

Mail Stop 4720

October 7, 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  
Filed September 24, 2009  
File No. 333-162088**

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.

General

1. It appears that you are attempting to use Rule 415 to conduct an at the market offering on a delayed and continuous basis. However, you are not eligible to conduct a shelf offering or an at the market offering. Please see Rule 415(a)(4) which requires an at the market offering to be registered on Form S-3 or Form F-3.
3. You are not currently eligible to use Form S-3.

Please revise your cover page to include the price at which you will sell the units. Additionally, revise both the cover page and the plan of distribution to discuss whether your offering will be made on a best efforts or minimum maximum basis, to disclose when your offering will terminate and whether the proceeds will be held in escrow until any applicable conditions have been met. To the extent that proceeds will be held in escrow, please describe the conditions that must be met before the proceeds will be released from escrow.

Use of Proceeds, page 19

2. It appears that your use of proceeds includes proceeds that you will receive if you sell all the units and the warrants are exercised. Please revise this section to discuss the proceeds and their uses assuming all the units are sold and less than all the warrants are exercised. If you are planning to conduct your offering on a minimum/maximum basis, the discussion should present the uses of proceeds assuming the minimum is met. If you are planning to conduct your offering on a best efforts basis, the discussion should present the use of proceeds assuming you sell less than the entire offering. To the extent that you discuss the proceeds from the exercise of the warrants, please discuss these warrant proceeds separately. Clarify when the warrants are exercisable and indicate that you will not receive any of the warrant proceeds if the warrants are not exercised.

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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.

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.  
October 7, 2009  
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cc: Robert H. Cohen, Esq.  
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