Mail Stop 6010

January 13, 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 December 17, 2008

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.

Prospectus Cover Page

1. We note that on the cover page, and elsewhere throughout your prospectus, you state that there is currently no public market for your common stock in the United States. At the same time, on this page, on page 3, in the Plan of Distribution section, and elsewhere in your prospectus, you state that your common stock will be sold at prevailing market prices. The disclosure relating to the prevailing market price is improper until such a market develops in the United States. Please provide a fixed price until such time as a market for the

shares develops in the United States. You should amend the disclosure on this page, on page 3 and in the Plan of Distribution to indicate that you will sell at a price of $x.xx per share until your shares are quoted on the OTC Bulletin Board and thereafter at prevailing market prices or privately negotiated prices.

Prospectus Summary

Our Business, page 1

2. Please revise your disclosure in the penultimate and last sentences of the second paragraph as they appear inconsistent. The ability to conduct clinical studies commences when your company files an IND and the FDA does not object to it within 30 days. As your IND was filed in December 2008, it is unclear how your application to conduct Phase I/II trials on BC-819 for ovarian and pancreatic cancer could have been approved on April 29, 2008. Similarly, please revise your disclosure on page 26 to clarify that you will not be able to move forward with your Phase I/IIa trial until 31 days from the filing of your IND in December of 2008.

Risks Related to our Business, page 1

3. Please revise your disclosure here to include a descriptive bullet-pointed list of the most significant risks related to your business and to owning shares of your stock.

Risk Factors

We do not have an operating history and do not anticipate earning operating income over the coming years, and our failure to receive marketing approval for any of our prospective therapeutic products or our failure to otherwise achieve and sustain profitability would negatively impact our ability to continue our business operations, page 5

4. Please revise this comment to state that your company has no history or commercial sales, rather than no operating history.

We will require substantial additional funds to complete our research and development activities and, if additional funds are not available, we may need to significantly scale back or cease our operations, page 6

5. Please expand the disclosure in this risk factor to include quantitative information such as: the amount of funds you have raised to date from all sources and identification of the sources of those funds; the amount of funds currently available; and the period of time you expect to be able to operate without raising additional funds. Further, please ensure that the disclosure here is unique from

the disclosure in the following risk factor discussing your auditors' going concern opinion.

If the pre-clinical and clinical studies that are required to be conducted by us to gain regulatory approval are delayed or unsuccessful, we may not be able to market our prospective therapeutic products, page 8

6. If any of the potential situations enumerated in this risk factor have occurred please provide additional disclosure, in the form of separate risk factors, about those situations. Alternatively, if none of these risks have occurred, please confirm that fact.

We have no experience in conducting and managing clinical trials, page 8

7. Please disclose any material negative circumstances or events that may have occurred with the contract research organization whose services your company uses.

The difficulties of identifying and recruiting suitable patients for clinical studies may be exacerbated in the case of patients diagnosed with superficial bladder carcinoma, and further, the clinical results and data that we obtain from any clinical testing that we may conduct in the future may not be reliable, any of which factor may significantly compromise our ability to develop a drug utilizing a target gene for the treatment of superficial bladder carcinoma, page 8

8. Please expand your disclosure here to identify where you have conducted your bladder carcinoma studies to date, and any difficulties your researchers have experienced with enrolling subjects or adhering to study protocols.

We are exposed to a risk of substantial loss due to claims that may be filed against us in the future because our insurance policies may not fully cover the risk of loss associated with our operations, page 13

9. Please quantify the extent of the insurance coverage you discuss.

If we fail to comply with our obligations under our license with Yissum or other licenses or related agreements that we are a party to and that we may enter into in the future, we could lose license rights that may be necessary for developing our target gene-based therapeutic products, page 14

10. Please expand your disclosure in this risk factor to describe the specific material obligations of the license that you must adhere to in order to avoid breaching your agreement with, or risking termination by, Yissum. Further, please clarify in more specific terms your responsibilities for funding research and pursuing patent applications under the agreement. Lastly, if you have failed to perform on any of

the material terms of the agreement, putting your company at risk of termination of the agreement, please disclose the breached terms and the current status of those situations.

Determination of Offering Price

11. As you will offer your shares at a fixed price until a market develops in the United States, please revise your disclosure of the determination of the offering price here to include the factors, analyses, and method used to determine such price.

Our Business

Our Process of Research and Development – Target Identification and Validation, page 24

12. We note that the disclosure in this section includes several statements that may cause a 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 results of pre-clinical and clinical studies, and the following considerations."
    - "We believe that these results indicate that BC-819 is effective in treating patients with superficial bladder cancer tumors."

    As BC-819 is currently in Phase IIb trials for use in treating bladder cancer, and has not yet begun FDA approved clinical trials for treatment of ovarian or pancreatic cancer, please limit any statements, such as the above, that may imply that conclusive results about these drugs have been established. Please revise your disclosure to clarify that:
    - As clinical trials continue, that your company will be continuing to gather safety and effectiveness data on larger subject populations;
    - Subsequent studies may not corroborate your findings regarding safety and effectiveness in smaller and earlier studies; and
    - The FDA alone will determine wheter BC-819 is both safe and effective enough to be approved for commercial use after substantial additional clinical studies.

13. Please disclose whether, in regard to your completed Phase I/IIa trial on the use of BC-819 to treat bladder cancer, there was a control group, and whether any statistical analysis was performed. If so, please disclose the results of such analysis, including any p-values obtained.

Intellectual Property, page 29

14. Please expand your disclosure in this section to clarify the extent to which the 48 patents and patent applications were licensed to your company by Yissum.

15. Please further expand you disclosure here to include which patent groups are related to which product candidates, and the expiration dates, or ranges of dates, for those patents that have been granted.

Material Operating Agreements, page 34

16. We note that you refer to one supply agreement as, "*Supply Agreement with U.S. Drug Manufacturer*" without identifying the company here or elsewhere in the filing. Please revise your disclosure to identify the drug manufacturer and file the supply agreement as an exhibit.

17. We note that under the subheading '*Agreements for Performance of Clinical Trials*' you disclose six parties that will administer clinical trials on your behalf, as well as an additional clinical trial provider, Pro-Pharmaceuticals, in the paragraph above. However, we note only three agreements (Exhibits 10.5-10.7) between your company and these clinical trial providers. Please provide the clinical trial agreements with the remaining partners; or, alternatively, explain why you believe the agreements are not material and do not need to be disclosed.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 60

18. For businesses in the development stage, the management's discussion and analysis should address cumulative information from inception. For example, include a discussion of all significant financing transactions, such as private placements.

Research and Development Expenses, page 61

19. Please disclose the following information for each of your major active research and development project(s):
    - The costs incurred during each period presented and to date on the project;
    - The nature and estimated costs of the efforts necessary to complete the project;
    - The anticipated completion dates;
    - The risks and uncertainties associated with completing development on schedule, and the consequences to operations, financial position and liquidity if the project is not completed timely; and finally
    - The period in which material net cash inflows from significant projects are expected to commence.

    To the extent that information requested above is not known or estimable, disclose that fact and the reason why it is not known. Please refer to the Division of Corporation Finance "Current Issues and Rulemaking Projects Quarterly Update" under section VIII – Industry Specific Issues – Accounting and

Disclosure by Companies Engaged in Research and Development Activities. You can find it at the following website address: http://www.sec.gov/divisions/corpfin/cfcrq032001.htm

Interest Income, Net and Other Expenses, page 63

20. You recognized a gain of $854,000 due to the revaluation of warrants issued. Please disclose the changes in the assumptions used to value the warrants that resulted in the gain of $854,000.

Liquidity and Capital Resources

Contractual Obligations and Commitments, page 65

21. Please include your long term liabilities in the contractual obligation table or tell us why your current presentation is appropriate. Please also include the estimated royalty payments due in future periods pursuant to the Yissum agreement or disclose in a note to the contractual obligations table the nature of your potential obligations. Please refer to Financial Reporting Release 67 and revise your disclosures accordingly.

Quantitative and Qualitative Disclosures about Market Risk, page 65

22. We note your disclosure of reasonable currency risk, based on the exchange rate between the US dollar and the New Israeli Shekel (NIS). Please expand your disclosure here to include a quantitative sensitivity analysis showing the effect of a certain percentage change in the currency exchange rate on your results of operations and assets.

Certain Relationships with Related Parties, page 69

23. You disclosed that a wholly owned subsidiary purchased 1,1812,756 shares of Series 1 warrants on the Tel Aviv Stock Exchange between August 14 and 17, 2008 at a purchase price of .02 NIS that were subsequently exercised at an exercise price of 9.73 NIS on August 18, 2008. Please disclose the business purpose and economic justification for this transaction.

Description of Securities

Selling Securityholders, page 75

24. Please revise the selling shareholders table to include the percentage of shares to be held by each selling shareholders upon completion of the sale of the shares registered.

25. In this section please disclose any selling restrictions, such as a lock-up period, in place upon the selling shareholders.

Exhibits and Financial Statement Schedules

26. Please file your remaining exhibits, including the legal opinion, with your next amendment or as soon as they become available as we will need time to review them prior to granting effectiveness of the registration statement.

Unaudited Consolidated Financial Statements, September 30, 2008, page F-1

27. Please update the unaudited financial statements and related disclosures based on the comments related to the audited financial statements as at December 31, 2007 as applicable.

Note 3 – Fair Value Measurements, page F-11

28. You disclosed that you incurred a net loss from the fair valuation of warrants to shareholders of over $1 million in 2008. Please revise your disclosure since you disclosed in your statements of operations that you realized a net gain of over $1 million in 2008.

Note 4 – Stockholders' Equity, page F-12

29. Please disclose the assumptions used to value the warrants issued in the July 30, 2008 private placement. Please disclose the conditions under which the warrants and the convertible debt issued may be redeemed, and at whose option the warrants and convertible debt may be redeemed.

Consolidated Statements of Cash Flows, page F-6

30. The cash and cash equivalents on your balance sheet for September 30, 2007 is $376. However, the cash and cash equivalents on your statements of cash flows for September 30, 2007 is $423. Please revise so that the cash equivalents in your balance sheet and statements of cash flows reconcile as of September 30, 2007.

31. Please revise your cash flow statements to present your cash flows from trading securities as an investing activity or explain to us why your presentation is appropriate and reference for us the authoritative literature you rely upon to support your position. In this regard, it appears that the effectiveness of SFAS 159 has amended paragraph 18 of SFAS 115 to no longer require that trading securities be automatically classified as operating cash flow activities, but instead be classified based on the nature and purpose for which the securities were acquired.

Consolidated Financial Statements

32. Disclose related party transactions on the face of the balance sheet, cash flow statement and statement of operations pursuant to Rule 4-08(k) of Regulation S-X.

Consolidated Balance Sheets, page F-19

33. Please include a more descriptive caption for your accumulated deficit as required by paragraph 11.a. of SFAS 7.

Notes to the Consolidated Financial Statements, page F-26

Note 2 – Reporting Principles and Accounting Policies, page F-26

34. Please disclose your accounting policy for recognizing grant revenue.

10. Stockholders' Equity, page F-27

Stock-Based Compensation, page F-28

35. Please describe you accounting policy for the 60,000 contingent options granted to your employees, directors and consultants during 2007, disclosed in the footnote to the table on page 50. Revise your accounting policy footnote disclosure and your discussion of your critical accounting policies and significant estimates in the MD&A to include a discussion of the accounting policy applied to the contingent options granted. Address SFAS 123(R) in detail as necessary in your response.

36. Please clarify your operating and reportable segment or segments.

* * *

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 Rosenthall 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.
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