

July 25, 2007

Mail Stop 6010

Glenn P. Muir
Executive Vice President
Finance and Administration
35 Crosby Drive
Bedford, Massachusetts 01730

**Re: Hologic, Inc.
Registration Statement on Form S-4
Filed June 29, 2007
File No. 333-144238**

Dear Mr. Muir:

We have limited our review of your filing to those issues we have addressed in our 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.

General

1. Please update the financial statements to comply with Rule 3-12 of Regulation S-X. Note we may have additional comments after reviewing your updated pro forma financial statements.
2. Please include currently dated and signed consents from your independent auditors with any amendment filed.

Accounting Treatment, page 104

3. Please tell us about your analysis that Hologic is the accounting acquirer of Cytyc. In your response please refer to each of the items outlined in paragraph 17 of SFAS 141.

Unaudited Pro Forma Condensed Combined Financial Information, page 174

Notes to Unaudited Pro Forma Condensed Combined Financial Statements, page 180

Note 2. Purchase Price, page 181

4. We note that you have determined the estimated fair value of outstanding Cytyc stock options to be exchanged for Hologic stock options to be \$320,100. Please tell us how you determined the fair value of the stock options, including any assumptions used in making your determination. Please revise this note and adjustment (G) based on our comment.
5. We also noted that you assumed conversion of Cytyc's outstanding \$250,000 2.25% Senior Convertible Notes due 2024. Please tell us and disclose why you assumed conversion of the convertible notes.
6. We note that the excess of the purchase price over the net assets acquired in the acquisition will result in goodwill of approximately \$3.8 billion, or approximately 62% of the purchase price. Please tell us and revise your discussion to include a discussion of the factors that contributed to a purchase price that resulted in recognition of a significant amount of goodwill. Refer to paragraph 51(b) of SFAS 141.
7. We noted your estimate that approximately \$283 million of the purchase price represents purchased in-process technology. Please revise the filing to describe the nature and timing of the remaining efforts and related cash requirements necessary to develop the incomplete technology into a commercially viable product. Describe the potential effects on results of operations and financial position if the technology is not successful and timely completed. Describe the current status of the project(s).

Note 3. Pro Forma Adjustments, page 181

8. Reference is made to adjustment (D). We note that you have allocated \$2.8 billion of the purchase price to intangible assets that you have disclosed only as existing technology and marketing based intangibles. In this regard, tell us and revise to disclose the following about these intangible assets:

- the nature of the intangible assets you have acquired;
- how you determined the estimated value assigned;
- your basis for assigning an average life of fifteen years to the intangible assets.
- your calculation of amortization of \$81,073 and \$30,947 included in the Unaudited Pro Forma Condensed Combined Statement of Operations for the year ended September 30, 2006

Please be sufficiently detailed in your response. We may have further comments after receipt of your response.

9. Reference is made to adjustment (C) and (E) and (I). Tell us and revise your notes herein to provide further information regarding your calculation to record income taxes on a combined basis. In your discussion, please also tell us how you determined, and your basis for, the pro forma combined effective tax rate.
10. Reference is made to adjustment (H). Tell us and revise your notes to the pro forma combined condensed statement of operations to disclose how you determined the fair value of Cytoc's non-vested stock options and the significant assumptions you used to estimate the fair value of the options.
11. Reference is made to adjustment (A). Tell us and revise your disclosure to provide your calculations of the increase in interest expense and estimated decrease in interest income.
12. Reference is made to adjustment (J). Revise to disclose within the notes to the pro forma combined statement of income how the pro forma weighted average shares, basic and diluted, was calculated on pages 81 and 82.

Forms 8-K dated January 31, 2007 and May 1, 2007

13. We see that you have incorporated these Form 8-K's by reference into your Form S-4 filed on June 29, 2007. Both Regulation G and Item 10(e) of Regulation S-K, therefore, applies to your non-GAAP disclosures in this Form 8-K. See General Instruction B.2 of Form 8-K. Please tell us how your Form 8-K's comply with such regulations. Revise or advise.

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As appropriate, please amend your registration statement in response to these comments. 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 Act of 1933 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness 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 connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact at Julie Sherman at (202) 551-3640 or Kaitlin Tillan, Assistant Chief Accountant, at (202) 551-3676 if you have questions regarding comments on the

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financial statements and related matters. Please contact Geoffrey Kruczek at (202) 551-3641 with any other questions.

Sincerely,

Peggy Fisher
Assistant Director

cc (via fax): Philip J. Flink, Esq.
Samuel P. Williams, Esq.
Matthew S. Gilman, Esq.