



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

November 16, 2010

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

Re: Advanced Cell Technology, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2009
Filed March 16, 2010
File Number: 000-50295

Dear Mr. Caldwell:

We have reviewed your November 2, 2010 response to our September 27, 2010 letter, and have the following comments. In our comments, we ask you to provide us with information to better understand your disclosure.

Please respond to this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. Where a comment requests you to revise disclosure, the information you provide should show us what the revised disclosure will look like and identify the annual or quarterly filing, as applicable, in which you intend to first include it. If you do not believe a comment applies to your facts and circumstances, please tell us why in your response. Please furnish us a letter on EDGAR under the form type label CORRESP that keys your responses to our comments.

After reviewing the information provided, we may have additional comments and/or request that you amend your filing.

1. We note your response to our prior comment 4. However, our comment also asked that if your Board of Directors used its discretion in making an award, rather than a formula, that you provide a discussion of the Board's reasoning including any performance factors considered for each of Mr. Caldwell and Dr. Lanza. In light of your response that the Board believed that the grant of options to Messrs. Caldwell and Lanza equaling one half the amount of options already held by them was fair "in light of [their] contributions," we ask that you address the basis for this determination. That is, please provide additional disclosure that discusses the individual contributions of Messrs. Caldwell and Lanza to which you refer and explains why the Board believed that these particular contributions merited an award equal to 50% of the options held by these officers.

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You may contact Michael Rosenthal, Staff Attorney, at (202) 551-3674 or Dan Greenspan, Special Counsel, at (202) 551-3623 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director