

Mail Stop 6010

April 27, 2007

Amit Kumar, Ph.D.  
President and Chief Executive Officer  
CombiMatrix Corporation  
6500 Harbour Heights Parkway  
Suite 301  
Mukilteo, WA 98275

**Re: CombiMatrix Corporation  
Amendment No. 2 to Registration Statement on Form S-1  
Filed April 10, 2007  
File No. 333-139679**

Dear Dr. Kumar:

We have limited our review of your filing to those issues we have addressed in our 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.

Fee Table

1. We note your response to prior comment 1; however, you should consider whether you have registered sufficient securities throughout your offering, not just "prior to the effective date of the registration statement."

Prospectus Summary

2. We note your response to prior comment 3; however, when an amendment to articles of incorporation is filed, a complete copy of the articles as amended should be filed. See Regulation S-K Item 601(b)(3).

Diagram of Split Off, page 3

3. We note your response to comment 6, however, the diagram included in the amendment that you have filed on EDGAR does not appear to contain the revisions indicated in your response. Please revise the diagram included in the amendment that you file on EDGAR to be consistent with your response.

Summary Historical Financial Data, page 4; and  
Note 14. Pro Forma Information (unaudited), page F-27

4. Please revise to disclose that there are no redemption features of the underlying CombiMatrix Corporation common stock and to clarify why the warrants will continue to be classified as a liability after the split off, similar to your response to prior comment 27 in our letter dated March 23, 2007.

As a result of the redemption of AR-CombiMatrix stock..., page 5

5. Please reconcile the parenthetical statement in this paragraph that the tax liability would be "very substantial" with the subsequent statement that the "tax would be zero."

Combimatrix and you would have Federal income tax liabilities, page 7

6. Please clarify why you disclose here and elsewhere that there is a material risk related to the factual representations being incomplete or untrue or materially different at the time of the split off. What facts were not provided to the IRS? What facts risk being untrue? What changes are you anticipating at the time of the split off?

A Former Vice President, page 16

7. We note your response to prior comment 11; however, since you disclose that the conclusions of your Audit Committee are based upon the findings of independent counsel, the consent of that independent counsel, mentioned here and under "Legal Proceedings," is required to be filed as an exhibit to your registration statement.

8. Please expand your response to prior comment 12 to provide an analysis to clearly support your conclusion that the contract is in the “ordinary course” and need not be filed as an exhibit to your current registration statement.
9. Please provide us with any updates that are made to the materials you submitted in response to prior comment 13 prior to the time your registration statement is declared effective.

Material U.S. Federal Income Tax Consequences of the Split Off, page 19

10. It is not clear from the IRS private letter ruling filed as Exhibit 99.5 that, as you disclose in this section, the redemption will qualify for U.S. federal income tax purposes as a tax-free transaction under Section 355 of the Internal Revenue Code. Please advise or revise your disclosure to more clearly reconcile to the ruling. Also, if this qualification under Section 355 is a necessary conclusion for the material tax consequences described in your prospectus and the ruling does not specifically make this conclusion, please file an opinion of counsel that includes the appropriate legal conclusion.
11. It remains unclear why you indicate in the third paragraph that the redemption "should" qualify as a tax free redemption under those material aspects of Section 355 of the Code not addressed by the private letter ruling. Please note that if counsel cannot opine on a particular material tax matter, it must clearly say so and provide the reasons for the uncertainty and the possible outcomes and risks to investors. Likewise, we note the equivocal statement in the last paragraph that begins on page 22 that the redemption in such circumstances "should" remain tax-free to each holder or AR-CombiMatrix stock.
12. We note that your revised disclosure in the last paragraph on page 21 indicates that you have made commitments with respect to future operations. Please describe these commitments.
13. We note your disclosure that, in rendering the opinion regarding the tax-free status of the split off, your counsel relied in part on your representations as to these matters. Please disclose, if true, that you mean that counsel relied on representations as to factual matters. Otherwise, please file an opinion that does not rely on others for questions of law.

Equity Compensation Plan Information, page 65

14. From your response to prior comment 24, it is unclear how accelerating and terminating an option would not impair the rights of the holder. Therefore, please

provide us your materiality analysis of the risk that option holders or other investors might disagree with your conclusions.

Security Ownership, page 67

15. Please expand your response to prior comment 25 to address the forms filed by Austin W. Marx and David M. Greenhouse.

Part II

16. Please provide the information required by Items 14 and 15 of Form S-1. Include the undertakings in Regulation S-K Item 512(a).

Exhibit 8.1

17. We reissue the clause (1) of prior comment 29.
18. We note that the revised opinion expressly indicates that no opinion was expressed with respect to whether Acacia Research-Acacia Technologies common stock or Acacia Research-CombiMatrix common stock is stock of Acacia Research Corporation for federal income tax purposes. Please tell us whether this legal conclusion is necessary for the opinions that have been expressed and why counsel has specifically not formed an opinion with regard to this issue. With a view towards revised disclosure, please tell us what the implications would be if the Acacia Research-Acacia Technologies common stock or Acacia Research-CombiMatrix common stock is not determined to be stock of Acacia Research Corporation for federal income tax purposes.
19. We note the tax opinion continues to indicate that additional issues may exist that could affect the tax treatment of the transactions described in the opinion and that the opinion does not consider or provide a conclusion with respect to those additional issues. As requested by our prior comment 30, please file an opinion that considers all issues required for an opinion supporting the tax matters described in your filing.
20. We reissue prior comment 33. Please expand the scope of the consent in the last paragraph of the opinion to include the use of counsel's name in the section entitled "Material U.S. Federal Income Tax Consequences of the Split Off." Also, clarify your reference to the use of counsel's name under "Legal Matters" as it appears that your prospectus does not contain a section with that heading.

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Amit Kumar, Ph.D.  
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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 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.

You may contact Kristin Lochhead at (202) 551-3664 or Brian Cascio at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. You may contact Tim Buchmiller at (202) 551-3635 or me at (202) 551-3617 with any other questions.

Sincerely,

Russell Mancuso  
Branch Chief

cc: Raymond A. Lee, Esq.  
Steven T. Anapoell, Esq.  
Dennis J. Rasor, Esq.  
(via fax)