



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

DIVISION OF  
CORPORATION FINANCE

September 17, 2013

Via E-mail  
Federico Pignatelli  
Chief Executive Officer  
Biolase, Inc.  
4 Cromwell  
Irvine, California 92618

**Re: Biolase, Inc.  
Amendment No 3 to Registration Statement on Form S-3  
Filed September 10, 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 comments. 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.

Incorporation of Certain Information by Reference, page 6

1. We note that you qualify the disclosure in your Form 8-K filed September 10, 2013 by reference to exhibits that you have not filed. Please tell us why you believe such disclosure is adequate. See the Division of Corporation Finance's Exchange Act Form 8-K Compliance and Disclosure Interpretation 102.03 available on the Commission's web site. Also tell us whether you intend to file the agreements mentioned in that Form 8-K with this Form S-3 or a document incorporated by reference into the Form S-3 before this Form S-3 is effective.

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.

Federico Pignatelli  
Biolase Inc.  
September 17, 2013  
Page 2

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 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.