

July 14, 2010

Celia A. Soehner
United States Securities and Exchange Commission
Division of Corporate Finance
100 F Street NE
Washington, D.C. 20549

Re: Cytori Therapeutics, Inc.

Form 10-K for the fiscal year ended December 31, 2009

Filed March 12, 2010

File No. 000-32501

Dear Ms. Soehner:

This letter responds to the letter of the staff (the "Staff") of the Securities and Exchange Commission (the "Commission"), dated June 29, 2010, to Mark Saad, Chief Financial Officer of Cytori Therapeutics, Inc. (the "Company") regarding the Form 10-K for the fiscal year ended December 31, 2009, filed by the Company on March 12, 2010 (the "Form 10-K"), which incorporates by reference the Company's proxy statement, filed by the Company on April 30, 2010 (the "Proxy Statement").

This letter sets forth the comments of the Staff in the comment letter and, following each comment, sets forth the Company's response.

Item 10. Directors, Executive Officers and Corporate Governance, page 83

1. We refer to your disclosure under "Board of Directors Leadership Structure" on page 9 of the proxy statement that you have incorporated by reference to your Form 10-K. In future filings, please revise to indicate why you have determined that your leadership structure is appropriate given your specific characteristics or circumstances. See Regulation S-K Item 407(h). For example, it is unclear from your current disclosure why it currently is appropriate to separate the roles of your chief executive officer and chairman of the board, and what circumstances might require you to combine the two positions.

Response: Pursuant to the Staff's comment, the Company will undertake in future filings to further enhance its disclosure as follows:

Board of Directors Leadership Structure

Our bylaws and governance principles provide the Board of Directors with the flexibility to combine or separate the positions of Chairman and Chief Executive Officer in the future. Historically, these positions have been separate. Our Board believes that the separation of these

positions strengthens the independence of our Board and allows us to have a Chairman focused on the leadership of the Board while allowing our Chief Executive Officer to focus more of his time and energy on managing our operations. The Board currently believes this structure works well to meet the leadership needs of the Board and of the company. Christopher Calhoun, our Chief Executive Officer, has deep industry expertise and is able to devote substantial time to the company, and Ronald D. Henriksen, our Chairman, who has over forty years of experience in life sciences, is able to devote greater focus on longer term and strategic matters, and to provide related leadership to the Board. As a result, we do not currently intend to combine these positions; however, a change in this leadership structure could be made if the Board of Directors determined it was in the best long-term interests of stockholders based on a departure of either our Chief Executive Officer or Chairman. For example, if the two roles were to be combined, we believe that the independence of the majority of our directors, and the three fully independent Board committees, would provide effective oversight of our management and the company.

2. We note from your disclosure under “Criteria for Board Membership” on page 11 of your proxy that your governance and nominating committee seeks candidates for the board “with a broad diversity of experience, skills, professions, and backgrounds.” In future filings, please describe how this policy is implemented, as well as how the committee assesses the effectiveness of its policy as required by Regulation S-K Item 407(c)(2)(vi).

Response: Pursuant to the Staff’s comment, the Company will undertake in future filings to further enhance its disclosure as follows:

Criteria for Board Membership. In selecting candidates for appointment or re-election to the Board, the Governance and Nominating Committee seeks candidates with a broad diversity of experience, skills, professions, and backgrounds. The criteria include the candidate’s integrity, business acumen, commitment, reputation among our various constituencies and communities, ability to make independent analytical inquiries, understanding of the Company’s business environment, and willingness to devote adequate time to Board duties. There are no other pre-established qualifications, qualities or skills at this time that any particular Director nominee must possess and nominees are not discriminated against on the basis of race, religion, national origin, sexual orientation, disability or any other basis proscribed by law. The Governance and Nominating Committee does not assign specific weights to particular criteria, nor has it adopted a particular policy. Rather, the Board of Directors believes that the backgrounds and qualifications of the directors, considered as a group, should provide a composite mix of experience, knowledge and abilities that will allow the Board of Directors to fulfill its responsibilities. The goal of the Governance and Nominating Committee is to assemble a Board of Directors that brings to our company a variety of skills derived from high quality businesses and professional experience. The Committee seeks to insure that at least a majority of the directors are independent under NASDAQ rules, and that members of the Company’s Audit Committee meet the financial literacy and sophistication requirements under the NASDAQ rules, and at least one of them qualifies as an “audit committee financial expert” under the rules of the SEC.

Item 11. Executive Compensation, page 83

3. We note from page 17 of your definitive proxy statement that your compensation committee “utilizes several components of compensation to strike an appropriate balance between proposing sustainable and excellent performance and discouraging any inappropriate short-sighted risk-taking behavior.” Please describe the process you undertook to reach the conclusion that disclosure pursuant to Regulation S-K Item 402(s) is not necessary.
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Response: Supplementally, we advise the Staff of the process the Company undertook to reach the conclusion that disclosure is not necessary under Regulation S-K Item 402(s). The Company's Compensation Committee undertook a review of the Company's compensation policies and practices for senior management, including its named executive officers. Based on that review, along with input from the Company's Audit Committee and the Company's management, the Compensation Committee determined that there were no known potential risks arising from the Company's compensation policies or practices that are reasonably likely to have a material adverse effect on the Company. As a result, the Compensation Committee determined that further risk analysis was unnecessary. ¶ 60; The Compensation Committee took note of the fact that the Company has rather straightforward compensation practices consisting of base salary, annual incentive bonus payments based on the Company's and the employees objectives, and longer term incentives in the form of stock options which vest over multiple years. The Compensation Committee also noted that no inappropriate risk-taking behavior had been detected within any area of the senior management group during fiscal year 2009.

Item 13. Certain Relationships and Related Transactions.... page 83

4. We refer to your disclosure under "Related Person Transactions" on page 14 of your proxy and note it does not discuss the transactions with the two related parties identified in note 17 to your financial statements. Please explain why you have not provided disclosure of these transactions pursuant to Regulation S-K Item 404(a). Please also tell us whether you entered into any transactions with any related person since the beginning of your last fiscal year, or whether you have any currently proposed transaction with such related person for which disclosure pursuant to Regulation S-K Item 404(a) is required.

Response: The Company engaged in two related party transactions during the year ended December 31, 2009 which were not included in the "Related Person Transactions" section of the Proxy Statement. The Company did not include these transactions in the Proxy Statement because the Company believes such disclosures were not necessary given these transactions were disclosed in the Form 10-K. Pursuant to the Staff's comment, the Company will undertake in future filings to further enhance its disclosure as follows:

Related Person Transactions

During first quarter of 2009, we sold StemSource® Cell Bank in Japan through our distribution partner, Green Hospital Supply, Inc. for \$600,000. The sale was completed pursuant to our Master Cell Banking and Cryopreservation Agreement, effective August 13, 2007, with Green Hospital Supply, Inc. As of December 31, 2009, Green Hospital, Inc. was a beneficial owner of more than five percent of our outstanding shares of common stock.

During the fiscal year ended December 31, 2009, we incurred approximately \$242,000 in royalty costs in connection with our sales of our Celution® 800/CRS System products to the European and Asia-Pacific reconstructive surgery market, pursuant to our License and Royalty Agreement with the Olympus Corporation - -Cytori, Inc. joint venture. As of December 31, 2009, Olympic Corporation was a beneficial owner of more than five percent of our outstanding shares of common stock.

Change of Control Agreements. In October 2009, we entered into individual change of control agreements with Mr. Shirahama and Mr. Arm. These agreements are described below in the “Compensation Discussion & Analysis”.

Item 15. Exhibits, Financial Statement Schedules, page 84

5. It appears that you have not filed all related person agreements as exhibits as required by Item 601 of Regulation S-K. For example and without limitation, it does not appear that you have not filed the February 23, 2006 agreement in which you granted Olympus Corporation certain rights. Please file all such agreements, and list in your response all exhibits that will be filed.

Response: The Company respectfully believes it has filed all agreements required by Item 601 of Regulation S-K. The referenced agreement was deemed by the Company to be immaterial to the Company in significance, and therefore, the agreement was not filed with the Commission. Additionally, the agreement expired in 2008, and the Company has no outstanding obligations under the agreement.

It should be noted that the enhanced disclosure provided above is subject to change based on any changes to the Company which would no longer make such disclosure accurate in future filings. In addition, the Company acknowledges the following:

- the Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Company may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

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If you require any additional information on these issues, or if we can provide you with any other information that will facilitate your continued review of this filing, please advise us at your earliest convenience. You may reach me at 858.677.1417.

Sincerely,

/s/ David Eisler

David Eisler
