



DIVISION OF
CORPORATION FINANCE

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

August 18, 2010

Jim Hitchin
Chairman and Chief Executive Officer
SpectraScience, Inc.
11568 Sorrento Valley Road, Suite 11
San Diego, California 92121

**Re: SpectraScience, Inc.
Registration Statement on Form S-1
Amended August 5, 2010
File No. 333-167826**

Dear Mr. Hitchin:

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.

The Selling Shareholders, page 37

1. We note your statement on page 5 of your response letter that “[b]esides Felix Investments, LLC, none of the selling shareholders are, to the Company’s knowledge, in the business of underwriting securities.” Please tell us how you determined that none of the other selling shareholders are underwriters or broker-dealers.
2. It is unclear from your response to prior comment 7 what amounts individual selling shareholders received or will receive in connection with the transaction. Accordingly, we reissue prior comment 7.
3. We note your statement in your response to prior comment 9 that “many of the selling shareholders are unsure of the exact amount and nature of their holdings.” We also note footnote (1) in your response to prior comment 12. Please tell us how you have determined that your disclosure required by Regulation S-K Item 507 is accurate.

Item 15. Recent Sales of Unregistered Securities, page II-2

4. We reissue prior comment 3 in part. Please expand to state the facts relied upon to make the exemption from registration available. See Regulation S-K Item 701(d).

Item 16. Exhibits and Financial Statement Schedules, page II-6

5. Please file as exhibits the (1) “two selected dealer agreements with Felix Investments, LLC” referenced in your response to prior comment 14 and (2) the warrants you issued to Felix Investments, LLC and its representatives. It is also unclear how the dealer agreement presented in Tab 2 of your supplemental information is representative of the securities that relate to this offering as you state in your response. Please advise.

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.

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Please contact Celia Soehner at (202) 551-3463 or me at (202) 551-3617 with any questions.

Sincerely,

Russell Mancuso
Branch Chief

cc (via facsimile): Steven Dickinson, Esq. — Fredrikson & Byron, P.A.