

April 28, 2011

**VIA EDGAR AND OVERNIGHT DELIVERY**

United States Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, D.C. 20549-7010  
Attention: Sherry Haywood

**Re: Metabolix, Inc.  
Registration Statement on Form S-3  
Filed March 10, 2011  
File No. 333-172725**

Dear Ms. Haywood:

This letter is being furnished on behalf of Metabolix, Inc. (the "Company") in response to comments of the staff (the "Staff") of the Securities and Exchange Commission (the "Commission") as set forth in your letter dated April 1, 2011 (the "Letter") to Richard P. Eno, President and Chief Executive Officer of the Company, with respect to the Company's Registration Statement on Form S-3 (File No. 333-172725) (the "Registration Statement") that was filed with the Commission on March 10, 2011. Amendment No. 1 to the Registration Statement ("Amendment No. 1") was filed with the Commission on April 28, 2011.

The responses and supplementary information set forth below have been organized in the same manner in which the Commission's comments were organized.

**Form S-3**

**General**

1. *Please be advised that you must either file your definitive proxy statement or amend your Form 10-K for the fiscal year ended December 31, 2010 to include Part III information and clear any outstanding Staff comments on your Form 10-K and proxy statement before you may request to accelerate the effectiveness of your registration statement. See Question 123.01 of the Securities Act Forms Compliance and Disclosure Interpretations which is available on our website and may be found at <http://www.sec.gov/divisions/corpfin/guidance/safinterp.htm>.*

**RESPONSE:**

The Company notes that on April 14, 2011 it filed with the Commission its definitive proxy statement for the annual meeting of stockholders to be held in

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2011, which definitive proxy statement includes the information required by Part III of Form 10-K.

**Calculation of Registration Fee table**

2. *We note that your preferred stock purchase rights are described on page 10. Please revise the registration statement, including the Calculation of Registration Fee table and the prospectus cover page to include the preferred stock purchase rights. Please refer to Question 116.16 of the Securities Act Forms Compliance and Disclosure Interpretations, which is available on our website and may be found at <http://www.sec.gov/divisions/corpfin/guidance/safinterp.htm>.*

**RESPONSE:**

The Company advises the Staff that the Registration Statement has been revised in response to the Staff's comment. Please see the revised disclosure contained in the Calculation of Registration Fee table included in Amendment No. 1 and page 8 of Amendment No. 1.

**Signatures, page 20**

3. *Please revise to also include the signature of the principal accounting officer.*

**RESPONSE:**

The Company advises the Staff that the signature page to the Registration Statement has been revised in response to the Staff's comment. Please see the signature page to Amendment No. 1.

**Legal Opinion. Exhibit 5.1**

4. *Please have counsel revise its opinion to opine on the preferred stock purchase rights.*

**RESPONSE:**

The Company respectfully acknowledges the Staff's comment. The legal opinion has been revised in response to the Staff's comment. Please see the revised Exhibit 5.1 included in Amendment No. 1.

5. *Please remove the requirement that the opinion be interpreted by the Legal Opinion Principles issued by the Committee on Legal Opinions of the American Bar Association's Business Law Section.*

The Company respectfully acknowledges the Staff's comment. The legal opinion has been revised in response to the Staff's comment. Please see the revised Exhibit 5.1 included in Amendment No. 1.

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6. *Please confirm to us that when a takedown occurs, you will file an amended opinion and it will not include assumptions about the total number of authorized shares or the Future Authorization and Issuance of securities. Please note that an unqualified legality opinion is required with every takedown of securities registered under this registration statement. You may file the clean opinions pursuant to Rule 462(d) of the Securities Act of 1933 or on Form 8-K.*

RESPONSE:

The Company respectfully acknowledges the Staff's comment. In addition, the Company hereby confirms that when a takedown occurs, the Company will file an amended opinion and it will not include assumptions about the total number of authorized shares or the "Future Authorization and Issuance" of securities.

\* \* \* \*

If you have any questions with regard to the Company's responses, need further supplemental information or would like to discuss any of the matters covered in this letter, please contact the undersigned at (617) 583-1700.

Sincerely,

/s/ Richard P. Eno

Richard P. Eno

President and Chief Executive Officer

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