



DIVISION OF
CORPORATION FINANCE

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

January 23, 2013

Via Email

Mr. Richard Brajer
Chief Executive Officer
LipoScience, Inc.
2500 Sumner Boulevard
Raleigh, NC 27616

**Re: LipoScience, Inc.
Amendment to Registration Statement on Form S-1
Filed January 10, 2013
Supplemental Response Letter
Dated January 22, 2012
File No. 333-175102**

Dear Mr. Brajer:

We have reviewed your registration statement and have the following 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.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 47

Liquidity and Capital Resources

1. We note your response to prior comment five from our letter dated January 18, 2013. We also note section 6.10(ii) of the credit facility. To provide additional context for understanding the risk presented, please revise here and the second to last risk factor on page 20 to disclose the minimum revenue threshold associated with this covenant. Also, where you discuss the required liquidity ratio, please quantify your actual ratio as of the most recent practicable date.

Mr. Richard Brajer
LipoScience, Inc.
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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.

You may contact Steve Lo at (202) 551-3394 or John Archfield at (202) 551-3315 if you have questions regarding comments on the financial statements and related matters. Please contact Jay Williamson at (202) 551-3393 or Jim Lopez at (202) 551-3536 with any other questions.

Sincerely,

/s/ James Lopez (for)

John Reynolds
Assistant Director

Cc: Brent Siler
Cooley LLP