



DIVISION OF
CORPORATION FINANCE

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

September 10, 2014

Via E-mail

Rose Crane
President and Chief Executive Officer
MELA Sciences, Inc.
50 S. Buckhout Street, Suite 1
Irvington, New York 10533

**Re: MELA Sciences, Inc.
Registration Statement on Form S-3
Filed August 19, 2014
File No. 333-198249**

Dear Ms. Crane:

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

Prospectus Cover Page

1. Given the nature and size of the transaction being registered, please advise the staff of the company's basis for determining that the transaction is appropriately characterized as a transaction that is eligible to be made on a shelf basis under Rule 415(a)(1)(i). Include in your response (1) the effect on your analysis of securities previously registered for resale by the selling stockholders, and (2) a description of how you complied with your undertaking required by Regulation S-K Item 512(a)(3) with regard to such securities previously registered for resale by the selling stockholders.

Selling Stockholders, page 19

2. Please revise your disclosure to describe the relationship between the registrant and the selling stockholders regarding the ownership and redemption of the Series A preferred

stock. See Item 507 of Regulation S-K. Include the amount of proceeds from the July 2014 offering that you used to repurchase securities from the selling stockholders, the amount per share that you paid the selling stockholders, and the amount per share that the selling stockholders originally paid you for the securities you repurchased from them.

Signatures

3. Please indicate below the second paragraph of text required on the Signatures page who signed the document in the capacity of controller or principal financial officer.

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;
- 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.

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Please contact Jay Mumford at 202-551-3637 or Russell Mancuso at 202-551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

cc (via-email): Megan N. Gates, Esq.