

May 5, 2008

Mail Stop 6010

Amit Kumar, Ph.D.
President and Chief Executive Officer
6500 Harbor Heights Pkwy, Suite 303
Mukilteo, WA 98275

Re: Combimatrix Corporation
Post-effective amendment to Form S-1 on Form S-3
Response letter dated April 28, 2008
File No. 333-139679

Dear Dr. Kumar:

We have reviewed your response letter and have the following comments. Where indicated, we think you should revise your filing 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.

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.

1. Regarding the numeric list in the "Background" section of your response letter:
 - In the paragraph numbered (ii), you refer to a registration statement that was withdrawn. Please tell us how you conducted an offering using that registration statement.
 - In the paragraph numbered (iii), you indicate that you conducted an offering in December 2005 using a registration statement that was not filed until April 2006. Please clarify how the offering was consistent with Section 5 of the Securities Act.

Explanatory Note

2. We note your response to prior comment 2. The comment letters noted in your response sought to ensure that you included a sufficient number of shares that you may be required to issue in connection with the transaction that was the subject of

the registration statement: the issuance of your common stock in the split off. The registration statement needed to include sufficient shares to issue in the split off in the event that warrants were exercised before the split off causing additional outstanding common to be redeemed in the split off; the registration statement does not appear to cover the warrant exercise itself. Further, the registration statement appears to acknowledge on page 26 that the exercise of warrants is not the transaction that is registered on the registration statement by disclosing that shares underlying warrants must be the subject of a resale registration statement. Therefore, we reissue the comment.

Prospectus Cover

3. We note your response to prior comment 3 and we reissue that comment. Please provide us with the analysis requested by that comment. Also, it appears from the last paragraph of your "Background" section that you have previously offered and sold to warrant holders pursuant to your Form S-1 the shares underlying warrants. Therefore, also include in your response an analysis of how such offers and sales were consistent with Securities Act Section 5.

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As appropriate, please amend your filing in response to these comments. You may wish to provide us with marked copies of the amendments to expedite our review. Please furnish a cover letter with your amendments 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 amendments 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.

Before the amended registration statement is declared effective pursuant to Section 8 of the Securities Act, the company should provide us with a letter, 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;

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- 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.

You may contact Geoffrey Kruczek at (202) 551-3641 or me at (202) 551-3800 with any questions.

Sincerely,

Russell Mancuso
Branch Chief

cc (via fax): Mark A. von Bergen—Holland & Knight LLP
David C. Wong—Holland & Knight LLP