

Mail Stop 6010

February 10, 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 February 2, 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.

General

1. Please include a recently dated accountant's consent letter with your next amended filing as required by Item 601 of Regulation S-K.

Prospectus Summary - Our Business, page 1

2. We note that you revised your disclosure here and elsewhere as appropriate throughout the prospectus in response to our previous comment 2 to clarify

information regarding the clinical trials of BC-819 for use in treating bladder carcinoma, and for pancreatic and ovarian cancer. Please revise the disclosure further to remove language indicating that your clinical trials were “approved” by the FDA as clinical trials aren’t approved but are able to commence 30 days after filing of an IND if the FDA does not object within that time period.

Risks Related to Our Business, page 1

3. We note that you added a bullet-pointed list of the most significant risks related to your business and to owning shares of your stock in response to our prior comment. Please either revise the last bullet point regarding the possibility that your shares will be thinly traded, or alternatively, add an additional bullet point regarding the likelihood that your shares will be subject to further restrictions as a penny stock, as discussed in the risk factor on page 20.

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

4. We note that in response to our previous comment 12 you have revised the disclosure in this subsection to indicate that past studies are not indicative of future results, and that they will continue doing further, larger, studies which may have different outcomes. However, certain statements still remain that may cause the reader to conclude that the safety and efficacy of BC-819 in treating bladder and ovarian cancer has been firmly established, such as:
  - We believe that the safety of the proposed drug has been proven through the results of pre-clinical and clinical studies, and the following considerations; and
  - We believe that these results indicate that BC-819 is effective in treating patients with superficial bladder cancer tumors.

Please revise the disclosure in this section to limit your discussion to the results that you observed and remove any conclusionary statements regarding the safety or efficacy of the BC-819 drugs.

5. Please further revise the disclosure in the second full paragraph on page 27 to explain that no p-values were calculated because the study did not include a control group. Please also disclose why you did not include a control group.

Intellectual Property, page 31

6. We note that in response to our previous comments 14 and 15 you have included additional disclosure in this subsection. However, though you state that you have licensed products from Yissum in connections with the H19 gene, the table on page 31 indicates that a number of your groups of patents are related to the H19

gene. Please disclose the number of patents, or the percentage of the 48 patents and patent applications your company claims rights to, that were licensed from Yissum.

Plan of Distribution, page 83

7. Please revise this section so that it conforms to revised disclosure elsewhere in the prospectus regarding the sale of shares by the selling shareholders at a fixed price until a market develops in the US.

Exhibits

8. We note your response to our previous comment 16 that the supply agreement with Althea Technologies will be filed as Exhibit 10.2, but that it will be filed with a future amendment. Please file the exhibit with you next amendment, or as soon as possible thereafter as we will need time to review them prior to granting effectiveness of the registration statement.

\* \* \*

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

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