



DIVISION OF  
CORPORATION FINANCE

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

June 20, 2011

Via email

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

**Re: Fibrocell Science, Inc.  
Registration Statement on Form S-1  
Filed May 27, 2011  
File No. 333-174579**

Dear Mr. Daly:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. We note that you are registering the sale of 31,116,00 shares of common stock. Given the size relative to the number of shares outstanding held by non-affiliates, the nature of the offering and the selling security holders, the transaction may be considered a primary offering. We have received and reviewed the correspondence you filed with the Commission on May 31, 2011 containing your conclusion that the transaction is appropriately characterized as a transaction that is eligible to be made under Rule 415(a)(1)(i). As you noted in your correspondence, because you are not eligible to conduct a primary offering on Form S-3 you are not eligible to conduct a primary at-the-market offering under Rule 415(a)(4).

In addition to the information you have already provided, please address the following among any other relevant factors:

- The percentage of the overall offering made by each shareholder;
  - The date on which and the manner in which each selling shareholder received the shares and/or the overlying securities;
  - The relationship of each selling shareholder with the company, including an analysis of whether the selling shareholder is an affiliate of the company;
  - Any relationships among the selling shareholders;
  - The dollar value of the shares registered in relation to the proceeds that the company received from the selling shareholders for the securities, excluding amounts of proceeds that were returned (or will be returned) to the selling shareholders and/or their affiliates in fees or other payments; and
  - Whether or not any of the selling shareholders is in the business of buying and selling securities.
2. In your correspondence, you indicate that two of the selling shareholders are affiliated with a broker-dealer but your disclosure on page 59 of the prospectus indicates that none of the selling shareholders is an affiliate of a registered broker-dealer. Please explain this discrepancy and revise the prospectus to identify the affiliates. Please note that if a selling security holder is an affiliate of a broker-dealer, the prospectus must state that:
- the selling security holder purchased in the ordinary course of business; and
  - at the time of the purchase of the securities to be resold, the selling security holder had no agreement or understanding, directly or indirectly, with any person to distribute the securities.

If a selling security holder is an affiliate of a broker-dealer and you are not able to make these statements in the prospectus, the prospectus must state that the selling security holder is an underwriter. Please revise the prospectus as appropriate.

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 the information the Securities Act of 1933 and all applicable Securities Act rules require. 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 you request acceleration of the effective date of the pending registration statement please provide a written statement from the company 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.

Please refer to Rules 460 and 461 regarding requests for acceleration. 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. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Nandini Acharya at (202) 551-3495, Jennifer Riegel, Special Counsel, at (202) 551-3575 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jennifer Riegel for

Jeffrey P. Riedler  
Assistant Director

Via email  
cc: Cavas S. Pavri, Esq., Cozen O'Connor