



DIVISION OF
CORPORATION FINANCE

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

August 9, 2013

Via E-mail

Federico Pignatelli
Chief Executive Officer
Biolase, Inc.
4 Cromwell
Irvine, California 92618

**Re: Biolase, Inc.
Registration Statement on Form S-3
Filed July 26, 2013
File No. 333-190158**

Dear Mr. Pignatelli:

We have limited our review of your registration statement to those issues we have addressed in our comment. In our comment, 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 comment applies 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 this comment, we may have additional comments.

Fee Table

1. We note from the prospectus cover page that you may offer the securities separately or as units. Please include in the registration statement fee table all securities you are seeking to register for sale, including the units.
2. It is unclear what you are registering for sale when you say in the first paragraph of the fee table that you are including preferred stock purchase rights pursuant to Rule 416; preferred stock purchase rights do not appear to be related to a stock split, dividend or similar transaction. Please clarify whether you are registering the preferred stock purchase rights for sale in this offering. See the Division of Corporation Finance's Securities Act Forms Compliance and Disclosure Interpretation 116.16 available on the Commission's web site.

3. Please provide us your analysis of whether the transactions mentioned in the fourth and fifth paragraphs following the bullet points on page 6 involve other securities that should be included in the fee table. Cite all authority on which you rely.

Exhibit 5.1

4. Please file a revised opinion of counsel that includes all securities you are seeking to register, including the units and the preferred stock rights, as applicable. Please see Sections II.B.1.g and h of Staff Legal Bulletin No. 19 (October 14, 2011). In this regard, it appears that the penultimate sentence of the paragraph that begins “this letter assumes...” indicates that this exhibit is not providing the required opinion regarding the rights.
5. The second paragraph of this exhibit indicates that preferred stock may be exchangeable or convertible for “other securities.” Please provide us your analysis of why you believe that those other securities need not be included in the fee table of this registration statement.
6. Please ensure that the opinion that you file addresses all applicable laws. For example, if Delaware contract law governs the rights, it appears that the second full paragraph on page 2 of this exhibit excludes portions of Delaware contract law.
7. Refer to the paragraph on page 5 of this option that begins “We have assumed for purposes of this opinion...” Please file an opinion that does not include the assumptions in that paragraph. See Section II.B.3.a of Staff Legal Bulletin No. 19.
8. Please file an opinion that does not include limitations on reliance like in the last paragraph of this opinion. See Section II.B.3.d of Staff Legal Bulletin No. 19.

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;

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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.

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 Jay Mumford at (202) 551-3637 or me at (202) 551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

cc (via-email): Michael C. Carroll Esq.