



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

DIVISION OF
CORPORATION FINANCE

January 27, 2014

Via E-mail

Mark McDonough
Chief Executive Officer
CombiMatrix Corporation
310 Goddard, Suite 150
Irvine, CA 92618

**Re: CombiMatrix Corporation
Registration Statement on Form S-3
Filed December 31, 2013
File No. 333-193148**

Dear Mr. McDonough:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Registration Statement Fee Table

1. Please confirm your understanding that Rule 416 only applies to securities issued in connection with the types of transactions listed in that rule, and would not cover any other type of contractual antidilution provisions that apply unequally to different shareholders, such as the rights set forth in Section 7(b) of the Certificate of Designation of Preferences, Rights and Limitations of Series B 6% Convertible Preferred Stock.

Recent Developments, page 2

2. We note that your most recent Form 10-Q was filed in November 2013 prior to consummation of the Series D offering. Accordingly, please revise your Form S-3 to describe events impacting your liquidity and capital resources following completion of the Series D offering. In this regard, please revise the summary to highlight the dilution that has resulted in the past sixteen months as a result of your Series A, B, C and D

financings and disclose how the Series D offering impacts, if at all, recent trends in your capital raising. Please also revise your risk factors as appropriate.

Risk Factors, page 4

Future sales or the potential for future sales of our securities..., page 15

3. Please explain what you mean when you say that the shares underlying the Series B Financing “are freely tradable up to the maximum permitted by General Instruction I.B.6 of Form S-3.” In this connection, please note that General Instruction 1.B.6 applies to primary offerings, and it appears that sales of the stock underlying your Series B Convertible preferred stock would be registered on a secondary basis, since the preferred stock is immediately exercisable.

Selling Stockholders, page 20

4. We refer to your disclosure in footnote 2 on page 21 which indicates that Alpha Capital Anstalt beneficially owns 26.58% of your common stock. Please revise the table on page 20 to reflect Alpha Capital Anstalt’s aggregate holdings.

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 the information the Securities Act of 1933 and all applicable Securities Act rules require. 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 you request acceleration of the effective date of the pending registration statement please provide a written statement from the company 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.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation

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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. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Joseph McCann at (202) 551-6262 or me at (202) 551-3528 with any questions.

Sincerely,

/s/ Amanda Ravitz

Amanda Ravitz
Assistant Director

cc (via e-mail): Parker A. Schweich, Esq. – Dorsey & Whitney LLP