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September 7, 2012

Via EDGAR

Brian Cascio
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, 2011
Filed March 13, 2012
File No. 000-34375

Dear Mr. Cascio:

This letter responds to the letter of the staff (the “Staff”) of the United States Securities and Exchange Commission (the “Commission”), dated August 23, 2012, to Mark Saad, Chief Financial Officer of Cytori Therapeutics, Inc. (the “Company”) regarding the Form 10-K for the fiscal year ended December 31, 2011, filed by the Company on March 13, 2012 (the “Form 10-K”).

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

Note 2. Revenue Recognition, page 53

1. We note that your products, including stem cell banks, typically involve the delivery of, “a complex array of equipment, proprietary knowledge, and services,” and that you, “account for products or services (deliverables) separately, rather than as a combined unit.” Please provide us with a description of your deliverables and units of accounting for these arrangements. Confirm how your accounting policy complies with paragraphs 25-3 to 25-6 of FASB ASC 605-25 and specifically address how each unit of accounting complies with 25-5(a) and 25-5(c) of that literature. Please also revise future filings to clearly identify the deliverables included in each separate unit of accounting and provide us with a copy of your proposed revised policy.

Response: For our cell bank sales, we have identified the following specific deliverables:

- A. initial consulting services;
- B. license rights to our proprietary technology (with or without territorial exclusivity);
- C. standard operating procedures;
- D. tangible equipment and supplies;
- E. installation services;
- F. operations training services;
- G. hosting services for the bank database application tool;
- H. technical support; and
- I. maintenance services.

These deliverables are aggregated into six units of accounting, consisting of:

- 1) initial consulting services;
- 2) license rights and standard operating procedures;
- 3) equipment, supplies, installation and training;
- 4) database hosting services;
- 5) technical support services; and
- 6) maintenance services.

FASB ASC 605-25-25-3 clarifies that multiple contracts entered into with the same entity at or near the same time are presumed to have been negotiated as a package and are therefore to be evaluated as a single arrangement for purposes of determining the units of accounting. In the case of our cell banks, we negotiate all deliverables as a package and enter into a single comprehensive agreement with the customer that specifies all deliverables, terms, and conditions of sale. We therefore evaluate each cell bank transaction as a single arrangement for purposes of determining the units of accounting in accordance with the FASB ASC 605-25-25-3.

FASB ASC 605-25-25-4 requires that all deliverables of an arrangement must be evaluated for treatment as separate units of accounting. We perform a separate analysis for each of our cell bank transactions to determine the applicable deliverables and units of accounting, as well as the allocation of proceeds to the respective units of accounting in accordance with the Relative Selling Price method.

FASB ASC 605-25-25-5 sets forth two criteria for evaluating whether separate units of accounting exist in a multiple-element transaction. First, the delivered item(s) must have value to the customer on a standalone basis. Second, if the arrangement contains a general right of return relative to the delivered item(s), delivery or performance of the undelivered item(s) is considered probable and substantially in the control of the seller. There is no general right of return associated with our cell bank arrangements, and therefore only the first criterion is relevant to our evaluation.

FASB ASC 605-25-25-6 requires that a delivered item or items that do not qualify as a separate unit of accounting within the arrangement to be combined with the other applicable undelivered items(s) within the arrangement. The allocation of arrangement consideration and the recognition of revenue then shall be determined for those combined deliverables as a single unit of accounting.

Our consideration and application of FASB ASC 605-25-25-5(a) and FASB ASC 605-25-25-6 is described further below for each of our units of accounting.

Initial Consulting Services

The negotiation of a cell bank sale involves many meetings with the prospective customer beyond simply attracting their interest in establishing a cell bank facility. Questions of capital cost, breakeven business modeling, space and utility requirements, configuration, customization, certain access to the Company's proprietary information, and staffing recommendations are all critical to the customer. Feasibility and customization-related consulting services are routinely provided by many vendors as standalone deliverables. Our cell bank agreements include a separately stated payment amount designed to cover these up front services and to ensure that we are paid for them regardless of the remaining delivery and performance conditions of the contracts. Therefore, we believe these services have standalone value to the customer and constitute a separate unit of accounting.

Licensing Rights and Standard Operating Procedures

License rights are granted to the customer to utilize our proprietary information and intellectual property necessary for operation of the banking facility. Standard operating procedures ("SOPs") include instructions, operating procedures, and proprietary information we have developed through our clinical trials and patents. We do not believe the SOPs have standalone value since the customer needs to have the license rights in order to implement the procedures. Given the proprietary nature of our technology and SOPs, we believe customers could not purchase comparable SOPs from another vendor. Therefore, the license rights and SOPs have standalone value to the customer as a group, and could be and have been sold as a group to a customer who already possesses the necessary equipment for banking. If a right of territorial exclusivity is granted, the right protects and enhances the value of the license and SOPs to the customer.

Equipment, Supplies, Installation and Training

Each cell bank sale is unique to the customers' specifications, and the deliverables will vary accordingly. A cell bank can be thought of as consisting of a number of components chosen from a larger menu of options.

Most of our cell bank transactions include equipment, ranging from a bare minimum (if a customer already owns all or most equipment required for banking cells or tissue) to a complete suite of hardware including Company products as well as equipment from other suppliers. The equipment has standalone value because it can be used for multiple purposes and is sold separately.

A cell bank equipment installation is a specialized and complex process, and we do not believe that it could be readily performed by other vendors. The service is not sold separately. Therefore, we do not consider the installation services to have standalone value apart from the equipment. Training is provided upon installation of the equipment.

Database Hosting Services

The Company supplies database hosting services for a web-based banking client registry and data management system. Because the software application resides on Company servers and the Company will provide ongoing access to it through the internet, this constitutes a hosting service deliverable. As our customers cannot take possession of the software at any time during the hosting arrangement, we do not apply the guidance in FASB ASC 985-605 to this deliverable.

The hosting services are provided subsequent to the bank installation, and they are generally included in the contract price for the first year of the agreement. Subsequent years of hosting can be purchased separately by the customer. Hosting services are unrelated to the other future deliverables of technical support and maintenance. They have standalone value, since they can be sold separately to our customers as well as in bundled arrangements that include maintenance or other services.

Technical Support Services

The Company provides technical support to its customers to help them solve equipment or process questions and issues. Like hosting, these services are provided subsequent to the bank installation, and they are generally included in the contract price for the first year of the agreement. Subsequent years of support can be purchased separately by the customer. Technical support services are unrelated to the other future deliverables of hosting and maintenance. They have standalone value, since they are offered as a separate service to our customers as well as in bundled arrangements that include maintenance or other services.

Maintenance Services

The Company provides periodic maintenance to its customers for certain equipment. Like hosting and technical support, these services are provided subsequent to the bank installation, and they are generally included in the contract price for the first year of the agreement. Subsequent years of maintenance can be purchased separately by the customer. Maintenance services are unrelated to the other future deliverables of hosting and technical support. They have standalone value, since they are offered as a separate service to our customers as well as in bundled arrangements that include hosting or other services.

Proposed Future Disclosure:

For sales that include multiple deliverables, such as sales of our StemSource® Cell Bank (cell bank), we account for products or services (deliverables) separately rather than as a combined unit. Stem cell banks typically consist of a complex array of equipment, proprietary knowledge, **license rights**, and services, including one or more StemSource® devices, a cryogenic freezer, measuring and monitoring equipment, and a database patient tracking system. In addition, we typically provide training services concurrent with the installation of the cell bank. Web hosting, technical **support** and maintenance services are generally provided for a period of up to one year subsequent to the date of sale. **FASB ASC 605-25 requires an evaluation of these deliverables to determine the appropriate “units of accounting” for purposes of revenue recognition. Based on this evaluation, we have identified the following units of accounting:**

- **initial consulting services;**
- **license rights and standard operating procedures;**
- **equipment and supplies, installation and training;**
- **database hosting services;**
- **technical support services; and**
- **maintenance services.**

FASB ASC 605-25 establishes a selling price hierarchy for determining the selling price of a deliverable, which is based on: (a) vendor-specific objective evidence (“VSOE”); (b) third-party evidence (“TPE”); or (c) management estimates. This guidance requires arrangement consideration to be allocated at the inception of the arrangement to all deliverables using the relative selling price method. For our cell bank sales, we establish relative selling prices for deliverables based on vendor-specific quotes for comparable services when available. In the absence of VSOE, we use competitors’ products or services considered largely interchangeable with our own or our managements’ best estimate. **Revenue allocated to each** unit of accounting is calculated and recognized based on the relative selling price of each deliverable. Future services such as web hosting and ongoing maintenance are deferred and recognized into income **as the services are provided, generally over one** year following the installation **of the equipment.**

2. In future filings please disclose the specific R&D milestones achieved that resulted in the recognition of revenue from the Olympus-Cytori Joint Venture each period.

Response: Pursuant to the Staff's comment, we will disclose in future filings the specific R&D milestones achieved, similar to the following example:

During the year ended December 31, 2011, we recognized \$1,992,000 of revenue associated with our arrangements with Olympus as a result of achieving a product development milestone related to additional preproduction development of the Celution® One System and a regulatory milestone related to our obtaining CE Mark claims for the Celution® One System in Europe. During the year ended December 31, 2010, we recognized \$2,122,000 of revenue associated with our arrangements with Olympus as a result of achieving two milestones, one in product development for work in preproduction development of the Celution® One System, and one clinical milestone related to the assessment of trial outcomes at 6 months in one of our cardiac trials. During the year ended December 31, 2009, we recognized \$8,840,000 of revenue associated with our arrangement with Olympus as a result of achieving three clinical milestones during the year, which reflected the achievement of the primary goals of safety and feasibility, the completion of the enrollment process for both of our clinical cardiac trials, and completion of a monitoring end point for one cardiac trial.

Note 12. Stockholders' Equity (Deficit), page 68

Common Stock, page 69

3. We see that on December 13, 2010, you raised \$10 million from the sale of unregistered common stock to Astellas Pharma, Inc. and that you attributed \$2.5 million of the proceeds to deferred revenue. Please describe for us the accounting basis for recognizing the difference between the proceeds received and the fair value of your common shares as deferred revenue. Provide us with specific references to the authoritative accounting literature which supports your conclusion. Please also describe for us the additional rights Astellas received as part of this arrangement, clarify how those rights impacted your accounting for the transaction and describe any preexisting relationships with Astellas prior to this agreement.

Response: As part of the sale of common shares to Astellas, the Company granted Astellas the following additional rights:

- two year right of first refusal ("ROFR") for a worldwide research, development and/or commercialization partnership using the Company's products and technologies in the treatment of liver disease;
- non-voting observer seat on the Company's board-of-directors; and
- participation in a newly formed scientific advisory board.

Prior to this agreement, we had no preexisting relationships with Astellas. Per the agreement, the Company and Astellas will further explore collaboration for an advanced regenerative technology. Based on the then-current market value of our stock, Astellas paid approximately \$2.5 million in excess of the fair value of those shares.

Management evaluated the strategic purpose of the agreement with Astellas. Liver disease is an area we do not currently have the resources to devote our full attention to, as we must concentrate our limited resources on our cardiac trials and related regulatory interests. Astellas intends to dedicate research and development efforts to the development and commercialization of therapeutic treatments for the treatment of liver disease. To this end, they are interested in obtaining access to the Company's technology. The ROFR gives them a preferential right to do so during the two year period. Said another way, the ROFR gives them the first position in line compared to any third party to license aspects of the technology during the two year period.

We believe the Board Observer and Advisory Committee seats give Astellas the following benefits: they will be able to evaluate the performance and decision making processes of the Company's Board of Directors and management team; they will gain deeper insight into our strategic goals and development progress and objectives; and they may gain information regarding potential development agreements or partnerships with third parties. Although the Board Observer and Advisory Committee seats have clear value to Astellas (in terms of technology and business information), this value is limited unless coupled with the ROFR, and the ROFR represents the primary value received by Astellas.

Generally, principles of accounting require companies to consider the rights and obligations in an equity transaction and account for those rights and obligations separately based on the substance of the transaction. Based on the inherent value received by Astellas for the rights discussed above and the amount of premium paid over the fair value of our stock, we believe the excess paid represents the right to obtain access to the Company's technology in the future and should be accounted for separately. Furthermore, as the fair value of our common shares is more reliably measurable, we believe attributing the difference between the total purchase price and the fair value of the common shares to be a reasonable approximation of the value received by Astellas for the ROFR. We considered the following authoritative accounting literature in arriving at this conclusion:

- FASB ASC 505-30-25-3 addresses treasury stock purchases and states that if an entity repurchases shares at a price that is different from the price obtainable in transactions in the open market or transactions in which the identity of the selling shareholder is not important, some portion of the amount being paid presumably represents a payment for stated or unstated rights or privileges that shall be given separate accounting recognition.
- Paragraph 10 in Appendix A to FTB 85-6, *Accounting for a Purchase of Treasury Shares at a Price Significantly in Excess of the Current Market Price of the Shares and the Income Statement Classification of Costs Incurred in Defending against a Takeover Attempt*, states that a transaction involving shares of an enterprise's own stock may involve the receipt or payment of consideration in exchange for rights or privileges that may require recognition of income or expense by the enterprise. The Board and its predecessor, the Accounting Principles Board, have addressed several transactions of this type and concluded that recognition of income or expense is required.
- FASB ASC Topic 718, *Compensation – Stock Compensation*, states that common stock should generally be recorded at fair value when it is issued. Fair value is defined as the amount at which the stock could be bought or sold in a current transaction between willing parties, that is, other than in a forced or liquidation sale. A quoted market price in an active market is generally the best measure of fair value.
- FASB Concepts Statement No. 6, *Elements of Financial Statements*, defines revenues as inflows or other enhancements of assets of an entity or settlements of its liabilities (or combination of both) from delivering or producing goods, rendering services, or other activities that constitute the entity's ongoing major or central operations.

We believe that the premium paid represents the fair value to Astellas of the ROFR plus their right to participate in the development of the technology. Additionally, the ROFR relates to our core technology, which constitutes our major or central operations. As these benefits relate to the right to our technology in the future, we believe this premium should be separated from the issuance of common shares and recorded as deferred revenue, which reflects the substance of this transaction.

Exhibit 32.1

4. We note that your Section 906 certification furnished in accordance with Item 601(b)(32) of Regulation S-K improperly refers to the period ended December 31, 2010. Please file an amendment to your Form 10-K that includes the entire filing, including Section 302 certifications, together with Section 906 certifications that refer to the December 31, 2011 period.

Response: Pursuant to the Staff's comment, the Company will revise the Section 906 certification and will file an amendment to its Form 10-K that includes the entire filing.

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.

* * *

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 contact us at (858) 458-0900.

Sincerely,

/s/ Christopher J. Calhoun
Christopher J. Calhoun
Chief Executive Officer

/s/ Mark E. Saad
Mark E. Saad
Chief Financial Officer

