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September 28, 2010

**VIA EDGAR**

Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, D.C. 20549-7010

Attention: Frank Wyman  
Lisa Vanjoske  
Karen Ubell  
Suzanne Hayes  
Jim B. Rosenberg

**Re: SEC Comment Letter dated September 15, 2010  
StemCells, Inc.  
Form 10-K for the fiscal year ended December 31, 2009  
Definitive Proxy Statement on Schedule 14A filed April 13, 2010  
File No. 001-19871**

Ladies and Gentlemen:

On behalf of StemCells, Inc. (the "Company"), this letter is being submitted to the Staff of the Securities and Exchange Commission (the "Commission") in response to the comments in the Staff's letters dated June 7, 2010 (the "June 7 Letter") and September 15, 2010 (the "September 15 Letter") regarding the Company's 10-K for the year ended December 31, 2009 (the "2009 10-K") and definitive proxy statement filed on April 13, 2010 (our "2010 Proxy Statement").

For reference purposes, the comments as reflected in the September 15 Letter are reproduced in bold in this letter, and the corresponding responses of the Company are shown below each comment. Occasionally, we also make cross references to the Company's earlier written response letter to the Commission dated July 6, 2010 (our "July 6 Response").

Accordingly, we supplementally advise you as follows:

**Item 1. Business**

**Licenses with Research Institutions, page 14**

- 1. We note your responses to prior comments five and seven directing us to your requests for confidential treatment with respect to certain terms of the Edinburgh License Agreement and the License Agreement with NeuroSpheres Holdings Ltd. each granted by the Commission. The confidential treatment request was granted without the benefit of a review. In the letter informing you of the grant of your confidential treatment request, we informed you that we maintain the authority to reconsider the grant of confidential treatment. While we generally believe the royalty rate**
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is a material term of a license agreement, we are willing to grant confidential treatment for the royalty rate when the royalty range is disclosed. Accordingly, please revise your disclosure regarding these agreements to include a reasonable range within which the royalty rate falls, for example "single digits," "teens," "twenties," etc. Additionally, in lieu of any minimum annual payments owed, please provide the aggregate potential milestone payments due under the Edinburgh License Agreement.

Company Response:

All of the product-based royalty rates in the license agreements between the Company and NeuroSpheres are in the single digits. All of the product-based royalty rates in the license agreement between the Company and the University of Edinburgh are in the single digits and there are no provisions under the University of Edinburgh license agreement for the payment of potential milestones by the Company. In future filings, we will disclose these royalty ranges for these agreements.

**Management's Discussion and Analysis of Financial Condition and Results of Operations**

**Liquidity and Capital Resources, page 49**

***Indemnification Agreement***

2. Please refer to prior comment ten [from the June 7 Letter]. You have concluded that as of December 31, 2009, prepaid royalties of \$750,000 are realizable against future milestone and royalty payments to NeuroSpheres. Please tell us why this assumed realization against future milestone payments does not represent recognition of a contingent gain, which is prohibited by ASC 450-30-25.

Company Response:

We do not believe that the amount capitalized and subsequent realization represent recognition of a contingent gain as prohibited by ASC 450-30-25, as there is no uncertainty around the required annual payments of \$50,000 to NeuroSpheres. We expect to, as we are contractually obligated to, make these annual payments through the remaining life of the licensed patents, i.e. approximately 15 years as of December 31, 2009. As the indemnification agreement with NeuroSpheres entitles us to offset certain litigation costs incurred against amounts otherwise owed to NeuroSpheres under our licensing agreements, we capitalized \$750,000 (\$50,000 x 15) of these litigation costs. The amount capitalized was not dependent on the achievement of any milestones or related to any other contingent payments which may become due under the agreements. We will reduce this asset by \$50,000 per annum in lieu of the cash payments due to NeuroSpheres.

**Notes to Consolidated Financial Statements**

**Note 5. Acquisition of SCS, page 70**

3. Please refer to prior comment 13 [from the June 7 Letter]. Confirm to us that you will disclose the information provided in your response in future filings.
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Company Response:

Reference is made to Item 13 of our July 6 Response. The Company will include substantially similar disclosure in its future filings.

**Note 12. Commitments and Contingencies, page 77**

- 4. Please refer to prior comment 16 [of the June 7 Letter]. You assert that these arrangements are not material to your business. However, the future success of your research and development appears to depend significantly on these licensed agreements and research collaborations. Also, you disclose a potential \$15 million maximum royalty obligation to Cal Tech. Accordingly, please disclose the principal terms of your license arrangements and collaborations with research institutions and commercial entities.**

Company Response:

We refer the Commission to our responses to Items 6, 7, 8, 9, and 16 in our July 6 Response. We continue to believe that we have filed all agreements material to our business and have appropriately disclosed all arrangements to give a prospective or actual investor in our Company sufficient information to make an informed investment decision. We do not believe the future success of our research and development efforts depend significantly on any particular license agreements or research collaborations, other than perhaps our license agreements with NeuroSpheres and the University of Edinburgh, all three of which have been previously filed with the Commission.

For example, the license agreements with the California Institute of Technology ("Cal Tech") covered the in-bound license of various technologies unrelated to the Company's HuCNS-SC or hLEC cell-based product development efforts. Any contingent milestones provided in the Cal Tech license agreement were therefore extremely remote and not of material consequence to our business. Indeed, earlier this week, the Company terminated its license agreements with Cal Tech precisely because the Company concluded there was no on-going value in the licenses given the Company's on-going product development activities.

The Company will continue to disclose the material terms and conditions of any material collaboration agreements entered into by the Company other than in the ordinary course of business, as required by applicable law and regulation.

**Definitive Proxy Statement filed April 13, 2010**

**Executive Compensation**

**Compensation Discussion and Analysis**

**Compensation of Named Executive Officers**

**Bonus Compensation, page 13**

- 5. We note your response to comment 18 [of the June 7 letter] and disagree with your conclusion that a more detailed description of your corporate**
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**goals is not necessary. A more detailed description of the goals is material to understanding how you incentivize and reward your executive officers. Please confirm that you will provide a more detailed description of these goals in your 2011 proxy statement.**

Company Response:

We refer the Commission to our response to Items 17 and 18 in our July 6 Response. With the additional disclosures therein, we believe our public filings disclose all material information necessary to allow investors and potential investors in the Company to understand the significant types of measures and considerations used by our Board to compensate our employees, including our executive officers, to date. We do not believe additional detail about the specific corporate goals would be helpful to investors, as the goals themselves have been subjective and the relationship between the goals and the decision by the Compensation Committee to award a discretionary bonus, if any, has never been a linear one. However, we will continue to assess the adequacy of our disclosure in this regard and will provide a more detailed description of our corporate goals in our 2011 proxy statement to the extent necessary for a proper understanding of our compensation practices.

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Please be advised that, in connection with the Staff's comments in the June 7 Letter and September 15 Letter and the Company's responses thereto, the Company hereby acknowledges that (i) the Company is responsible for the adequacy and accuracy of the disclosure in the above-referenced filing; (ii) the Staff's comments or changes to disclosure in response to the Staff's comments do not foreclose the Commission from taking any action with respect to the filing; and (iii) it is the Staff's position that the Company may not assert the Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

We hope that the foregoing has been responsive to the Staff's comments. If you should have any questions about this letter or require any further information, please call the undersigned at (650) 475-3122.

Very truly yours,

/s/ Kenneth B. Stratton

Kenneth B. Stratton  
General Counsel