



DIVISION OF
CORPORATION FINANCE

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

October 11, 2013

Via E-mail

Scott Burrell
Chief Financial Officer
CombiMatrix Corporation
310 Goddard, Suite 150
Irvine, CA 92618

**Re: CombiMatrix Corporation
Registration Statement on Form S-1
Filed September 17, 2013
File No. 333-191211**

Dear Mr. Burrell:

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. Where 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.

Form S-1

1. Please revise your filing to include all information except that which can be excluded by Rule 430A. We note for example that you have not included the number of Class A and Class B units being offered or the number of shares of common stock underlying the Class A warrants. Refer to Securities Act Rules Compliance and Disclosure Interpretations Question 227.02. Also note that your disclosure throughout your preliminary prospectus must include information based on a *bona fide* estimate of the public offering price; see section II.A.7 of Release 33-6714 (May 27, 1987).

Fee Table

2. Please show us your calculations supporting the "Maximum aggregate offering price" disclosed in the table. Also show us what consideration you gave to the guidance in the

Division of Corporation Finance's Securities Act Rules Compliance and Disclosure Interpretations Questions 240.05 and 240.06 available on the Commission's website.

3. Please revise your table to disclose the proposed maximum aggregate offering price for each class of security being offered. Refer to the Note to the Calculation of Registration Fee section on Form S-1.

Dilution, page 27

4. We note your last bullet point in this section. Please show us how your dilution disclosure would differ (1) if all of the securities underlying the pre-funded warrants were exercised, and (2) if all of the warrants sold in this offering were exercised. Also, tell us how you have concluded that your disclosure is consistent with Rule 408 without this information.

Underwriting, page 28

5. Given that it appears that you are ineligible to file a registration statement for an unallocated shelf offering, please clarify in an appropriate section of your document how you determined the number of each type of security to offer.

Warrants to Purchase Common Stock, page 56

6. Given Regulation S-K Item 202(c)(5), please tell us the authority on which you rely to "qualify entirely" your disclosure by an exhibit to this registration statement.
7. Please more fully describe the purpose of the pre-funded warrants and the associated risks. For example, more clearly describe what you mean when you say that the warrants are "pre-funded," the purpose of "pre funding" warrants, and how the warrants you are offering achieve this purpose. Likewise, describe the purpose of the ownership thresholds included in the pre-funded warrants.
8. Please provide us your analysis of whether the beneficial ownership limitation in the pre-funded warrants can be waived by the parties or can be avoided by transferring the securities to an affiliate of the issuer. Also clarify whether the 61 days prior notice requirement in the pre-funded warrants can be waived. In addition, please tell us how the beneficial ownership limit will be enforced.

Exhibits

9. Please file the opinion that you identify as exhibit 5.1.

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

Scott Burrell
CombiMatrix Corporation
October 11, 2013
Page 3

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 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.

Please contact Brian Soares at (202) 551-3580 or me at (202) 551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

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