



DIVISION OF  
CORPORATION FINANCE  
MAIL STOP 3561

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549-3561

February 25, 2009

*By U.S. mail and facsimile*

Mr. Corey Conn  
Chief Financial Officer  
Imagin Molecular Corporation  
104 West Chestnut Street  
Suite 315  
Hinsdale, Illinois 60521

**Re:   Imagin Molecular Corporation  
      Form 10-KSB/A for Fiscal Year Ended December 31, 2007  
      Filed November 10, 2008  
      Response Letter Dated February 2, 2009  
      File No. 000-23873**

Dear Mr. Conn:

We have reviewed your filings and response letter and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-KSB/A for the Fiscal Year Ended December 31, 2007

Management's Report on Internal Control over Financial Reporting, page 15

1. We note your response to comment 2 of our letter dated December 1, 2008. Please amend your Form 10-KSB to provide the disclosures that you set forth in your response.

Notes to Consolidated Financial Statements, page 30

Note 5. Due from Related Party, page 34

2. We note from your response to comment 4 of our letter dated December 1, 2008, that you exchanged the notes receivables from Positron for the return of outstanding shares of common stock and preferred stock issued to Solaris in a November 18, 2008 transaction. Please explain to us in detail how you accounted for the exchange. If you recorded a loss on exchange, tell us why you believe the loss should not have been recorded in an earlier period in light of Positron's history of negative operating cash flows and operating losses.

Note 6. Imagin Diagnostic Centres Inc. Convertible Notes Receivable and Restatement, page 34

3. We note your response to comment 5 of our letter dated December 1, 2008. In light of the history of negative operating cash flows and operating losses, you should determine whether your investment in the common stock and preferred stock of Positron is recoverable, pursuant to paragraphs 6(b) and 19(h) of APB 18. Tell us the fair value of your investment in Positron and how you determined it to support your conclusion that the investment has not experienced an other-than-temporary impairment.

As appropriate, please amend your filing and respond to these comments within 10 business days or tell us when you will provide us with a response. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

Mr. Corey Conn  
Imagin Molecular Corporation  
February 25, 2009  
Page 3

You may contact Steve Lo at 202-551-3394 or Ryan Milne at 202-551-3688 if you have questions regarding these comments and related matters. Please contact me at 202-551-3871 with any other questions.

Sincerely,

Tia Jenkins  
Senior Assistant Chief  
Accountant  
Office of Beverages, Apparel  
and Health Care Services

Cc: Mr. Peter Campitiello, Esq.  
Via fax number 212-216-8001