information is otherwise set forth in the financial statements and related notes thereto.

---

**Item 17. Undertakings.**

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 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) above do not apply if 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 Section 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.

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

(A) 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

(B) 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 part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

---

(5) 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, 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.

(6) 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 and will be governed by the final adjudication of such issue.

---

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on December 29, 2016.

CYTORI THERAPEUTICS, INC.

By: /s/ Marc H. Hedrick, M.D.

Marc H. Hedrick, M.D.

President and Chief Executive Officer

## POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Marc H. Hedrick and Tiago Girão as his true and lawful attorneys-in-fact and agents, with full powers of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments to this Registration Statement (including post-effective amendments and any related registration statements filed pursuant to Rule 462 and otherwise), and to file the same with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents and full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully for all intents and purposes as he might or could do in person, hereby ratifying and confirming that said attorney-in-fact and agent, or any substitute or resubstitute, 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
<u>/s/ David M. Rickey</u> David M. Rickey	Chairman of the Board	December 29, 2016
<u>/s/ Marc H. Hedrick, M.D.</u> Marc H. Hedrick, M.D.	President, Chief Executive Officer and Director (Principal Executive Officer)	December 29, 2016
<u>/s/ Tiago Girão</u> Tiago Girão	Chief Financial Officer (Principal Financial and Accounting Officer)	December 29, 2016
<u>/s/ Richard J. Hawkins</u> Richard J. Hawkins	Director	December 29, 2016
<u>/s/ Paul W. Hawran</u> Paul W. Hawran	Director	December 29, 2016
<u>/s/ Gary A. Lyons</u> Gary A. Lyons	Director	December 29, 2016
<u>/s/ Gail K. Naughton, Ph.D.</u> Gail K. Naughton, Ph.D.	Director	December 29, 2016
<u>/s/ Ronald A. Martell</u> Ronald A. Martell	Director	December 29, 2016

---

## EXHIBIT INDEX

		CYTORI THERAPEUTICS, INC.				
		EXHIBIT INDEX				
Exhibit Number	Exhibit Title	Filed herewith	Incorporated by Reference			
			Form/Schedule	Exhibit/Appendix	File No.	Date Filed
3.1	Composite Certificate of Incorporation.		10-K	3.1	001-34375	03/11/2016
3.2	Amended and Restated Bylaws of Cytori Therapeutics, Inc.		10-Q	3.2	000-32501	08/14/2003
3.3	Amendment to Amended and Restated Bylaws of Cytori Therapeutics, Inc.		8-K	3.1	001-34375	05/06/2014
3.4	Certificate of Designation of Preferences, Rights and Limitations of Series A 3.6% Convertible Preferred Stock.		8-K	3.1	001-34375	10/08/2014
3.5	Certificate of Amendment to Amended and Restated Certificate of Incorporation, as amended.		8-K	3.1	001-34375	05/10/2016
4.1	Warrant to Purchase Common Stock issued by the Company on October 14, 2008 in favor of Silicon Valley Bank, pursuant to the Loan and Security Agreement dated October 14, 2008.		10-K	10.62	000-32501	03/06/2009
4.2	Warrant to Purchase Common Stock issued by the Company on June 11, 2010 in favor of GE Capital Equity Investments, Inc., pursuant to the Amended and Restated Loan and Security Agreement dated June 11, 2010.		8-K	10.73	001-34375	06/17/2010
4.3	Warrant to Purchase Common Stock issued by the Company on June 11, 2010 in favor of Silicon Valley Bank, pursuant to the Amended and Restated Loan and Security Agreement dated June 11, 2010.		8-K	10.74	001-34375	06/17/2010
4.4	Warrant to Purchase Common Stock issued by the Company on June 11, 2010 in favor of Oxford Financial Corporation, pursuant to the Amended and Restated Loan and Security Agreement dated June 11, 2010.		8-K	10.75	001-34375	06/17/2010
4.5	Warrant to Purchase Common Stock issued by the Company on September 9, 2011 in favor of GE Capital Equity Investments, Inc., pursuant to the Amended and Restated Loan and Security Agreement dated September 9, 2011.		8-K	10.84	001-34375	09/15/2011

4.6	Warrant to Purchase Common Stock issued by the Company on September 9, 2011 in favor of Silicon Valley Bank, pursuant to the Amended and Restated Loan and Security Agreement dated September 9, 2011.		8-K	10.85	001-34375	09/15/2011
4.7	Warrant to Purchase Common Stock issued by the Company on September 9, 2011 in favor of Oxford Financial Corporation, pursuant to the Amended and Restated Loan and Security Agreement dated September 9, 2011.		8-K	10.86	001-34375	09/15/2011
4.8	Warrant to Purchase Common Stock issued by the Company on September 9, 2011 in favor of Oxford Financial Corporation, pursuant to the Amended and Restated Loan and Security Agreement dated September 9, 2011.		8-K	10.87	001-34375	09/15/2011
4.9	Warrant to Purchase Common Stock issued by the Company on June 28, 2013 in favor of Oxford Finance LLC pursuant to the Loan and Security Agreement dated June 28, 2013.		10-Q	4.17	001-34375	08/09/2013
4.10	Warrant to Purchase Common Stock issued by the Company on June 28, 2013 in favor of Oxford Finance LLC pursuant to the Loan and Security Agreement dated June 28, 2013.		10-Q	4.18	001-34375	08/09/2013
4.12	Warrant to Purchase Common Stock issued by the Company on June 28, 2013 in favor of Oxford Finance LLC pursuant to the Loan and Security Agreement dated June 28, 2013.		10-Q	4.19	001-34375	08/09/2013
4.13	Warrant to Purchase Common Stock issued by the Company on June 28, 2013 in favor of Oxford Finance LLC pursuant to the Loan and Security Agreement dated June 28, 2013.		10-Q	4.20	001-34375	08/09/2013

4.14	Warrant to Purchase Common Stock issued by the Company on June 28, 2013 in favor of Silicon Valley Bank pursuant to the Loan and Security Agreement dated June 28, 2013.		10-Q	4.21	001-34375	08/09/2013
4.15	Form of Warrant to Purchase Common Stock for Investors in the Units.		8-K	4.1	001-34375	05/30/2014
4.16	Form of Warrant to Purchase Common Stock for Placement Agent of the Units.		8-K	4.2	001-34375	05/30/2014
4.17	Form of Amendment to Warrant to Purchase Common Stock.		8-K	4.1	001-34375	09/08/2014



4.18	Form of Warrant to Purchase Common Stock.		8-K	4.2	001-34375	09/08/2014
4.19	Form of Warrant for Purchasers in the Units.		8-K	4.1	001-34375	10/08/2014
4.20	Form of Initial Warrant to Purchase Common Stock.		8-K	4.1	001-34375	05/05/2015
4.21	Form of Additional Warrant to Purchase Common Stock.		8-K	4.2	001-34375	05/05/2015
4.22	Form of Pre-Funded Warrant to Purchase Common Stock.		8-K	4.3	001-34375	05/05/2015
4.23	Amendment to Common Stock Purchase Warrant.		10-K	4.23	001-34375	03/11/2015
4.24	Amendment to Series A-1 Warrant to Purchase Common Stock.		10-K	4.24	001-34375	03/11/2015
4.25	Amendment to Series A-2 Warrant to Purchase Common Stock.		10-K	4.25	001-34375	03/11/2015
4.26	Form of Non-Transferable Subscription Rights Certificate.		S-1/A	4.26	333-210628	05/11/2016
4.27	Form of Series R Warrant underlying the Units.		S-1/A	4.27	333-210628	05/11/2016
4.28	Form of Warrant Agreement between Cytori Therapeutics, Inc. and Broadridge Corporate Issuer Solutions, Inc.		S-1/A	4.28	333-210628	05/11/2016
5.1	Opinion of Latham & Watkins LLP.	X				
10.1#	Amended and Restated 1997 Stock Option and Stock Purchase Plan.		10	10.1	000-32501	03/30/2001
10.1.1#	Board of Directors resolution adopted November 9, 2006 regarding determination of fair market value for stock option grant purposes.		10-K	10.10.1	000-32501	03/30/2007
10.2	2004 Equity Incentive Plan of Cytori Therapeutics, Inc.		8-K	10.1	000-32501	08/27/2004
10.3#	Board of Directors resolution adopted November 9, 2006 regarding determination of fair market value for stock option grant purposes.		10-K	10.10.1	000-32501	03/30/2007

10. 4#	Notice and Agreement for Stock Options Grant Pursuant to Cytori Therapeutics, Inc. 1997 Stock Option and Stock Purchase Plan (Nonstatutory).		10-Q	10.19	000-32501	11/15/2004
10.5#	Notice and Agreement for Stock Options Grant Pursuant to Cytori Therapeutics, Inc. 1997 Stock Option and Stock Purchase Plan (Nonstatutory) with Cliff.		10-Q	10.20	000-32501	11/15/2004
10.6#	Notice and Agreement for Stock Options Grant Pursuant to Cytori Therapeutics, Inc. 1997 Stock Option and Stock Purchase Plan (Incentive).		10-Q	10.21	000-32501	11/15/2004
10.7#	Notice and Agreement for Stock Options Grant Pursuant to Cytori Therapeutics, Inc. 1997 Stock Option and Stock Purchase Plan (Incentive) with Cliff.		10-Q	10.22	000-32501	11/15/2004
10.8#	Form of Options Exercise and Stock Purchase Agreement Relating to the 2004 Equity Incentive Plan.		10-Q	10.23	000-32501	11/15/2004
10.9#	Form of Notice of Stock Options Grant Relating to the 2004 Equity Incentive Plan.		10-Q	10.24	000-32501	11/15/2004
10.10	Sublease Agreement dated May 24, 2005, between Biogen Idec, Inc. and the Company.		10-Q	10.21	000-32501	08/15/2005
10.11+	License & Royalty Agreement, effective August 23, 2007, by and between Olympus-Cytori, Inc. and Cytori Therapeutics, Inc.		10-Q	10.49	000-32501	11/13/2007
10.69	Lease Agreement entered into on April 2, 2010, between HCP Callan Rd, LLC. and Cytori Therapeutics, Inc.		10-Q	10.69	001-34375	05/06/2010
10.76	Common Stock Purchase Agreement, dated December 6, 2010, by and among Cytori Therapeutics, Inc. and Astellas Pharma Inc.		8-K	10.76	001-34375	12/09/2010
10.77	Form of Notice and Restricted Stock Award Agreement for grants of performance-based restricted stock awards under the 2004 Equity Incentive Plan.		8-K	10.1	001-34375	03/04/2011
10.88	First Amendment to Lease Agreement entered into on November 4, 2011, between HCP Callan Rd, LLC. and the Company.		10-Q	10.88	001-34375	11/08/2011
10.89#	2011 Employee Stock Purchase Plan.		DEF 14A	A	001-34375	05/02/2011

10.90+	Contract HHSO100201200008C dated September 27, 2012, by and between the Company and the U.S. Department of Health and Human Services Biomedical Advanced Research and Development Authority (portions of the exhibit have been omitted pursuant to a request for confidential treatment).		8-K	10.90	001-34375	10/03/2012
10.91	Joint Venture Termination Agreement dated May 8, 2013 by and between the Company and Olympus Corporation.		10-Q	10.91	001-34375	05/10/2013
10.93+	Puregraft Sale-License-Supply Agreement, dated July 30, 2013, by and among the Company and Bimini Technologies LLC.		10-Q/A	10.93	001-34375	11/12/2013
10.94+	Amended and Restated License and Supply Agreement dated January 30, 2014, by and between the Company and Lorem Vascular Pty. Ltd.		8-K	10.94	001-34375	02/04/2014
10.95	Sales Agreement, dated May 12, 2014, by and between Cytori Therapeutics, Inc. and Cowen and Company, LLC.		8-K	10.1	001-34375	05/12/2014
10.98	Cytori Therapeutics, Inc. 2014 Equity Incentive Plan.		DEF 14A	A	001-34375	06/12/2014
10.99	Contract HHSO100201200008C Amendment No. 1 dated August 13, 2014, by and between the Company and the U.S. Department of Health and Human Services Biomedical Advanced Research and Development Authority.		8-K	10.99	001-34375	08/19/2014
10.103	Confidential Separation Agreement and General Release of all claims dated October 2, 2014, by and among the Company, and Clyde Shores.		10-Q	10.103	001-34375	11/06/2014
10.104	Form of Securities Purchase Agreement by and between Cytori Therapeutics, Inc. and the Purchasers (as defined therein), dated as of October 8, 2014.		8-K	10.1	001-34375	10/08/2014
10.105	Placement Agency Agreement, dated October 8, 2014, between Cytori Therapeutics, Inc. and Roth Capital Partners, LLC.		8-K	10.2	001-34375	10/08/2014

10.106	Amendment One to the Securities Purchase Agreement, dated March 16, 2015, between the Company and certain institutional investors.		10-Q	10.1	001-34375	05/11/2015
10.107	Form of Securities Purchase Agreement, dated May 5, 2015, by and among Cytori Therapeutics, Inc. and the investors named therein.		8-K	10.1	001-34375	05/05/2015
10.108	Placement Agency Agreement, dated May 5, 2015, by and between Cytori Therapeutics, Inc. and Mizuho Securities USA Inc.		8-K	10.2	001-34375	05/05/2015
10.109	Amendment One to Joint Venture Termination Agreement, dated April 30, 2015, by and between Cytori Therapeutics, Inc. and Olympus Corporation.		8-K	10.1	001-34375	05/05/2015
10.110	Loan and Security Agreement, dated May 29, 2015, by and between Cytori Therapeutics, Inc. and Oxford Finance, LLC.		10-Q	10.4	001-34375	08/10/2015
10.111	Amendment One to the Securities Purchase Agreement between the Company and certain institutional investors dated May 5, 2015.		10-K	10.111	001-34375	03/11/2016
10.112#	2015 New Employee Incentive Plan.		8-K	10.1	001-34375	01/05/2016
10.113#	Form of Agreement for Acceleration and/or Severance.		10-K	10.113	001-34375	03/11/2015
10.114#	Form of Stock Option Agreement under the New Employee Incentive Plan.		S-8	99.4	333-210211	03/15/2016
10.115#	Form of Notice of Grant of Stock Option under the 2015 New Employee Incentive Plan.		S-8	99.5	333-210211	03/15/2016
10.116	Amendment Two to Joint Venture Termination Agreement, dated January 8, 2016.		10-Q	10.4	001-34375	05/10/2016
10.117	Amendment of Solicitation/Amendment of Contract, effective April 1, 2016, by and between ASPR-BARDA and Cytori Therapeutics, Inc.		10-Q	10.1	001-34375	08/05/2016
10.118	Amendment of Solicitation/Amendment of Contract, effective September 9, 2016, by and between ASPR-BARDA and Cytori Therapeutics, Inc.		10-Q	10.1	001-34375	11/09/2016

10.119	Purchase Agreement between Cytori Therapeutics, Inc. and Lincoln Park Capital Fund, LLC, dated December 22, 2016.		8-K	10.1	001-34375	12/29/2016
10.120	Registration Rights Agreement between Cytori Therapeutics, Inc. and Lincoln Park Capital Fund, LLC, dated December 22, 2016.		8-K	10.2	001-34375	12/29/2016
23.1	Consent of KPMG LLP, Independent Registered Public Accounting Firm.	X				
23.2	Consent of Latham & Watkins LLP (included in exhibit 5.1).	X				
24.1	Power of Attorney (included on signature page).	X				

# Indicates management contract or compensatory plan or arrangement.

+ Confidential treatment has been granted with respect to certain portions of this exhibit. Omitted portions have been filed separately with the Securities and Exchange Commission.

12670 High Bluff Drive  
 San Diego, California 92130  
 Tel: +1.858.523.5400 Fax: +1.858.523.5450  
 www.lw.com

## FIRM / AFFILIATE OFFICES

Barcelona	Moscow
Beijing	Munich
Boston	New York
Brussels	Orange County
Century City	Paris
Chicago	Riyadh
Dubai	Rome
Düsseldorf	San Diego
Frankfurt	San Francisco
Hamburg	Seoul
Hong Kong	Shanghai
Houston	Silicon Valley
London	Singapore
Los Angeles	Tokyo
Madrid	Washington, D.C.
Milan	

December 29, 2016

Cytori Therapeutics, Inc.  
 3020 Callan Road  
 San Diego, California 92121

Re: Registration Statement on Form S-1; 6,509,677 shares of Common Stock, par value \$0.001 per share

Ladies and Gentlemen:

We have acted as special counsel to Cytori Therapeutics, Inc., a Delaware corporation (the “**Company**”), in connection with the proposed sale of up to 6,509,677 shares of common stock, par value \$0.001 per share, of the Company (the “**Common Stock**”) by the selling stockholder (the “**Selling Stockholder**”) identified in the Registration Statement (as defined below). The shares to be sold by the Selling Stockholder are included in a registration statement on Form S-1 under the Securities Act of 1933, as amended (the “**Act**”), filed with the Securities and Exchange Commission (the “**Commission**”) on December 29, 2016 (as amended, the “**Registration Statement**”). The Registration Statement relates to the registration of (i) 127,419 shares of Common Stock (the “**Initial Commitment Shares**”) issued to the Selling Stockholder by the Company, (ii) up to 382,258 shares of Common Stock (the “**Additional Commitment Shares**”) that may be issued to the Selling Stockholder from time to time by the Company and (iii) up to 6,000,000 shares of Common Stock (the “**Purchase Shares**”) and, together with the Initial Commitment Shares and the Additional Commitment Shares, the “**Shares**”) that may be issued and sold to the Selling Stockholder from time to time by the Company, pursuant to a

---

purchase agreement dated December 22, 2016 between the Selling Stockholder and the Company (the “*Purchase Agreement*”). The term “*Purchase Shares*” shall include any additional shares of common stock registered by the Company pursuant to Rule 462(b) under the Act in connection with the offering contemplated by the Registration Statement. This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement or related Prospectus, other than as expressly stated herein with respect to the issue of the Shares.

As such counsel, we have examined such matters of fact and questions of law as we have considered appropriate for purposes of this letter. With your consent, we have relied upon certificates and other assurances of officers of the Company and others as to factual matters without having independently verified such factual matters. We are opining herein as to General Corporation Law of the State of Delaware, and we express no opinion with respect to any other laws.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, (i) the Initial Commitment Shares have been duly authorized by all necessary corporate action of the Company and are validly issued, fully paid and nonassessable, (ii) the Additional Commitment Shares have been duly authorized by all necessary corporate action of the Company and, when the Additional Commitment Shares shall have been duly registered on the books of the transfer agent and registrar therefor in the name or on behalf of the Selling Stockholder, and have been issued by the Company in the circumstances contemplated by the Purchase Agreement, will be validly issued, fully paid and nonassessable and (iii) the Purchase Shares have been duly authorized by all necessary corporate action of the Company and, when the Purchase Shares shall have been duly registered on the books of the transfer agent and registrar therefor in the name or on behalf of the Selling Stockholder, and have been issued by the Company against payment therefor (not less than par value) in the circumstances contemplated by the Purchase Agreement, will be validly issued, fully paid and nonassessable. In rendering the foregoing opinion, we have assumed that the Company will comply with all applicable notice requirements regarding uncertificated shares provided in the General Corporation Law of the State of Delaware.

This opinion is for your benefit in connection with the Registration Statement and may be relied upon by you and by persons entitled to rely upon it pursuant to the applicable provisions of the Act. We consent to your filing this opinion as an exhibit to the Registration Statement and to the reference to our firm in the Prospectus under the heading “Legal Matters.” We further consent to the incorporation by reference of this letter and consent into any registration statement filed pursuant to Rule 462(b) with respect to the Shares. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Latham & Watkins LLP

**Consent of Independent Registered Public Accounting Firm**

The Board of Directors  
Cytori Therapeutics, Inc.:

We consent to the use of our reports dated March 11, 2016 with respect to the consolidated financial statements and schedule of valuation and qualifying accounts of Cytori Therapeutics, Inc. as of December 31, 2015 and 2014, and for each of the years in the three-year period ended December 31, 2015, and the effectiveness of internal control over financial reporting as of December 31, 2015 incorporated by reference herein and to the reference to our firm under the heading "Experts" in the prospectus.

Our report dated March 11, 2016 contains an explanatory paragraph that states that the Company's recurring losses from operations, and liquidity position raises substantial doubt about its ability to continue as a going concern. The consolidated financial statements and financial statements schedule do not contain any adjustments that might result from the outcome of that uncertainty.

/s/ KPMG LLP

San Diego, California  
December 29, 2016