



DIVISION OF  
CORPORATION FINANCE

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549-4631

September 26, 2011

Via U.S. Mail

Dr. David R. Elmaleh  
Chairman  
FluoroPharma Medical, Inc.  
500 Boylston Street, Suite 1600  
Boston, MA 02116

**Re: FluoroPharma Medical, Inc.  
Pre-effective Amendment No. 2 to Registration Statement on Form S-1  
Filed September 8, 2011  
File No. 333-175647**

Dear Dr. Elmaleh:

We have reviewed the filing and have the comments below.

Facing page

1. Please note that each pre-effective amendment to the registration statement should be consecutively numbered. Please ensure that you identify your amended registration statement as Amendment No. 3. See Rule 470 of Regulation C.

Use of Proceeds, page 18

2. Disclosure that the company will receive proceeds from any exercise or conversion of the warrants and series A preferred stock into and up to 4,802,571 shares of common stock is inconsistent with disclosure on the prospectus' front cover page and page 2 that the company will receive proceeds from any exercise of the warrants into and up to 2,974,258 shares of common stock. In addition, in the use of proceeds section, you suggest that you will receive proceeds from the conversion of series A preferred stock; however, the conversion terms of the series A preferred as set forth in your certificate of designation do not appear to require the payment of cash from which you would derive any proceeds. Please reconcile the disclosures.

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Selling Security Holders, page 19

3. Although disclosure in footnotes (13) and (14) states that Mr. Matthew Balk is a selling stockholder, Mr. Balk's name was removed from the table of selling stockholders. Please revise.
4. The representation in response to prior comment 1 that MKM Opportunity Master Fund, Ltd. is the beneficial owner of 2,038,596 shares of common stock is inconsistent with disclosure in the table of selling stockholders that MKM Opportunity Master Fund, Ltd. is the beneficial owner of 2,320,380 shares of common stock. Please advise.

Corporate Overview, page 43

5. We assume that the reference to "this Quarterly Report on Form 10-Q" instead of this prospectus in the last paragraph is inadvertent. Please revise.

Closing

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 that the Securities Act 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 that they have made.

Notwithstanding our comments, if 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.
- 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.

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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 responsibilities under the Securities Act and the Securities Exchange Act as they relate to the proposed public offering of the registered securities.

You may contact Edward M. Kelly, Senior Counsel, at (202) 551-3728 or me at (202) 551-3765 with any questions.

Very truly yours,

/s/ Pamela A. Long

Pamela A. Long  
Assistant Director

cc: Via facsimile  
Marc J. Ross, Esq.  
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New York, NY 10006