



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 6010

August 28, 2007

VIA U.S. MAIL and FACSIMILE

Andrew S. Maslan
Cytomedix, Inc.
Chief Financial Officer
416 Hungerford Drive, Suite 330
Rockville, MD 20850

**RE: Cytomedix, Inc.
Form 10-K for the fiscal year ended December 31, 2006
Filed February 26, 2007
File No. 001-32518**

Dear Mr. Maslan:

We have reviewed your response dated August 17, 2007 and related 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.

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Form 10-K for the year ended December 31, 2006

Financial Statements

Statement of Operations, page 26

1. We reference prior comment three in our letter dated August 8, 2007. We continue to believe that since patent infringement appears to relate to your operations, you should record the settlement within operating income (loss). For classification guidance refer, by analogy, to the presentation guidance from Interpretive Question 2 to the presentation and disclosure guidance from SAB Topic 5-P. Please note that, in general, charges and credits related to operating activities, such as patent infringement matters, should themselves be reported in operating earnings or loss.

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter with your response 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 responses to our comments.

You may contact Kristin Lochhead at (202) 551-3664 or me at (202) 551-3676 if you have questions. In this regard, please do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671 with any other questions.

Sincerely,

Brian Cascio
Accounting Branch Chief