

May 23, 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 May 12, 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. We note your response to prior comment 2. Please provide us with an enhanced analysis of the materiality of any potential Section 12(a)(1) liability for unregistered offers to public warrant holders who exercise their warrants, regardless of whether offers of the underlying securities are subsequently registered or whether sales of such securities were subsequently exempt from registration. Although we are unable to agree with your analysis of section 3(a)(9), it is not relevant to this comment because subsequent registration or exemption from registration of offers and sales does not eliminate liability for previous unregistered offers.
2. We note the paragraph in your response under the heading "Warrants not yet exercised" in which you discuss a "well-established practice" that "only shares issuable upon exercise of in-the-money warrants need be registered." The telephone interpretation noted in your response is limited only to an issuer's obligation to keep current a registration statement that relates to the warrant

exercise; it does not apply to the registration of the offer and sale of the securities underlying the warrants. Please revise your analysis accordingly.

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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;
- 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.

Amit Kumar, Ph.D.  
Combimatrix Corporation  
May 23, 2008  
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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