

Mail Stop 4720

July 31, 2009

Mr. William M. Caldwell, IV
Chief Executive Officer
Advanced Cell Technology, Inc.
381 Plantation Street
Worcester, MA 01605

**Re: Advanced Cell Technology, Inc.
Preliminary Proxy Statement on Schedule 14A
Filed July 22, 2009
File Number 000-50295**

Dear Mr. Caldwell:

We have limited our review of your filing to the issue we have addressed in our comment below. Where indicated, we think you should revise your document in response to this comment. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanations.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comment or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Preliminary Proxy Statement filed July 22, 2009

1. We note your disclosure that pursuant to the Consent, Waiver, Amendment and Exchange Agreement entered into in July 2009, you issued to Purchasers convertible debentures and warrants. Please expand your filing to disclose the additional amount of common stock that is issuable upon the conversion of the convertible debentures and the exercise of warrants due to this Agreement.

2. We note that you have taken action to increase the number of authorized shares and note that additional shares are issuable to the holders of the debentures and warrants. Accordingly, it appears that financial information is required pursuant to Item 13 of Schedule 14A. Please amend your filing to furnish the financial information, or provide a legal analysis as to why the financial information is not required.
3. We note that the auditor's opinion in your Form 10-K for Fiscal Year Ended 12/31/2008 is dated July 2, 2008. Please amend your Form 10-K to include an updated auditor's report.

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As appropriate, please amend the Schedule 14A and respond to these comments. Detailed letters greatly facilitate our review. Please furnish a letter that keys your response to our comments. In addition, please also note the location of any material changes made in the proxy statement for reasons other than in response to specific staff comments. Electronically file the letter that responds to each staff comment and notes the location in the text of the revised proxy materials of the corresponding revisions. Identify the electronic letter response with a correspondence header tag. Revised proxy materials should be marked to indicate any changes. Note also the requirements of Rule 310 of Regulation S-T. Please understand that we may have additional comments after reviewing your response to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comments, please provide, in your letter, a statement from the company acknowledging that:

- 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

Mr. William M. Caldwell, IV
Advanced Cell Technology, Inc.
July 31, 2009
Page 3

- 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

Please contact Rose Zukin at (202) 551-3239 or me at (202) 551-3710 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director