

Mail Stop 4720

December 28, 2009

Declan Daly
Fibrocell Science, Inc.
405 Eagleview Boulevard
Exton, Pennsylvania 19341

**Re: Fibrocell Science, Inc.
Registration Statement on Form S-1
Filed November 27, 2009
File No. 333-163386**

Dear Mr. Daly:

We have reviewed your December 17, 2009 response to our December 8, 2009 comment letter and have the following additional 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.

Form S-1 filed November 27, 2009

General

1. We note your response to our prior comment 1 and the analysis provided therein; however, we disagree with your position. Because the additional securities that may be issued as dividends on the Series A Preferred Stock are not currently outstanding they may not be registered at this time. Please amend your registration statement to remove these shares.
2. We note your response to our prior comment 2 and advise you that we will not be in a position to clear this comment until we have seen the revised disclosure referred to in your response.

* * *

As appropriate, please amend your registration statement 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 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 filing to be certain that the filing includes all information required under the Securities Act of 1933 and that they have provided all information investors require for an informed investment 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 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.

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 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.

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Please contact Laura Crotty at (202) 551-3563, Suzanne Hayes, Legal Branch Chief, at (202) 551-3675 or myself at (202) 551-3715 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: Cavas S. Pavri, Esq.
Cozen O'Connor
1900 Market Street
Philadelphia, PA 19103