



DIVISION OF
CORPORATION FINANCE

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

July 27, 2010

Daniel N. Swisher, Jr.
President and Chief Executive Officer
Sunesis Pharmaceuticals, Inc.
395 Oyster Point Boulevard, Suite 400
South San Francisco, California 94080

Re: Sunesis Pharmaceuticals, Inc.
Registration Statement on Form S-3
Filed July 19, 2010
File No. 333-168191

Dear Mr. Swisher:

We have limited our review of your registration statement to those issues we have addressed in our comment. In our comment, we 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/or providing the requested information. Where you do not believe our comment applies 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 this comment, we may have additional comments.

Form S-3

1. Please provide us with a detailed analysis that supports your conclusion that this offering should be considered a secondary offering that is eligible to be made under Rule 415(a)(1)(i) rather than a primary offering. In your analysis, please address the following among any other relevant factors:
 - how long the selling stockholders have held the shares,
 - the circumstances under which the selling stockholders received the shares,
 - each selling stockholder's relationship to the issuer,
 - the amount of shares involved,
 - whether the selling stockholders are in the business of underwriting securities, and
 - whether under all the circumstances it appears that the selling stockholders are acting as a conduit for the company.

Please also include in this analysis your basis for determining that each selling stockholder is not an underwriter. Alternatively, please name the selling stockholders as underwriters and register the offering on a registration statement for which you are eligible to conduct a primary offering. If you are not eligible to use Form S-3 for an offering of this size, please withdraw your Form S-3, file a registration statement on Form S-1 and establish a fixed price for the offering. See Securities Act Rules Compliance and Disclosure Interpretations Question 612.09.

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.

Daniel N. Swisher, Jr.
Sunesis Pharmaceuticals, Inc.
July 27, 2010
Page 3

Please contact Jennifer Riegel at (202) 551-3575 or me at (202) 551-3715 with any questions.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Suzanne Sawochka Hooper, Esq.
Nicole C. Brookshire, Esq.
Cooley LLP
Five Palo Alto Square
3000 El Camino Real
Palo Alto, California 94306-2155