



DIVISION OF
CORPORATION FINANCE

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

February 2, 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 1 to Form 10-K for the Year Ended December 31, 2009
Filed December 23, 2010
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 1 to Form 10-K For the Year Ended December 31, 2009

Item 1. Business, page 3

1. We note your response to prior comment 4. Please describe, or tell us why you did not describe, your relationship with Quantum Molecular Pharmaceuticals Inc., given your disclosure on page 42 of your Form 10-K that it is an affiliate. Please note this comment also applies to your disclosures in Note 1 to the consolidated financial statements.

Customer Service and Warranty, page 7

2. We note your revised disclosure in response to prior comment 6. Please revise future filings to describe your customer service and warranties.

Item 7. Management's Discussion and Analysis or Plan of Operations, page 15

-Critical Accounting Policies, page 19

-Inventory, page 20

3. We note your response to prior comment 27. With a view towards disclosure, please revise your future filings to include more detail related to how you evaluate your inventory for recoverability similar to the information provided within your response.

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

4. We note your disclosure on the cover page that disclosure of delinquent filers is not contained in the Form 10-K. We also note that no Forms 3 or 4 have been filed since January 4, 2006 and July 27, 2006, respectively. Please tell us how you have complied with Regulation S-K Item 405. Include in your response specific citations to any authority on which you rely.

Item 11. Executive Compensation, page 25

5. Please expand your response to prior comment 15 to include the exercise price or base price and the expiration date for the options listed on an award-by-award basis. Please note that multiple awards may be aggregated where the expiration date and the exercise price or base price of the instruments is identical. Refer to Regulation S-K Item 402(p)(2)(v)-(vi) and Instruction 4 to Item 402(p)(2).

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

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

6. We note your response to prior comment 18.

- We also note your disclosure in footnote (d) to your table that you are unaware who holds voting and dispositive power for IMAGIN Diagnostics Centres, Inc. Please tell us the steps you took to determine the identities of the natural persons with voting and dispositive power over these shares. We note your response to prior comment 4 that IMAGIN Diagnostic Centres, Inc. is an affiliated entity and that Patrick J. Rooney, father of your chief executive officer, is the principal officer of IMAGIN Diagnostics Centres, Inc. We also note your response to prior comment 25 that IMAGIN Diagnostics Centres, Inc. is controlled by Patrick J. Rooney, father of your chief executive officer.
- We note your disclosure of the conversion rates for your convertible preferred stock in footnote (b) to your table. We also note your disclosure in footnotes (c) and (d) of the shares included in the total number of shares beneficially owned by Solaris Opportunity Fund, L.P. and IMAGIN Diagnostics Centres, Inc. in your table. Please tell us whether footnotes (c) and (d) list all shares beneficially owned by these shareholders.
- Please file your Statement of Designation Establishing Series B Preferred Stock as an exhibit in your future filings.

Security Ownership of Directors . . . , page 31

7. We note your response to prior comment 19. Please revise future filings to include all shares beneficially owned by Patrick G. Rooney in your table of security ownership of directors and executive officers. For example, we note that your table continues to list Mr. Rooney as beneficial owner of only 5,075,000 shares of your common stock, even though Mr. Rooney, as your response to prior comment 19 indicates, “has the right to voting, investment and dispositive powers” over the 1,119,574,140 shares of your common stock held by Solaris Opportunity Fund, L.P making him the beneficial owner of those shares as well. If you desire, you may include footnote disclosure similar to that in your table of security ownership of certain beneficial owners to clarify the number of shares that Mr. Rooney may acquire pursuant to stock options and the number of shares held by Solaris Opportunity Fund, L.P. over which Mr. Rooney has voting and dispositive power.

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

8. We reissue prior comment 20 as it relates to your related party transactions with Imagin Molecular Corporation. We note that you did not describe in your response or your revised disclosure 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. Please also tell us why you did not disclose in this section your transaction to purchase a used machine from Imagin Molecular Corporation, mentioned in Note 16 on page 68. See Regulation S-K Item 404(d).

Exhibits

9. We note your response to prior comment 21. Please tell us why you did not file the following as exhibits:
- your partnership agreement with MedAxiom;
 - your Agent Agreement with Technology Imaging Services; and
 - your 2007 Omnibus Securities and Incentive Plan.

Signatures, page 32

10. We note that you did not provide the signatures required by General Instruction D to Form 10-K and reissue prior comment 23. For example, we note that Patrick G. Rooney and Corey N. Conn 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 and principal financial officer. We also note that that the report was not signed below the text of the second paragraph by at least the majority of your board of directors. Please ensure that your amended filing indicates each capacity in which the individual signs the report and fully complies with General Instruction D.

Financial Statements, page 44

Notes to Consolidated Financial Statements, page 51

11. We note your response to prior comment 24 and your disclosures on page 13 of your September 30, 2010 Form 10-Q. In light of the significance of the PET imaging devices segment, it is not clear why you do not believe you are required to report this segment separately. 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. Provide us with the quantitative analysis of each of the operating segments that supports your conclusion not to report either operating segment separately.

Note 1. Description and Summary of Significant Accounting Policies, page 51

-Affiliated Entities, page 52

12. Please explain to us how your disclosures in this filing complies with the requirements of paragraph 850-10-50-1(b)-(e) of the FASB Accounting Standards Codification.

-Revenue Recognition, page 53

13. We note your response to prior comment 28 and that your revenue recognition policies address how you recognize revenue related to arrangements with multiple elements after the adoption of Topic 605-25 of the FASB Accounting Standards Codification on July 1, 2010. Please tell us how you recognized revenue prior to the adoption of this standard.

Exhibit 31.1 and Exhibit 31.2

14. Please refer to prior comment 36. We note that your certifications filed pursuant to Exchange Act Rule 13a-14(a) are still not in the exact form prescribed by Item 601(b)(31) of Regulation S-K. For instance, we note you made modifications to paragraph 4(d). We note similar modifications within your September 30, 2010 and June 30, 2010 Forms 10-Q (including your amendment). As previously requested, please revise your certifications in future filings to conform to the exact wording required by Item 601(b)(31) of Regulation S-K.

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

Note 2. Accounting Policies, page 7

-Revenue Recognition, page 7

15. We note your response to prior comment 28 and your disclosures here related to accounting for revenue arrangements with multiple elements. We further note that you adopted 605-25 of the FASB Accounting Standards Codification on July 1, 2010. Please explain address the following comments:
- Explain to us how you considered the guidance in 605-25-25(5)(a)-(c) of the FASB Accounting Standards Codification.

- Please explain to us in more detail how you determine the estimated selling price (ESP) for each element of your multiple-element arrangements entered into on or after July 1, 2010. Discuss the specific facts and circumstances of the products being sold that you utilize for the determination of the ESP. Refer to the guidance in 605-25-30-6(c) and 605-25-50(2) of the FASB Accounting Standards Codification.

We may have further comment upon reviewing your response.

Note 4. Deposits – Attrius systems, page 9

16. We note your response to prior comment 33 and your disclosures included on pages 10, 12, 13, 14, and 15 of this filing. Please address the following comments:
- As previously requested, please revise future filings to disclose in greater detail the nature of your sales contracts for these products. Describe how you account for sales transactions. Provide us with a sample of your proposed disclosure.
 - Explain to us in more detail why you believe that you should recognize revenue for the sale of the Attrius products on a gross basis versus a net basis. Within your discussion, please address in detail how you meet each of the criteria outlined Topic 605-45-45-3 through 45-14 of the FASB Accounting Standards Codification in concluding that you should present revenue on a gross basis.

Note 11. Other Income, page 11

17. We note your disclosures here that you entered into settlement agreements for other liabilities with certain debtors and that you recognized a gain from the settlement of trade accounts payable and accrued compensation related to the closing of your Canadian operations based upon these settlement agreements. Please provide to us the details of your settlement arrangements with your debtors and why you were able to recognize de-recognize these liabilities related to the closing of your Canadian operations. Refer to guidance in 405-20-40 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

18. Please revise future filings to describe any unusual or infrequent events or transactions, significant economic changes, or any known trends or uncertainties that materially affected or are reasonably likely to materially affect income from continuing operations and any significant components of revenues or expenses, such as your cost of revenues. Please also clarify the reason for any significant changes. For example, please explain the extent to which sales increases are attributable to increases in prices or to increases in

the volume or amount of goods or services being sold or to the introduction of new products or services. Refer to Regulation S-K Item 303.

19. We note your response to prior comment 35. Please explain to us in more detail the nature of your agreement with the Neusoft joint venture related to the development of the Attrius product. Discuss why you have “split costs” between you and the Neusoft joint venture and why you do not consider these costs as “contributions” to the joint venture. We may have further comment upon your response.

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,

Kevin L. Vaughn
Accounting Branch Chief