



DIVISION OF
CORPORATION FINANCE

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

November 9, 2010

James B. Murphy
Vice President and Chief Financial Officer
OXiGENE, Inc.
701 Gateway Boulevard, Suite 210
South San Francisco, CA 94080

Re: OXiGENE, Inc.
Preliminary Proxy Statement on Form PRE14A
Filed November 2, 2010
File No. 000-21990

Dear Mr. Murphy:

We have reviewed your filing and have the following comment.

Please respond to this letter by amending your filing. If 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 filing and the information you provide in response to this comment, we may have additional comments.

Preliminary Proxy Statement

Proposal 1, page 5

1. We note that you are seeking shareholder approval for a reverse stock split of your issued and outstanding shares of common stock. Please revise your disclosure to describe any plans, arrangements or understandings relating to the issuance of any additional shares of authorized common stock that will become available following your reverse stock split. If you have no such plans, arrangements or understandings, please revise your disclosure to state so.

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 Exchange Act of 1934 and all applicable Exchange 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.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please contact Bryan Pitko at (202) 551-3203 or me at (202) 551-3715 with any questions.

Sincerely,

Jeffrey Riedler
Assistant Director