



DIVISION OF
CORPORATION FINANCE

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

March 17, 2011

Via Facsimile and U.S. Mail

Mr. Corey N. Conn
Chief Financial Officer
Positron Corporation
7715 Loma Ct., Suite A
Fishers, IN 46038

**Re: Positron Corporation
Amendment 2 to Form 10-K for the Year Ended December 31, 2009
Filed March 4, 2011
Form 10-Q for the Quarter Ended September 30, 2010
File No. 000-24092**

Dear Mr. Conn:

We have reviewed your response filed December 23, 2010 and have the following additional 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 within ten business days by amending your filings, by providing the requested information, or by advising us when you will provide the requested response. If 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 filings and the information you provide in response to these comments, we may have additional comments.

Amendment No. 2 to Form 10-K for the fiscal year ended December 31, 2009

Item 10. Directors, Executive Officers . . . , page 22

1. Please expand your response to prior comment 4 to tell us how you have complied with Regulation S-K Item 405, including specific citations to any authority on which you rely. Please also tell us how you “have commenced filing the reports required by Section 16,” as indicated in your response; for example, we note that no Forms 3 or 4 have been filed since your last response on December 23, 2010.

Item 11. Executive Compensation, page 25

2. Please reconcile your response to prior comment 5 and your disclosure in the outstanding equity awards table on page 26 that Patrick G. Rooney has options to purchase 575,000 shares of common stock with your disclosure in footnote (ee) on page 32 that Mr. Rooney is beneficial owner of 5,075,000 shares that may be acquired pursuant to stock options. Please also revise future filings to include the option expiration date for each option award. We note that you did not include the option expiration date for your stock option grant to Scott Stiffler in the outstanding equity awards table on page 26.

Item 12. Security Ownership of Directors, Officers . . . , page 30

Security Ownership of Certain Beneficial Owners (a), page 31

3. Please reconcile your response to prior comment 6 that Patrick J. Rooney holds voting and dispositive power over your shares held by Imagin Diagnostic Centres, Inc. with your disclosure in footnote (d) to your security ownership of certain beneficial owners table on page 31 that Patrick G. Rooney holds voting and dispositive power over these shares. Please also expand your response to prior comment 6 to tell us the steps you took to determine, or support your belief, that Patrick J. Rooney holds voting and dispositive power over these shares. We note your disclosure that you “believe” Mr. Rooney, “the last known officer of IMAGIN,” holds voting and dispositive power over these shares.
4. Please reconcile your disclosure in footnote (b) on page 31 that each share of Series B Preferred Stock converts into twenty five shares of common stock with Section 5(a) of Exhibit 4.7 and your disclosure on page 66 that each share of your Series B Preferred Stock is convertible into 100 shares of your common stock.

Security Ownership of Directors . . . , page 31

5. We note your response to prior comment 7 and your revised disclosure in footnote (ee) to your table of security ownership of directors and executive officers on page 32. We also continue to note that your disclosure in your table of security ownership of directors and executive officers “does not include” all shares beneficially owned by Mr. Rooney.

Please ensure that in future filings your beneficial ownership table, both the number of shares listed in the table and the description of shares beneficially held in the related footnote, include all shares beneficially owned by Mr. Rooney such as the 1,119,574,140 shares of your common stock held by Solaris Opportunity Fund, L.P. Please also ensure that footnote disclosure related to the shares beneficially owned by Mr. Rooney includes an explanation of the number of common shares Mr. Rooney would hold upon full conversion of his Series B and Series S Preferred Stock.

Item 13. Certain Relationships and Related Transactions . . . , page 32

6. We reissue prior comment 8 as it relates to your related party transactions with Imagin Molecular Corporation that resulted in the amounts due from Imagin Molecular Corporation mentioned in Note 5 on page 58.

Signatures, page 43

7. We note your response to prior comment 10 and your revised signatures on page 43 and reissue the comment. For example, we note that Patrick G. Rooney, Corey N. Conn, Joseph G. Oliverio, and Dr. Anthony C. Nicholls caused the report to be signed by the registrant, but they did not sign below the text in the second paragraph in their capacities as principal executive officer, principal financial officer, or directors.

Financial Statements, page 44

Notes to Consolidated Financial Statements, page 51

8. We note your response to prior comment 11 and that you indicate that there was no revenue, expenses, or identifiable assets associated with the radiopharmaceuticals segment. However, we note from your response that you have incurred research and development expenses towards the feasibility of manufacturing saleable radiopharmaceuticals. Please reconcile these statements.
9. Further to the above, we do not see where you have fully addressed the prior comment. As previously requested, please explain to us how your presentation of the radiopharmaceutical segment together with the PET imaging devices segment is appropriate under paragraph 280-10-50-12 of the FASB Accounting Standards Codification. In this regard, in light of the significance of the PET imaging devices segment, it appears that paragraph 280-10-50-12 of the FASB Accounting Standards Codification requires you to report information about this operating segment separately. Provide us with the quantitative analysis of each of the operating segments that supports your conclusion not to report either operating segment separately.

Form 10-Q for the Quarter Ended September 30, 2010

Note 4. Deposits – Attriis systems, page 9

10. We note your response to prior comment 16. Please confirm that you will revise future filings to disclose in greater detail the nature of your sales contracts for these products. Please also confirm that the revised disclosures will describe in more detail how you account for sales transactions similar to the one that you provided within your response including why you recognize revenue upon a gross basis for the sale of the Attriis product.
11. Further to the above, please address the following comments on why you believe that you can account for the sale of the Attriis product on a gross basis versus a net basis:
 - Explain to us in more detail why you have general inventory risk considering that the Neusoft Positron Medical Systems facility in China delivers the Attriis product directly to your customers in North America. Within your response, please address when you take title of the Attriis product. Refer to the guidance in Topic 605-45-45-5 of the FASB Accounting Standards Codification.
 - Explain to us in more detail if you have physical loss inventory risk. Refer to the guidance in Topic 605-45- 45-12 of the FASB Accounting Standards Codification.
 - Your response addresses the ability of your customers' ability to have supplier selection rather than your ability to have supplier discretion. Please explain to us if you have discretion in your supplier selection. Refer to the guidance in Topic 605-45-45-10 of the FASB Accounting Standards Codification.
 - Please explain to us if you would be obligated to pay the Neusoft joint venture for the purchase of the Attriis product even if you do not fully collect the sale's price of the Attriis product from your customer. Refer to guidance in Topic 605-45-45-13 through 45-14 of the FASB Accounting Standards Codification.

Item 2 – Management's Discussion and Analysis of Financial Condition and Results of Operations, page 14

-Results of Operations, page 16

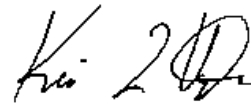
12. We note your response to prior comment 19. As previously requested, please explain to us in more detail how you accounted for the monies received or paid to the Neusoft joint venture for the modernization of your PET product and to meet the minimum specifications of the FDA. Please explain in more detail why you considered certain

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costs to be periodic costs rather than contributions to the joint venture. Cite the accounting literature relied upon and how you applied it to your situation.

You may contact Tara Harkins, Staff Accountant, at (202) 551-3639 or me at (202) 551-3643 if you have any questions regarding comments on the financial statements and related matters. Please contact Aslynn Hogue, Staff Attorney, at (202) 551- 3841, or Tim Buchmiller, Reviewing Attorney, at (202) 551- 3635 if you have questions on any other comments. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin L. Vaughn", with a stylized flourish at the end.

Kevin L. Vaughn
Accounting Branch Chief