



DIVISION OF
CORPORATION FINANCE

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

August 22, 2011

Via Email

Mr. Patrick G. Rooney
Chief Executive Officer
Positron Corporation
7715 Loma Ct., Suite A
Fishers, IN 46038

**Re: Positron Corporation
 Form 10-K for the Year Ended December 31, 2010
 Filed March 31, 2011
 Form 10-Q for the Quarter Ended June 30, 2011
 Filed August 15, 2011
 File No. 000-24092**

Dear Mr. Rooney:

We have reviewed your response filed August 10, 2011 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.

Form 10-K for the fiscal year ended December 31, 2010

Non-Employee Director Compensation, page 29

1. We note your revised disclosure added in response to prior comment 6. Please tell us why you listed Imagin Diagnostic Centres, Inc. as a non-employee director. Please also tell us why your disclosure only includes the options granted to Sachio Okamura and Dr. Anthony C. Nicholls that are currently outstanding, given your disclosure in the introductory paragraph indicating that you are describing separate compensation to these

directors “[b]eginning January 22, 1999 through current date.” We note your disclosure on page 26 of your Form 10-K for the fiscal year ended December 31, 2009 that Mr. Okamura had options to purchase 575,000 shares and Dr. Nicholls had options to purchase 550,000 shares. Please also tell us where you have disclosed the aggregate grant date fair value of the options awards, as required by Regulation S-K Item 402(r)(2)(iv).

Item 12. Security Ownership of Directors, Officers . . . , page 29

Security Ownership of Certain Beneficial Owners (a), page 29

2. We note your revised disclosure added in response to prior comment 7. Please tell us how your disclosure in footnote (d) is consistent with your disclosure in the table that IMAGIN Diagnostic Centres, Inc. beneficially owns 366,900,200 shares of your common stock. It would appear from your disclosure in footnote (d) that IMAGIN beneficially owns 335,500,200 shares (750,000 shares directly and 334,750,200 upon conversion of Series B Preferred Stock). Please also tell us why you revised footnote (c) to include the address of IMAGIN Diagnostic Centres, Inc. for Solaris Opportunity Fund, L.P. and to remove your disclosure that Patrick G. Rooney holds voting and dispositive power over the securities held by Solaris Opportunity Fund, L.P.
3. We note from your disclosure and your response to prior comment 2 that Patrick Rooney has an option to purchase 700,000 shares of Series B Preferred Stock which is convertible into 70 million shares of common stock and that Joseph Oliverio and Corey Conn each has an option to purchase 550,000 shares of Series B Preferred Stock which is convertible into 55 million shares of common stock. We also note from footnote (b) to your security ownership table that, on a fully converted basis, you had approximately 782 million shares of common stock outstanding as of December 31, 2010. Please tell us why Mr. Rooney, Mr. Oliverio, and Mr. Conn are not included in the table as holders of more than 5% of your common stock. Please refer to Regulation S-K Item 403(a).

Security Ownership of Directors . . . , page 30

4. We note your revised disclosure added in response to prior comment 8:
 - Please tell us why you have included Solaris Opportunity Fund, L.P. and Imagin Diagnostic Centres, Inc. in your table of directors and executive officers. Please also tell us how your disclosure of the number of common shares owned directly by Solaris Opportunity Fund, the number of shares of Series B Preferred Stock owned by Solaris Opportunity Fund, and the number of common shares beneficially owned and the percentage of class so owned by Solaris Opportunity Fund and Imagin Diagnostic Centres in this table is consistent with your disclosure in the table on page 29 or revise your table as appropriate;

- We note your disclosure in footnote (b) that your “[c]alculation . . . “assumes none of the 2,500,000 Series B stock options are exercised.” Please tell us how this is consistent with Regulation S-K Item 403 or revise your table as appropriate;
- Please tell us how your disclosure of shares beneficially owned by Patrick G. Rooney and all directors and executive officers as a group is consistent with Regulation S-K Item 403(b). We note that your disclosure in the table of the number of shares beneficially owned and the percentage of the class so owned by Mr. Rooney and all directors and executive officers as a group continues to exclude a significant number of shares; and
- Please tell us how your disclosure in the table is consistent with your disclosure in footnotes (e) through (j). For example, we note that your disclosure in the table indicates that Joseph G. Oliverio beneficially owns 550,000 shares of common stock, but your disclosure in footnote (e) provides that Mr. Oliverio has 550,000 Series B shares that may be acquired pursuant to stock options, and your disclosure in footnote (b) on page 29 provides that each share of Series B converts into 100 shares of common stock.

Section 16(a) Beneficial Ownership Reporting Compliance, page 31

5. We note your disclosure added in response to prior comment 1. Please provide to us, and revise future filings to include, all information required by Regulation S-K Item 405, including the information required by Item 405(a)(2) which the current disclosure does not appear to include. Please also tell us how you have complied with Item 405 with regard to your shares beneficially owned by IMAGIN Diagnostic Centres, Inc. or Patrick J. Rooney. We note that IMAGIN Diagnostic Centres, Inc. or Patrick J. Rooney beneficially owns 13.0% of your common stock per the beneficial ownership table on page 29 and was not listed in your revised disclosure or response to prior comment 1. This comment also applies to your Form 10-K for the fiscal year ended December 31, 2009.

Please also advise us when the Section 16 filings will be made.

Form 10-Q as of June 30, 2011

Note 4. Deposits-Attrius® Systems, page 8

6. We note your response to prior comment 12. With regards to your assertion that you have general inventory risk, please clarify for us your statement here that all machines are sold FOB shipping point. Clarify for us when title passes to your customer.
7. Further to the above, we note your disclosure in Note 12 of this Form 10-Q that you have a \$250,000 receivable from Neusoft for certain excess freight charges. Please explain this receivable to us in greater detail, including how the receivable from Neusoft to you

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came about. To the extent that Neusoft paid the carrier on your behalf for shipments from NPMS to the end customer, explain to us how that impacted your analysis of whether to recognize the revenue gross or net.

8. We also note your disclosure in Note 12 that you owe Neusoft \$218,000 for the purchase of an Attrius PET system. Please provide us with additional information regarding this payable, including a discussion of why the amount had not been paid as of the end of the quarter.

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,

/s/ Kevin L. Vaughn

Kevin L. Vaughn
Accounting Branch Chief