

Mail Stop 6010

April 16, 2009

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/A
Filed April 7, 2009**

Dear Mr. Barak:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. 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 explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

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 comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Our Process of Research and Development – Target Identification and Validation, page 25

1. We note your revisions to the disclosure in this section in response to our previous comment 4. However, at least one conclusory statement regarding the safety and efficacy of BC-819, “The studies established the safety of the drug at the examined dosages,” remains on page 26 at the end of the first full paragraph. Please remove the conclusory statement from your disclosure.

Intellectual Property, page 31

2. Our previous comment 6 asked that you disclose the number of the 48 patents and patent applications your company claims rights to, which were licensed from Yissum. Though your response letter notes that you revised your disclosure to include this information, it does not appear in your Intellectual Property disclosure section, nor does it appear in your detailed discussion of the Yissum license agreement. Therefore, our previous comment 6 is reissued.

Security Ownership of Certain Beneficial Owners and Management, page 44

3. It is unclear where you included the amounts discussed in notes (8) and (9.) Please revise your tabular presentation to clarify.

Consolidated Financial Statements

Consolidated Statements of Changes in Stockholders' Equity and Comprehensive Loss, page F-7

4. Combining separate issuances of equity securities that were not issued during the same fiscal year as presented on page F-9 is not a presentation format contemplated by SFAS 7. Please revise your presentation in accordance with paragraph 11.d. of SFAS 7 or tell us why your current presentation is considered appropriate.
5. Include a computation of your basic and diluted EPS in the notes to the financial statements. Please refer to paragraph 40 of SFAS No. 128.

* * *

As appropriate, please amend your filing in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require for an informed 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, 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 this action 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 connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as a 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. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Ibolya Ignat at (202) 551-3656 or Gustavo Rodriguez at (202) 551-3752 if you have questions regarding comments on the financial statements and related matters. Please contact Mike Rosenthal at (202) 551-3674 or myself at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

Avi Barak
BioCancell Therapeutics Inc.
April 16, 2009
Page 4 of 4

cc: Robert H. Cohen, Esq.
Greenberg Traurig, LLP
200 Park Avenue
New York, New York 10166
Tel: (212) 801-9200
Fax: (212) 801-6400

Yuval Horn, Adv.
Baratz, Horn & Co., Attorneys-at-Law & Notaries
1 Azrieli Center, Round Tower, 18th floor
Tel Aviv 67021, Israel
Tel: 972-3- 6073766
Fax: 972-3- 6960986