Mail Stop 6010 September 28, 2006

Mr. James Pelot
Chief Operating Officer and Chief Financial Officer
Tm Bioscience Corporation
439 University Avenue
Suite 2000
Toronto, Ontario
CANADA, M5G 1Y8

Re: Tm Bioscience Corporation
Amendment No. 1 to Registration Statement on Form 20-FR12G
Filed September 14, 2006
File No. 0-52039

Dear Mr. Pelot:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your documents 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 supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not 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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. We note your response to our prior comment 2 and reissue that comment in part. Based on the supporting documents provided, we were unable to determine your basis for the following statements. The supporting documentation should be marked to indicate the text supporting the statements.

    - The current global market for molecular diagnostic testing is estimated to be US$2.0 billion.

- Molecular diagnostic testing, with a compound annual growth rate estimated at 15%, is predicted to remain one of the most significant growth areas in the enormous global in vitro diagnostics industry, currently estimated at US$26 billion.

2. Please revise your disclosure to identify the source or your basis for the following statements and provide us with third party support for these statements. The supporting documentation should be marked to indicate the text supporting the statements.

    - In the U.S., the Company estimates this market at 1.3 million tests annually and expects it to peak at approximately 2.5 million tests in the next five years, a growth rate of 15% per annum. The Company now estimates that on an annualized basis, it has secured approximately 30% - 35% market share of the U.S. CF testing market. (page 23)

    - Given the large market potential of this test as well as its potential importance in the selection of drugs and therapies that impact patient morbidity and mortality, the Company expects this test to achieve notable market penetration across North America and Europe, anticipating revenue that could be in excess of $100 million in the aggregate over the first three years following commercial launch. (page 24)

    - The market for such a test is very significant; more than 30 million prescriptions are written for Warfarin each year in the U.S. (page 24)

D. Risk Factors, pages 7-14

The Company relies on third party suppliers for key components and raw materials . . . ., page 8

3. We note your response to our prior comment 13 and reissue that comment in part. Please disclose the approximate number of potential alternate suppliers for the materials other than those supplied by Luminex.

The Company derives a substantial amount of revenues from only a few of its customers….., page 13

4. Please provide the percentage of revenues attributable to Genzyme, Specialty Laboratories and Mayo separately.

The Company derives a substantial amount of its revenues from only a few of its products. Page 13

5. Please revise this risk factor to disclose the percentage of your revenues that come from the sale of cystic fibrosis products and disclose any other key products.

A. History and Development of the Company, pages 14-17

6. We note your response to our prior comment 33 and reissue that comment in part. Since you have determined that you agreement with Genzyme is a material contract, you are required to file the agreement as an exhibit to the Form 20-F. In addition, please also expand your disclosure of the Genzyme agreement to disclose the aggregate milestone payments paid to date, other material fees paid to date and whether the obligations under the agreement are exclusive. For your agreement with Luminex, please expand your disclosure to disclose any minimum annual royalty payments that are material. For the following agreements, please supplementally provide us your analysis as to why they are not material contracts.

    - Purchase agreements with Mayo Clinic and Specialty Laboratories;
    - Distribution agreements (Gamidor Diagnostics Ltd., products in Israel and ID-Tag™ RVP in Turkey)
    - Collaborations with Calgary Laboratory Services of the University of Calgary and Dr. Jim Mahony of McMaster University
    - OEM supply agreements with Maxxam Analytics and InterGenetics Incorporated

7. We note your response to our prior comment 34 and reissue that comment in part. Since your license agreements with Abbott and Sirius are material contracts, please include these agreements as exhibits to the Form 20-F. In addition, please supplementally provide us your analysis as to why your agreement with EPIDAUROS is not a material contract.

Item 5. Operating and Financial Review and Prospects, pages 26-37

Liquidity and Capital Resources, pages 33-35

8. We note your response to our prior comment 47 and reissue that comment. You state that in order for the company to "pursue its expanded regulatory drive, submit products for FDA certification in 2006, as well as open new markets for its RVP and sepsis tests, all the while continuing to serve its growing customer base, the Company foresees a need for additional growth capital." Will the company need this capital in the short-term or long-term? To the extent practicable, please quantity the amount of capital the company expects it will need to pursue its growth plan as described.

Item 6. Directors, Senior Management and Employees, pages 38-50

Employment Agreements, page 43

9. Please provide the base salary and bonus provisions for each of the Named Executive Officers.

E. Share Ownership, page 47

10. We note your response to our prior comment 50 and reissue that comment in part. Please revise the footnotes in the table on page 47 to disclose the number of shares each individual has the right to acquire within 60 days.

Item 10. Additional Information, pages 54-62

A. Share Capital, page 54

11. We note your response to our prior comment 60 and reissue that comment in part. Please disclose in this section the total shares of your common stock that are issuable pursuant to the company's outstanding warrants, options and convertible debt.

Notes to Consolidated Financial Statement for the Interim Period Ended June 30, 2006

Note 5. License Fee Advances, page F-38

12. We acknowledge your response to our prior comment 64 that you anticipate filing an additional response letter that will address how the Company intends to account for the co-development/co-promotional agreement with Sirius Genomics under U.S. GAAP. We will evaluate the information provided to our prior comment 64 upon receipt of this additional response letter.

Note 7. Long-term Debt, page 105

13. Please revise your disclosures to quantify the amounts within other assets and contributed surplus that would be reversed if the Company is only able to submit claims up until June 30, 2006. If this information is not known include those amounts through March 31, 2006 and disclose why the June 30, 2006 information is unavailable.

As appropriate, please amend your filing 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 supplemental information. Detailed cover letters greatly facilitate our review. Please provide your cover letter on EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

You may contact Christine Allen at (202) 551-3652 or Kevin Woody at (202) 551-3629 if you have questions regarding comments on the financial statements and related matters. Please contact Sonia Barros at (202) 551-3655 or me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: Curtis A. Cusinato, Esq.
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