



DIVISION OF
CORPORATION FINANCE

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

August 3, 2010

Avi Barak
Chief Executive Officer and Director
BioCancell Therapeutics, Inc.
Beck Science Center
8 Hartom St, Har Hotzvim
Jerusalem 97775
Israel 972-2-548-6555

Re: BioCancell Therapeutics, Inc.
Registration Statement on Form S-1, Amendment No. 4
Filed July 22, 2010
File No. 333-162088

Dear Mr. Barak:

We have reviewed your registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. We note that your shares are listed on the Tel Aviv Stock Exchange and that you intend to conduct this offering in Israel. Please explain why you are registering this offering in the United States, whether you are registering the offering in Israel and what materials you are distributing to potential investors.
2. We note your statements that the institutional investors will make their bid prior to the effectiveness of the registration statement. Additionally, we note your response to comment 3 that prior to effectiveness, the registration statement will include the price range, the number of units being offered, the number of shares underlying each unit, the number of Series 3 warrants underlying each unit and the number of Series 4 warrants underlying each unit prior to effectiveness. Please confirm that this information will be included in the prospectus before the institutional investors may make early bids.

3. We note your response to comment 2 that you will provide the same information to institutional investors and to the other investors. This response conflicts with the following information contained in your prospectus:
 - On page 71, you state that the exercise price of the warrants will be announced at least five TASE trading hours before the auction. It appears that this occurs after the early bids are submitted and therefore the early bidders would not have access to this information; and
 - On page 73, you state that summary data with respect to the early bids will be announced and therefore the other bidders will know the identities of the early bidders, whether the early bidders are affiliated with you and the number units and price that each early bidder requested.

Please explain the discrepancy.

4. We note your response to comments 3 and 4. Please clarify whether the price range, the number of shares underlying each unit, the number of Series 3 warrants underlying each unit and the number of Series 4 warrants underlying each unit will be included in the pre-effective prospectus used in marketing this offering and that the early bidders will have this information before they submit their early bids.
5. We note your response to comments 6 and 17 that reconfirmation of bids is not necessary and the bids are irrevocable. Given the nature of the offering, we have determined that reconfirmation of all bids, early bids and bids submitted after effectiveness, is necessary for the offering to be registered in the United States. Please revise the description of your offering to clarify that all bids will be reconfirmed once the price is established.
6. In light of your response to our prior comment 7, please add a risk factor disclosing that there are no suitability protections akin to NASD Rule 2310 for customers purchasing the units.

The Auction Process, page 73

7. We note your response to comment 12. Please file an English translation of your agreement with the offering coordinator as an exhibit to the registration statement.
8. We note your response to our prior comment 13 clarifies that the early bids that may be submitted by institutional investors are offers. Because you will receive conditional offers please revise your registration statement to ensure you provide appropriate safeguards to ensure compliance with Section 5. In this regard, you will need to provide withdrawal rights and ensure you have not received consideration prior to acceptance of any conditional offer. See Compliance and Disclosure Interpretation Question 139.26 under Securities Act Section 5.

9. We note your response to our prior comment 14. The size of an offering cannot be increased by post effective amendment. Assuming you meet the requirements, you may be able to increase the size of your offering by filing a new registration statement pursuant to Rule 462(b). Please confirm that if you do not meet the requirements of Rule 462(b) that you will file a new registration statement and that the new registration statement will not incorporate by reference to the initial registration statement and will not be effective automatically when filed.

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 Act of 1933 and all applicable Securities 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.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Avi Barak
BioCancell Therapeutics, Inc.
July 8, 2010
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You may contact Michael Rosenthal at 202-551-3674 or Suzanne Hayes at 202-551-3675 with any questions.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Dr. Shachar Hadar, Adv.
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