

**MAIL STOP 3561**

June 17, 2008

Mr. Joseph G. Oliverio, Chief Executive Officer  
Imagin Molecular Corporation  
104 West Chestnut Street  
Hinsdale, IL 60521

**Re:   Imagin Molecular Corporation  
      Form 10-KSB for  
      Fiscal Year Ended December 31, 2007  
      Filed April 14, 2008  
      File No. 000-23873**

Dear Mr. Oliverio:

We have reviewed your filings 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.

Management's Report on Internal Control Over Financial Reporting, page 16

1. Please provide a statement identifying the framework used by management to evaluate the effectiveness of your internal control over financial reporting. Refer to Item 308(a)(2) of Regulation S-B for additional guidance.

Consolidated Balance Sheets, page 25

2. We note your disclosure on page 36 regarding the convertibility of your Series A Preferred Stock into Common Stock. It appears that the number of authorized shares of common stock is insufficient to settle the conversion of the Series A Preferred Shares. Paragraph 19 of EITF 00-19 states that if settlement of contract could require a company to obtain shareholder approval to increase the number of authorized shares, settlement is not within the control of the company. In such an instance, liability classification of the convertible instrument is required. Please tell us why you believe that the settlement of the conversion of these shares is within the control of the Company, or revise your statements as appropriate. In addition, expand your footnote 10 to describe when the Preferred Stock is convertible.

Consolidated Statement of Cash Flows, page 28

3. We note that you have included the advance to Positron Corporation as a financing activity on your Consolidated Statement of Cash Flows. Based on the guidance in paragraph 17a of SFAS 95, it appears that this amount should be classified as an investing activity. Please tell us why you believe the classification of this amount as a financing activity is appropriate, or revise your statement as necessary.

Note 1. Business Organization, page 30

4. We note on page 34 that you value your investment in Positron at the previous carrying value of the note receivable and accrued interest at the date of conversion. Please tell us how you considered the guidance within paragraph 17 of APB 18. In this regard, tell us whether you have the ability to exercise significant influence over Positron and the basis for your conclusion. Address in your response the level of your ownership of Positron's common and preferred stock and the similarities between your and Positron's management and directors.
5. Please clarify for us your relationship with Imagin Diagnostic Centers (IDC).

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.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Joshua Thomas, Staff Accountant, at (202) 551-3832 or Ryan Milne, Branch Chief, at (202) 551-3688 if you have questions regarding comments on the financial statements and related matters. Please contact me with any other questions.

Sincerely,

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