



DIVISION OF
CORPORATION FINANCE

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

October 1, 2012

Via E-mail

Gary Rabin
Chief Executive Officer and Chairman
Advanced Cell Technology, Inc.
33 Locke Drive
Marlborough, Massachusetts 01752

Re: Advanced Cell Technology, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2011
Filed March 1, 2012
File No. 000-50295

Dear Mr. Rabin:

We have reviewed your supplemental response dated September 4, 2012 to our comment letter issued August 21, 2012 and have the following comments. In our comments, we ask that you provide us information so we may better understand your disclosure.

Please respond to this letter within 10 business days by providing the requested information or by advising us when you will provide the requested response. 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 any information you provide in response to our comments, we may have additional comments.

Compensation Discussion and Analysis, page 54

1. We note your response to Comment 1 and your proposed disclosure to be included in an amended Form 10-K. From your proposed disclosure, it is clear that Mr. Rabin received \$207,692 as a performance bonus and \$41,667 as a retention bonus in 2011. However, your proposed disclosure does not identify the basis for the additional \$400,000 in compensation awarded to Mr. Rabin as reflected under the "Bonus" column of your summary compensation table. Please revise your proposed disclosure to provide the basis for this additional bonus compensation and how such bonus was determined.
2. We note your response to Comment 2 and the proposed disclosure you have provided for your 2011 grants of plan-based awards table to be included in an amended Form 10-K. In particular, we note that your grants of plan-based awards table reflects an award to Mr. Rabin with a July 1, 2011 grant date for a maximum award of \$2,000,000. Please

provide narrative disclosure accompanying your grants of plan-based awards table which identifies the source for this \$2,000,000 award. In this regard, we note that under Mr. Rabin's amended employment agreement the annual incentive bonus provided a maximum potential award of \$450,000 in 2011. Please revise your proposed disclosure accordingly to explain this inconsistency. In addition, please provide footnoted disclosure to the table identifying the source for each of the grants of non-equity incentive compensation reflected therein. For example, as it appears that the July 1, 2011 grant of an award with a \$100,000 threshold relates to Mr. Rabin's 2011 performance bonus under his amended employment agreement, you should include a footnote to the table highlighting this information.

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 the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. 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 responding to our comments, please provide a written 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
- 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.

Please contact Bryan Pitko at (202) 551-3203 with any questions. In this regard, please do not hesitate to contact me at (202) 551-3715.

Sincerely,

/s/ Bryan J. Pitko for

Jeffrey P. Riedler
Assistant Director