

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

**Amendment No. 1
to
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

CYTORI THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

33-0827593
(I.R.S. Employer
Identification Number)

3020 Callan Road
San Diego, California 92121
(858) 458-0900
(Address, including zip code, and telephone number, including area code of registrant's principal executive offices)

Christopher J. Calhoun
Chief Executive Officer
Cytori Therapeutics, Inc.
3020 Callan Road
San Diego, California 92121
(858) 458-0900
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:
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Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement as determined by the selling stockholder named in the prospectus contained herein.

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

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

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

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

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

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

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

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

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 this Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We 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 it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated February 11, 2014

PROSPECTUS



CYTORI THERAPEUTICS, INC.

8,000,000 Shares

Common Stock

This prospectus relates to an aggregate of up to 8,000,000 shares of our common stock, par value \$0.001 per share, which may be offered for sale from time to time by the selling stockholder named in the "Selling Stockholder" section of this prospectus. We will not receive any of the proceeds from any sale of our common stock by the selling stockholder.

The selling stockholder may offer shares of our common stock from time to time in a number of different ways and at varying prices. For more information on possible methods of offer and sale by the selling stockholder, refer to the section of this prospectus entitled "Plan of Distribution." If any underwriters, dealers or agents are involved in the sale of any of the shares of common stock, their names, and any applicable purchase price, fee, commission or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in the applicable prospectus supplement. We have agreed to bear all of the expenses incurred in connection with the registration of these shares. The selling stockholder will pay or assume brokerage commissions and similar charges incurred for the sale of shares of our common stock.

The information in this prospectus is accurate as of the date on the front cover. Information incorporated by reference into this prospectus is accurate as of the date of the document from which the information is incorporated. You should not assume that information contained in or incorporated by reference into this prospectus is accurate as of any other date.

Our common stock is listed on the NASDAQ Global Market under the symbol "CYTX." On February 10, 2014, the closing price of our common stock was \$2.63 per share.

Investing in our securities involves risks. See "[Risk Factors](#)" on page 5 and contained in any applicable prospectus supplement and any related free writing prospectus and under similar sections in the other documents that are incorporated by reference into this prospectus.

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

The date of this prospectus is _____, 2014

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ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement that we filed with the Securities and Exchange Commission (the “SEC”) utilizing a “shelf” registration process. This prospectus relates to the possible resale by the selling stockholder of up to 8,000,000 shares of our common stock from time to time in one or more offerings. The selling stockholder is Mr. Kian Thiam Lim.

The selling stockholder may offer and sell, from time to time, up to 8,000,000 shares of our common stock under the prospectus. In some cases, the selling stockholder will also be required to provide a prospectus supplement containing specific information about the selling stockholder and the terms on which he is offering and selling our common stock. We may also add, update or change in a prospectus supplement any information contained in this prospectus. To the extent that any statement made in a prospectus supplement is inconsistent with statements made in this prospectus, the statements made in this prospectus will be deemed modified or superseded by those made in the prospectus supplement. You should read this prospectus and any accompanying prospectus supplement, as well as any post-effective amendments to the registration statement of which this prospectus is a part, together with the additional information described under “Where You Can Find More Information” before you make any investment decision.

Neither we nor the selling stockholder have authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and any accompanying prospectus supplement. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or any accompanying prospectus supplement. This prospectus and any accompanying prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and any accompanying prospectus supplement constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus and any accompanying prospectus supplement is accurate on any date subsequent to the date set forth on the front of the document or that any information incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date.

Unless otherwise stated, all references in this prospectus to “we,” “us,” “our,” “Cytori,” the “Company” and similar designations refer to Cytori Therapeutics, Inc. and its subsidiaries on a consolidated basis.

SUMMARY

This summary highlights selected information from, or incorporated by reference into, this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, including “Risk Factors” beginning on page 5, the information incorporated herein by reference, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Our Company

We are a cell therapy company dedicated primarily to the development of novel treatments for cardiovascular disease and soft tissue injuries and burns. We have a global product development strategy with a focus on the U.S. cardiovascular disease market. In the U.S. our goal is to bring the Cytori Cell Therapy to market for treatment of heart failure due to ischemic heart disease through Cytori-sponsored clinical development efforts and to develop a treatment for thermal burns combined with radiation injury under a contract from BARDA, a division of the U.S. Department of Health and Human Services.

The Cytori Cell Therapy is a proprietary formulation of stem and regenerative cells derived from a patient’s own adipose (fat) tissue (ADRCs). Adipose tissue is a rich and accessible source of ADRCs. To access these cells from a patient at the time of a surgical procedure, we have designed and developed a sophisticated tissue processing system, the Celution® System, which automates the complex process of digesting fat tissue, releasing the ADRCs, and concentrating them into an optimized and proprietary formulation in a sterile environment. The system is comprised of a central device and requires single-use, per-procedure consumable cartridges. The business model is based on the sale of the central device and generating recurring revenue from the cartridges that are utilized in each procedure.

While we continue focused development of the cardiovascular disease market, we have continued efforts to develop new therapeutic applications for Cytori’s Cell Therapy. We are currently commercializing the Celution® System under select medical device clearances in Europe, Japan, and other regions. The early sales of systems, consumables and ancillary products contributes margins that partially offset our operating expenses and play an important strategic role in fostering familiarity within the medical community with our technology. These sales have also facilitated the discovery of new applications for Cytori’s Cell Therapy by customers conducting investigator-initiated and funded research.

Development Pipeline

The primary therapeutic areas currently within our development pipeline are cardiovascular disease, specifically heart failure due to ischemic heart disease, and the treatment of thermal burns.

In the U.S., we are conducting our ATHENA trial, a prospective, double blind, placebo-controlled, multi-center trial in up to 45 patients with ischemic heart disease. The trial will measure several endpoints, including peak oxygen consumption (VO2 max). Additional endpoints include perfusion defect, left ventricle end-systolic and diastolic volume and ejection fraction at six and 12 months, NYHA functional class and health-related quality of life. In the third quarter, the FDA approved expanding the ATHENA trial from six trial centers to a total of eight centers. In addition, we also received approval from the FDA to expand the ATHENA program to include a higher cell dose. This trial, ATHENA II, will enroll 45 patients at up to 10 centers, including most of the centers in ATHENA I and will begin enrolling in the first quarter of 2014.

ADVANCE is our European clinical trial for acute myocardial infarction (heart attack). As part of a comprehensive evaluation of our global cardiovascular strategy, resource utilization and development priorities,

we have discontinued enrollment in the ADVANCE trial as of September 30, 2013. All evidence to date supports the current, known safety profile for Cytori's Cell Therapy and the patients enrolled in the trial will continue to be followed according to the protocol. The outcomes will be fully analyzed in conjunction with the existing safety and feasibility data from the APOLLO acute myocardial infarction trial. We will focus our internal and financial resources on the highest clinical development priority, which is the expanded U.S. ATHENA trial.

We have completed two European pilot trials investigating Cytori's Cell Therapy for cardiovascular disease. We have reported long term, 18-month data from the PRECISE trial for chronic myocardial ischemia, which showed that Cytori's Cell Therapy demonstrated safety and sustained improvement in cardiac functional capacity as measured by VO₂ max. Results from the APOLLO trial for acute heart attack demonstrated safety and sustained improvement in infarct size.

In addition to our cardiovascular disease therapeutic pipeline, Cytori is also developing its cell therapy platform for the treatment of thermal burns combined with radiation injury. In the third quarter of 2012, we were awarded a contract to develop a new countermeasure for thermal burns valued at up to \$106 million with the U.S. Department of Health and Human Service's Biomedical Advanced Research and Development Authority (BARDA). The initial base period includes \$4.7 million over two years and covers preclinical research and continued development of Cytori's Celution® System to improve cell processing. The additional contract options, if fully executed, could cover our clinical development through FDA approval under a device-based PMA regulatory pathway. We are making progress in fulfilling the required milestones of the base contract with the goal of completing the base period in early 2014.

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. 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 (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 section of our website, www.cytori.com, 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

Securities that may be Offered by the Selling Stockholder Up to 8,000,000 shares of our common stock. See “Selling Stockholder” beginning on page 9 of this prospectus.

Use of Proceeds All proceeds from the sale of shares of common stock under this prospectus will be for the account of the selling stockholder. We will not receive any proceeds from the sale of our common stock offered pursuant to this prospectus. See “Use of Proceeds” beginning on page 5 of this prospectus.

NASDAQ Global Market Symbol CYTX

Risk Factors See “Risk Factors” beginning on page 5.

On October 29, 2013, we entered into a License/Supply Agreement (the “Original License Agreement”) with Lorem Vascular, Pty. Ltd. (“Lorem Vascular”), which was subsequently amended and restated in its entirety on January 30, 2014 (as amended and restated, the “License Agreement”), whereby we exclusively licensed to Lorem Vascular all rights to market and sell Cytori Products (as defined in the License Agreement) for all markets within the countries of China, Hong Kong, Australia, Malaysia and Singapore, excluding only the rights for Alopecia (hair loss). In connection with the License Agreement, Lorem Vascular agreed to purchase 8,000,000 shares (the “Shares”) of our common stock at a price of \$3.00 per share for a total of \$24,000,000, pursuant to a Stock Purchase Agreement (the “Purchase Agreement”), dated October 29, 2013 (the “Effective Date”), by and between the Company and Lorem Vascular. Pursuant to written instructions from Lorem Vascular, we issued the Shares to Mr. Kian Thiam Lim, sole stockholder of Lorem Vascular. In addition, pursuant to the terms of the Purchase Agreement, we granted to Lorem Vascular the right to appoint one designated individual to serve on our Board of Directors. The filing of this shelf registration statement is being made pursuant to the Purchase Agreement. For more information, refer to the section of this prospectus entitled “Selling Stockholder.”

RISK FACTORS

Investment in our securities involves risks. Prior to making a decision about investing in our securities, you should consider carefully all of the information included and incorporated by reference or deemed to be incorporated by reference in this prospectus or the applicable prospectus supplement, including the risk factors incorporated by reference herein from our Quarterly Report on Form 10-Q for the quarter ended September 30, 2013, as updated by annual, quarterly and other reports and documents we file with the SEC after the date of this prospectus and that are incorporated by reference herein or in the applicable prospectus supplement. Each of these risk factors could have a material adverse effect on our business, results of operations, financial position or cash flows, which may result in the loss of all or part of your investment.

SPECIAL NOTE REGARDING 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 in 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, statements concerning future matters such as the development or regulatory approval of new products, enhancements of existing products or technologies, third party performance under key agreements, revenue and expense levels and other statements regarding matters that are not historical are forward-looking statements. 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, those set forth above under the section entitled "Risk Factors" in this prospectus and any accompanying prospectus supplement. 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.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the shares by the selling stockholder.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is not complete and may not contain all the information you should consider before investing in our capital stock. For the complete terms of our capital stock, please refer to our amended and restated certificate of incorporation and our amended and restated bylaws that are incorporated by reference into the registration statement of which this prospectus is a part or may be incorporated by reference in this prospectus or any prospectus supplement. The terms of these securities may also be affected by Delaware General Corporation Law. The summary below and that contained in any prospectus supplement are qualified in their entirety by reference to our amended and restated certificate of incorporation and our amended and restated bylaws.

Common Stock

We are authorized to issue 145,000,000 shares of common stock, of which 75,448,207 shares were issued and outstanding as of January 31, 2014, including all shares registered herein. 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.

Our common stock is listed on the NASDAQ Global Market under the symbol "CYTX."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is ComputerShare Investor Services, LLC.

Preferred Stock

We are authorized to issue 5,000,000 shares of preferred stock, none of which were issued and outstanding as of January 31, 2014. Our board 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 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; and to 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 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 bylaws provide that any vacancy or vacancies in the Board 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 the Certificate of Incorporation. 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 that will be 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 certificate of incorporation provides otherwise. Our certificate 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.

Registration Rights

On October 29, 2013, we entered into the Original License Agreement with Lorem Vascular, which was subsequently amended and restated in its entirety on January 30, 2014, whereby we exclusively licensed to Lorem Vascular all rights to market and sell Cytori Products (as defined in the License Agreement) for all markets within the countries of China, Hong Kong, Australia, Malaysia and Singapore, excluding only the rights for Alopecia (hair loss). In connection with the License Agreement, Lorem Vascular agreed to purchase the Shares at a price of \$3.00 per share for a total of \$24,000,000, pursuant to the Purchase Agreement. Pursuant to written instructions from Lorem Vascular, we issued the Shares to Mr. Kian Thiam Lim, sole stockholder of Lorem Vascular. In addition, pursuant to the terms of the Purchase Agreement, we granted to Lorem Vascular the right to appoint one designated individual to serve on our Board of Directors.

Pursuant to the Purchase Agreement, we are required to use our reasonable efforts to register the Shares purchased by Lorem Vascular by filing a shelf registration statement that permits the resale of the Shares by Lorem Vascular and its permitted assigns into the market from time to time over an extended period. We have the right to require Lorem Vascular and its permitted assigns to suspend open market offers and sales of our common stock upon certain conditions. The filing of this shelf registration statement is being made pursuant to the Purchase Agreement to register the Shares purchased by Lorem Vascular and issued to Mr. Lim.

The Purchase Agreement also includes provisions dealing with registration procedures, indemnification, assignment, and allocation of expenses. The registration rights provided under the Purchase Agreement will terminate upon the earlier to occur of (i) two years following the effectiveness of the registration statement registering the Shares or (ii) the date upon which all of the Shares may be sold pursuant to Rule 144 under the Securities Act of 1933, as amended (the "Securities Act").

Pursuant to the Purchase Agreement, we have agreed to bear all of the expenses incurred in connection with the registration of the Shares. The selling stockholder will pay or assume brokerage commissions and similar charges incurred for the sale of the Shares.

SELLING STOCKHOLDER

This prospectus relates to the possible resale, distribution or other transfer by Mr. Kian Thiam Lim, sole stockholder of Lorem Vascular, Pty. Ltd., from time to time of up to 8,000,000 shares of our common stock, all of which have been issued and are outstanding as of the date hereof.

Acquisition of Shares by the Selling Stockholder

On October 29, 2013, we entered into the Original License Agreement with Lorem Vascular, which was subsequently amended and restated in its entirety on January 30, 2014, whereby we exclusively licensed to Lorem Vascular all rights to market and sell Cytori Products (as defined in the License Agreement) for all markets within the countries of China, Hong Kong, Australia, Malaysia and Singapore, excluding only the rights for Alopecia (hair loss). In connection with the License Agreement, Lorem Vascular agreed to purchase the Shares at a price of \$3.00 per share for a total of \$24,000,000, pursuant to the Purchase Agreement. Pursuant to written instructions from Lorem Vascular, we issued the Shares to Mr. Kian Thiam Lim, sole stockholder of Lorem Vascular. In addition, pursuant to the terms of the Purchase Agreement, we granted to Lorem Vascular the right to appoint one designated individual to serve on our Board of Directors.

Pursuant to the Purchase Agreement, we are required to use our reasonable efforts to register the Shares purchased by Lorem Vascular by filing a shelf registration statement that permits the resale of the Shares by Lorem Vascular and its permitted assigns into the market from time to time over an extended period. We have the right to require Lorem Vascular and its permitted assigns to suspend open market offers and sales of our common stock upon certain conditions. The filing of this shelf registration statement is being made pursuant to the Purchase Agreement to register the Shares purchased by Lorem Vascular.

The Purchase Agreement also includes provisions dealing with registration procedures, indemnification, assignment, and allocation of expenses. The registration rights provided under the Purchase Agreement will terminate upon the earlier to occur of (i) two years following the effectiveness of the registration statement registering the Shares or (ii) the date upon which all of the Shares may be sold pursuant to Rule 144 under the Securities Act.

Pursuant to the Purchase Agreement, we have agreed to bear all of the expenses incurred in connection with the registration of the Shares. The selling stockholder will pay or assume brokerage commissions and similar charges incurred for the sale of Shares.

Selling Stockholder

The following table presents information regarding the selling stockholder and the shares that it may offer and sell or otherwise dispose of from time to time under this prospectus. This table is prepared based on information supplied to us by the selling stockholder. As used in this prospectus, the term “selling stockholder” includes Mr. Kian Thiam Lim, sole stockholder of Lorem Vascular, Pty. Ltd., and any donees, pledgees, transferees, permitted assigns or other successors in interest selling shares received after the date of this prospectus from a selling stockholder as a gift, pledge, distribution or other transfer.

The number of shares in the column “Number of Shares Being Offered” represents all of the shares that the selling stockholder may offer and sell, distribute or otherwise transfer under this prospectus. The selling stockholder may sell, distribute or otherwise transfer some, all or none of its shares. We do not know how long the selling stockholder will hold the shares before selling, distributing or otherwise transferring them, and, except as described above, we currently have no agreements, arrangements or understandings with the selling stockholder regarding the sale of any of the shares. Because the selling stockholder may offer all, some, or none of the shares of common stock that it owns pursuant to this offering, we cannot estimate the number of shares of common stock that the selling stockholder will hold after completion of the offering. For purposes of this table, we have assumed that the selling stockholder will have sold all of the shares covered by this prospectus upon the completion of the applicable offering.

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The percentage of shares beneficially owned prior to the offering is based on 75,448,207 shares of our common stock that were outstanding as of January 31, 2014, including all shares registered in this offering.

<u>Name and Address of Beneficial Owner</u>	<u>Shares Beneficially Owned Before Offering</u>		<u>Shares Being Offered</u>	<u>Shares Beneficially Owned After Offering</u>	
	<u>Number</u>	<u>Percent</u>		<u>Number</u>	<u>Percent</u>
Kian Thiam Lim(1)	8,000,000	10.6%	8,000,000	—	—

- (1) Mr. Lim is the sole stockholder of Lorem Vascular, Pty. Ltd. The principal business address of Mr. Lim is c/o Lorem Vascular, Pty. Ltd. is Level 12, 2 Queen St., Melbourne 3000, Australia.

PLAN OF DISTRIBUTION

The selling stockholder, including donees, pledgees, transferees, permitted assigns or other successors in interest (including transferees that receive shares of common stock from the selling stockholder under this prospectus), may use any one or more of the following methods (or in any combination) to sell, distribute or otherwise transfer the securities from time to time:

- through underwriters or dealers for resale to the public or to investors;
- directly to one or more purchasers;
- through agents;
- in “at the market” offerings, within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market on an exchange or otherwise;
- in block trades;
- through public or privately negotiated transactions; or
- any other method permitted pursuant to applicable law.

In particular, the selling stockholder may offer and sell, distribute or otherwise transfer from time to time at a fixed price or prices, which may be changed; at market prices prevailing at the time of sale; at prices related to prevailing market prices; at varying prices determined at the time of sale; or at negotiated prices. These offers and sales or distribution may be effected from time to time in one or more transactions, including:

- on any national securities exchange or quotation service on which our common stock may be listed or quoted at the time of sale or in the over-the-counter market;
- in transactions otherwise than on a national securities exchange or quotation service or in the over-the-counter market;
- in block transactions in which the broker or dealer so engaged will attempt to sell the shares of common stock as agent but may position and resell a portion of the block as principal to facilitate the transaction, or in crosses, in which the same broker acts as an agent on both sides of the trade;
- in ordinary brokerage transactions in which the broker-dealer solicits purchasers;
- through purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- through the writing of options, convertible securities or other contracts or agreements to be satisfied by the delivery of shares of common stock;
- through short sales;
- through privately negotiated transactions;
- through an exchange distribution in accordance with the rules of the applicable exchange;
- broker-dealers may agree with any selling stockholder to sell a specified number of its shares at a stipulated price per share;
- through the lending of such securities;
- by pledge to secure debts and other obligations or on foreclosure of a pledge;
- through the distribution of such securities by any selling stockholder to its stockholders;
- through a combination of any of the above methods; or
- through any other method permitted pursuant to applicable law.

The selling stockholder may also sell shares in open market transactions under Rule 144 under the Securities Act, if available, rather than under this prospectus.

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The selling stockholder may also engage in short sales against the box, puts and calls and other transactions in our securities or derivatives of our securities and may sell or deliver shares in connection with these trades.

Broker-dealers engaged by the selling stockholder may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholder (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling stockholder does not expect these commissions and discounts to exceed what is customary in the types of transactions involved. Any profits on the resale of shares of our common stock by a broker-dealer acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. Discounts, concessions, commissions and similar selling expenses, if any, attributable to the sale of shares will be borne by the selling stockholder. The selling stockholder may agree to indemnify any agent, dealer or broker-dealer that participates in transactions involving sales of the shares if liabilities are imposed on that person under the Securities Act.

The selling stockholder may from time to time pledge or grant a security interest in some or all of the shares of our common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of our common stock from time to time under this prospectus after we have filed an amendment to the registration statement or supplement to the prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholder to include the pledgee, transferee or other successors in interest as selling stockholder under this prospectus, as appropriate.

The selling stockholder also may transfer the shares of our common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of the prospectus and may sell the shares of common stock from time to time under the prospectus after we have filed an amendment to the registration statement or supplement to the prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under the prospectus, as appropriate.

The selling stockholder and any broker-dealers or agents that are involved in selling the shares of our common stock may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares of our common stock purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act.

We have agreed to bear all of the expenses incurred in connection with the registration of these shares. The selling stockholder will pay or assume brokerage commissions and similar charges incurred for the sale of shares of our common stock. We have agreed to indemnify the selling stockholder against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

Agents, dealers and underwriters may be entitled under agreements entered into with the selling stockholder to indemnification by the selling stockholder against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which such agents, dealers or underwriters may be required to make in respect thereof. Agents, dealers and underwriters may be customers of, engage in transactions with, or perform services on the selling stockholder’s behalf.

At any time a particular offer of the shares of common stock is made, a prospectus supplement, if required, will be distributed and set forth the terms of each specific offering, including the name or names of any underwriters or agents, the purchase price of the shares of common stock and the proceeds to the selling stockholder from such sales or distribution, any delayed delivery arrangements, any underwriting discounts and other items constituting underwriters’ compensation, any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers. Any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time.

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The anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of our common stock and activities of the selling stockholder.

Through Underwriters

If underwriters are used in a sale or distribution, the shares of our common stock will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The underwriters may sell or distribute the shares of our common stock in order to facilitate transactions in any of our other securities (described in this prospectus or otherwise), including other public or private transactions and short sales. The shares of our common stock may be offered to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. The underwriter or underwriters with respect to a particular underwritten offering and, if an underwriting syndicate is used, the managing underwriter or underwriters will be set forth on the cover of such prospectus supplement. Unless otherwise set forth in the prospectus supplement, the underwriters will be obligated to purchase all the shares of our common stock offered in the particular underwritten offering, if any are purchased.

During and after an offering through underwriters, the underwriters may purchase and sell or distribute the shares of our common stock in the open market. These transactions may include overallotment and stabilizing transactions and purchases to cover syndicate short positions created in connection with the offering. The underwriters also may impose a penalty bid, under which selling concessions allowed to syndicate members or other broker-dealers for the securities they sell or distribute for their account may be reclaimed by the syndicate if the syndicate repurchases the securities in stabilizing or covering transactions. These activities may stabilize, maintain or otherwise affect the market price of the securities then offered, which may be higher than the price that might otherwise prevail in the open market, and, if commenced, may be discontinued at any time.

Through Agents or to Dealers

The selling stockholder may sell or distribute the shares of our common stock directly or through agents the selling stockholder designates from time to time. Unless otherwise indicated in a prospectus supplement, any such agent will be acting on a best efforts basis for the period of its appointment.

If dealers are used in any of the sales or distribution of the shares of our common stock covered by this prospectus, the selling stockholder will sell those securities to dealers as principals. The dealers may then resell the securities to the public at varying prices the dealers determine at the time of resale.

Direct Sales

The selling stockholder may sell or distribute the shares of our common stock directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale thereof.

Delayed Delivery

If so indicated in a prospectus supplement, the selling stockholder may authorize agents, underwriters or dealers to solicit offers from certain types of institutions to purchase the shares of our common stock from the selling stockholder at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. These contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth the commission payable for solicitation of such contracts.

Derivative Transactions and Hedging

The selling stockholder and the underwriters may engage in derivative transactions involving the shares of our common stock. These derivatives may consist of short sale transactions and other hedging activities. The underwriters may acquire a long or short position in the securities, hold or resell securities acquired and purchase options or futures on the securities and other derivative instruments with returns linked to or related to changes in the price of the securities. In order to facilitate these derivative transactions, the selling stockholder may enter into security lending or repurchase agreements with the underwriters. The underwriters may effect the derivative transactions through sales or distributions of the securities to the public, including short sales, or by lending the securities in order to facilitate short sale transactions by others. The underwriters may also use the securities purchased or borrowed from the selling stockholder or others (or, in the case of derivatives, securities received from the selling stockholder in settlement of those derivatives) to directly or indirectly settle sales of the securities or close out any related open borrowings of the securities.

Loans of Securities

The selling stockholder may loan or pledge the shares of our common stock to a financial institution or other third party that in turn may sell the securities using this prospectus and an applicable prospectus supplement.

LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon for us by DLA Piper LLP (US), San Diego, California.

EXPERTS

The consolidated financial statements of Cytori Therapeutics, Inc. as of December 31, 2012 and 2011, and for each of the years in the three-year period ended December 31, 2012, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2012, have been incorporated by reference herein and in the registration statement 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.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act, of which this prospectus forms a part. The rules and regulations of the SEC allow us to omit from this prospectus certain information included in the registration statement. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and our securities, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. With respect to the statements contained in this prospectus regarding the contents of any agreement or any other document, in each instance, the statement is qualified in all respects by the complete text of the agreement or document, a copy of which has been filed as an exhibit to the registration statement.

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement, as well as our reports, proxy statements and other information, at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You can request copies of these documents by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the Public Reference Room. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, where our SEC filings are also available. The address of the SEC's web site is www.sec.gov.

The SEC allows us to "incorporate by reference" information that we file with it into this prospectus, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this registration statement and prospectus the documents listed below, and any future filings we will make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial registration statement but prior to effectiveness of the registration statement and after the date of this prospectus but prior to the termination of the offering of the securities covered by this prospectus (other than current reports or portions thereof furnished under Item 2.02 or Item 7.01 of Form 8-K):

- Our Annual Report on Form 10-K for the year ended December 31, 2012, as amended by Form 10-K/A;
- Our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2013, the quarter ended June 30, 2013 and the quarter ended September 30, 2013;
- Our Current Reports on Form 8-K filed with the SEC on February 27, 2013, July 1, 2013, August 5, 2013, August 30, 2013, October 9, 2013, November 4, 2013 and February 4, 2014;

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- Our Definitive Proxy Statement on Schedule 14A filed with the SEC on July 19, 2013; and
- The description of our common stock contained in our registration statement on Form 10/A filed with the SEC on July 16, 2001 (File No. 000-32501).

These documents may also be accessed on our website at www.cytori.com. Except as otherwise specifically incorporated by reference in this prospectus, information contained in, or accessible through, our web site is not a part of this prospectus.

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

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the information that has been incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. Requests should be directed to: Cytori Therapeutics, Inc., 3020 Callan Road, San Diego, CA 92121, Attn: Investor Relations, telephone: (858) 458-0900.

CYTORI THERAPEUTICS, INC.

8,000,000 Shares

Common Stock

PROSPECTUS

, 2014

PART II
INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses payable by us in connection with the sale of the securities being registered hereby. All amounts are estimates except the Securities and Exchange Commission registration fee.

	Amount to be Paid
Securities and Exchange Commission registration fee	\$ 2,525
Legal fees and expenses	25,000
Accounting fees and expenses	8,000
Miscellaneous	2,200
Total	\$ 37,725

Item 15. Indemnification of Officers and Directors

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 (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 (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.

We have obtained directors and officers liability insurance.

Item 16. Exhibits and Financial Statement Schedules

The attached Exhibit Index is incorporated herein by reference.

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;

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(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 (the "Commission") pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

(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 the undertakings set forth in paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the registration statement is on Form S-3 or Form F-3 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the 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 statements, 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:

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

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

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

INDEX TO EXHIBITS

<u>Exhibit Number</u>	<u>Description of Document</u>
1.1*	Form of Underwriting Agreement.
4.1**	Composite Certificate of Incorporation.
4.2(1)	Amended and Restated Bylaws.
4.3**	Stock Purchase Agreement, effective October 29, 2013, by and between the Company and Lorem Vascular, Pty. Ltd.
5.1****	Opinion of DLA Piper LLP (US).
23.1****	Consent of KPMG LLP.
23.2****	Consent of DLA Piper LLP (US) (included in Exhibit 5.1).
24.1**	Power of Attorney (included on signature page).

* To be filed by amendment or as an exhibit to a report filed under the Exchange Act and incorporated herein by reference.

** Previously filed.

*** Filed herewith

(1) Incorporated by reference to the Company's Quarterly Report on for 10-Q (File No. 000-32501) filed with the SEC, on August 14, 2003.

DLA Piper LLP (US)
4365 Executive Drive, Suite 1100
San Diego, California 92121-2133
www.dlapiper.com

T 858.677.1400
F 858.677.1401

February 11, 2014

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

Ladies and Gentlemen:

We have acted as counsel to Cytori Therapeutics, Inc., a Delaware corporation (the “**Company**”), in connection with its filing on the date hereof with the Securities and Exchange Commission (the “**Commission**”) of a registration statement on Form S-3 (as amended, the “**Registration Statement**”), including a base prospectus (the “**Base Prospectus**”), which provides that it will be supplemented by one or more prospectus supplements (each such prospectus supplement, together with the Base Prospectus, a “**Prospectus**”), under the Securities Act of 1933, as amended (the “**Act**”), relating to the registration of up to an aggregate of 8,000,000 shares of the Company’s common stock, \$0.001 par value per share (“**Common Stock**”), to be sold from time to time by the selling stockholder named in the Registration Statement (the “**Shares**”).

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 applicable 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 the General Corporation Law of the State of Delaware, and we express no opinion with respect to the applicability thereto, or the effect thereon, of the laws of any other jurisdiction or, in the case of Delaware, any other laws, or as to any matters of municipal law or the laws of any local agencies within any state.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, the Shares have been duly authorized by all necessary corporate action of the Company, and are validly issued, fully paid and nonassessable.

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 contained in the Prospectus under the heading “Legal Matters.” 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/ DLA Piper LLP (US)

DLA Piper LLP (US)

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Cytori Therapeutics, Inc.:

We consent to the use of our reports with respect to the consolidated financial statements, the accompanying schedule of valuation and qualifying accounts, and the effectiveness of internal control over financial reporting incorporated by reference herein and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

San Diego, California
February 11, 2014