



DIVISION OF  
CORPORATION FINANCE

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

January 18, 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  
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.

Prospectus Cover Page

1. We note the statement that some existing shareholders have indicated an interest in purchasing an aggregate of \$3.4 million in the offering. With a view to clarifying disclosure in a revised prospectus, please advise us of the parties involved, the basis for the precise figure of \$3.4 million and the extent to which the underwriters may rely on the shareholder purchase to satisfy their obligations to purchase a total of 5 million shares. It appears that disclosure of the possible purchase should not be on the cover page. Please see Item 501 of Regulation S-K.

Risk Factors, page 12

2. Please revise the last risk factor on pages 31 and 34 to quantify the public float and concentration of ownership assuming shareholders purchase \$3.4 million in the offering

Capitalization, page 40

3. Please tell us and revise to clearly disclose how you arrived at the pro forma as adjusted cash and cash equivalents of \$69,335 based on your estimated net proceeds of \$61.6 million (page 39).
4. We note the increase in your outstanding debt subsequent to September 30, 2012. Please tell us why you do not give effect to these changes on a pro forma basis.

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

Liquidity and Capital Resources, page 58

5. Please revise to disclose, in quantitative and narrative terms, the material financial and other covenants associated with your new credit facility. In addition, please disclose the amount of unused capacity under your line of credit. With respect to the minimum revenue requirement, please also include revised quantified disclosure in the risk factor on page 20.

Executive Compensation, page 125

6. We note you have not determined the amounts earned by your named executive officers under your 2012 incentive compensation program as indicated in footnote 4 to the Summary Compensation Table. Please confirm our expectation that this amount will be determined pre-effectively and your disclosure updated, as applicable. In addition, please disclose the material terms of these awards as requested by Item 402(o)(5) of Regulation S-K.
7. Please file a copy of your 2012 incentive bonus plan.

Notes to Financial Statements, page F-7

Unaudited Pro Forma Net Income (Loss) Per Share, page F-16

8. We note that the denominators for pro forma basic and diluted net (loss) income per common share on page F-17 do not agree with the amounts presented on pages 10, 45 and F-4. Please revise as necessary, or explain to us the reason(s) why these amounts do not agree.

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