



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-7010

September 13, 2006

James J. Barber
Chief Executive Officer
Metabolix, Inc.
21 Erie Street
Cambridge, MA 02139

**Re: Metabolix, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed August 31, 2006
File No. 333-135760**

Dear Mr. Barber:

We have reviewed your filing 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.

Metabolix, Inc., page 1

1. We note your response to comment 9 of our letter dated August 10, 2006. Please revise your third paragraph on page 1 to disclose the second sentence of your response.
2. We reissue comment 12 of our letter dated August 10, 2006. Disclose in the first paragraph of this section that since 1992 you have been engaged solely in research and developmental activities and that you currently do not produce commercial products. Your current disclosure that you are a leading biotechnology company gives the impression that you have operations for commercial products.

3. We note your response to comment 14 of our letter dated August 10, 2006. Please highlight the information in the supplemental materials that form the basis for your assertion that you are a leading biotechnology company that develops and plans to commercialize alternatives to petrochemical based plastics.

Risks Associated with Our Business, page 3

4. We note your response to comment 15 of our letter dated August 10, 2006. Add disclosure that for each of your major research and development projects you are unable to estimate:
 - The costs incurred to date for the project;
 - The anticipated completion dates; and
 - The period in which material net cash inflows from significant projects are expected to commence.
5. In addition, please also quantify and state the net losses you have incurred.
6. We note your new bullet six on page 3 under this subheading. Please revise to explain the risks associated with the termination provisions in your agreements with ADM and ADM's subsidiary and the anticipated termination provisions in your agreements with future collaborative partners. We note your disclosure in the risk factor on page 11 concerning termination "for no reason and on limited notice." In addition, please clarify in your risk factor on page 11 and elsewhere in your document as necessary the time period associated with this "limited notice."
7. Disclose that management will have broad discretion over the use of proceeds.

Special Note Regarding Forward-Looking Statements, page 26

8. We note your response to comment 22 of our letter dated August 10, 2006. Please delete the language on page 101 that the information is inherently imprecise.

Use of Proceeds, page 27

9. We note your response to comment 23 of our letter dated August 16, 2006. We reissue this comment. Please quantify and state the amount of net proceeds you anticipate using for each of the purposes listed.

Business, page 48

10. We note your response to comment 30 of our letter dated August 10, 2006. Please disclose in greater detail the significant terms and characteristics of the ADM agreements and the MIT license agreement, including the various elements of products and services to be delivered by each party, the contract period, payment

terms and amounts, obligations of the parties, events and circumstances that trigger milestone payments, and termination provisions.

Financial Statements

Consolidated Statements of Cash Flows, page F-6

11. You disclosed an increase in Other Assets of \$842,947 in your statements of cash flows. Please tell us the material assets and the amounts of the material assets that comprise Other Assets. Please also tell us why you have classified the increase within cash flows from operating activities. Please refer to SFAS 95.

Note 11 – Stock Compensation Plans, page F-33

12. We have reviewed your response to comment 46 of our letter dated August 16, 2006. Please provide us with the December 2005 and June and July 2006 valuation reports, including all significant assumptions, as well as the option-pricing analysis supporting the allocation of enterprise value between classes of equity.
13. Please tell us the value attributed to each option issuance during 2006 and indicate the basis for all significant assumptions, including:
 - The assumed volatility used to determine the fair value of each stock option issuance,
 - The listing of comparable public companies used to estimate the volatility of your stock options, their assumed volatility, the term over which you computed the volatility of these comparable companies and why you believe these companies are comparable,
 - The assumed expected term, the vesting term and the contractual term of each stock options issuance,
 - The assumed discount due to lack of marketability, if any, of each stock option issuance,
 - Objective and reliable documentation to support any discount for lack of marketability, and
 - A comprehensive explanation of the justification for any changes in the assumed volatility, expected term and marketability discounts, if any, at each relevant date.

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.

James J. Barber
Metabolix, Inc.
September 13, 2006
Page 5

Please direct questions regarding accounting comments to Gus Rodriguez at (202) 551-3752, or in his absence, to Scott Watkinson at (202) 551-3741. Please contact Brigitte Lippmann at (202) 551-3713 or in her absence, Lesli Sheppard at (202) 551-3708 with any other questions.

Sincerely,

Pamela A. Long
Assistant Director

cc: Robert E. Puopolo, Esq.
Goodwin Procter LLP
Exchange Place
Boston, MA 02109