

DREIER LLP
Attorneys at Law

499 Park Avenue
New York, New York 10022
Tel: (212) 328-6100
Facsimile: (212) 328-6101

Valerie A. Price
Direct Dial: (212) 328-6144
Direct Fax: (212) 652-3789
Partner
vprice@dreierllp.com

October 6, 2005

SENT VIA FAX AND FEDERAL EXPRESS

United States Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549
Attention: Russell Mancuso, Branch Chief, Division of Corporation Finance

Re: Electro-Optical Sciences, Inc.
Registration Statement on Form S-1
Filed June 3, 2005
File No. 333-125517

Ladies and Gentlemen:

On behalf of Electro-Optical Sciences, Inc., a Delaware corporation (the "Company"), and as authorized by the Company, we are responding to the comment letter sent to Joseph V. Gulfo, M.D. of the Company, dated October 4, 2005, from the Staff of the Commission.

We have referenced the appropriate page numbers of the prospectus contained in Amendment No. 4 to the above-captioned Registration Statement on Form S-1 ("Amendment No. 4") in our responses contained herein. The numbered paragraphs below set forth the Staff's comments together with our responses. Unless otherwise indicated, capitalized terms used herein have the meanings assigned to them in Amendment No. 4.

General

1. Tell us your plans to recirculate the prospectus so investors receive the changes since Amendment 3 to your registration statement.

Response: The preliminary prospectus included in Amendment No. 4 was reprinted and has been, or will be, delivered to all potential investors.

Special Suitability for California Residents, page i

2. Tell us the reason for this requirement. Also tell us why purchasers would not have a resale exemption under Section 4(1) of the Securities Act.

Response: The Company anticipates that its common stock may be purchased by natural persons resident in California. Because the Company has applied to have its common stock included for quotation on the NASDAQ SmallCap Market, not the NASDAQ National Market, its common stock is not a "covered security" under the National Securities Markets Improvement Act of 1996, and thus the Company believes that the offer and sale of its common stock to natural persons resident in California will be subject to merit review by the Securities Regulation Division of the California Department of Corporations. Applicable California securities law permits "limited qualification" offerings of securities. The Company believes that a merit review of a limited qualification offering is more likely to be completed in the Company's anticipated timeframe for the offering than a merit review that is part of an "open qualification" offering. A limited qualification offering requires compliance with certain investor suitability standards. Accordingly, the Company chose to impose such standards on California residents in order to offer its common stock pursuant to a limited qualification under applicable California securities law.

The Company believes that purchasers of its common stock resident in California would be able to resell their shares under Section 4(1) of the Securities Act of 1933 and under Section 25101.1(a) of the California Corporate Securities Law.

Summary, page 1

3. If financial results for the quarter ended September 30, 2005 are available, please update your prospectus. If only partial results are known, disclose any material recent developments and ensure that corresponding updates are made throughout the prospectus. We note, for example, that your accumulated deficit disclosure on page 10 is as of June 30, 2005.

Response: The Company anticipates that the offering will be consummated before the financial results for the quarter ended September 30, 2005 are available. Based on the partial results currently known, the Company believes that there are no material developments which have not been disclosed in the prospectus.

Management's discussion and analysis of financial condition and results of operations, page 36

Liquidity and Capital Resources, page 41

4. We refer you to your disclosure in the last paragraph of this section. Please clarify what you mean by the proceeds of this offering might not be available in amounts or on terms acceptable to you.

Response: In response to Comment 4, we will revise the referenced disclosure on page 41 to read as follows:

"If this offering is not consummated, we would need to limit the level of discretionary expenditures, and would need to pursue alternative sources of funding to sustain the continued development of the Melafind(R) device at the same level."

Business, page 44

Manufacturing, page 56

5. Please update us as to the status of your contract negotiation with Carl Zeiss Jena. We refer you to your disclosure in the first full paragraph on page 56.

Response: The Company remains in active negotiations with Carl Zeiss Jena regarding a supply agreement for the lens to be used in the post-clinical trial models of the hand-held clinical units. While the Company believes that negotiations are proceeding in a positive direction, the Company does not expect negotiations to be completed prior to consummation of the offering. Accordingly, the Company believes that the referenced disclosure remains appropriate.

Underwriting, page 87

6. Please identify any members of the underwriting syndicate that will engage in any electronic offer, sale or distribution of the shares and describe their procedures to us supplementally. If you become aware of any additional members of the underwriting syndicate that may engage in electronic offers, sales or distributions after you respond to this comment, promptly supplement your response to identify those members and provide us with a description of their procedures.

In your discussion of the procedures, tell us how your procedures ensure that the distribution complies with Section 5 of the Securities Act. In particular:

- The communications used;
- The availability of the preliminary prospectus;
- The manner of conducting the distribution and sale, like the use of indications of interest or conditional offers; and
- The funding of an account and payment of the purchase price.

Finally, tell us whether you or the underwriters have any arrangements with a third party to host or access your preliminary prospectus on the Internet. If so, identify the party

and the website, describe the material terms of your agreement and provide us with a copy of any written agreement. Provide us also with copies of all information concerning your company or prospectus that has appeared on their website. Again, if you subsequently enter into any arrangements like this, promptly supplement your response.

Response: The underwriters have informed the Company that, except for the electronic delivery directly to offerees of prospectuses and an electronic roadshow (each of which is discussed below), they do not intend to offer and/or sell securities electronically. The underwriters have also advised the Company that they have no arrangement with a third party to host or access the preliminary prospectus on the Internet except for the delivery directly to offerees of prospectuses electronically in "pdf" format with no alterations from the printed prospectus (all of such electronic deliveries to be followed by delivery of a printed prospectus). While the underwriters have contracted with NetRoadshow, Inc. (www.netroadshow.com) to conduct an Internet roadshow, the purpose of this contract is not specifically to host or access the preliminary prospectus. The primary purpose of the Internet roadshow is to provide access to the roadshow to institutional investors that cannot, or elect not to, attend roadshow meetings in person. NetRoadshow, Inc. has informed the underwriters that it conducts Internet roadshows in accordance with the NetRoadshow, Inc. no-action letter dated July 30, 1997 received from the Commission in connection with virtual roadshows. In accordance with such no-action letter, an electronic version of the preliminary prospectus, identical to the copy filed with the Commission and delivered to live attendees, is required to, and will, be made available on the NetRoadshow, Inc. website.

Exhibit 5.1

7. Please ask your counsel to confirm to us in writing that it concurs with our understanding that the reference and limitation to the Delaware General Corporate Law includes the statutory provisions and also all applicable provisions of the Delaware Constitution. Counsel should file this written confirmation as correspondence on the EDGAR system.

Response: In response to Comment 7, we will revise Exhibit 5.1 to include the following statement:

As used herein, the term "Delaware General Corporation Law, as amended" includes the statutory provisions contained therein, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting these laws.

8. We note the fact that counsel will undertake no obligation to update the opinion. Given the limitation, please file an opinion dated as of the effective date of the registration statement as an exhibit to a final pre-effective amendment to your registration statement.

Response: An opinion dated the effective date of the registration statement will be filed as an exhibit to the Registration Statement.

9. Given the assumption in the penultimate paragraph regarding the shares being issued and sold as described in the registration statement, it is unclear why the remaining assumptions in that paragraph are necessary and appropriate. Please tell us what board resolutions are not and will not be reflected in the registration statement.

Response: In response to Comment 9, we will revise Exhibit 5.1 to replace the phrase "to be adopted by the Pricing Committee of the Board of Directors of the Company" in the penultimate paragraph of the opinion with the phrase "resolutions to be adopted by the Pricing Committee of the Board of Directors of the Company establishing the public offering price of the shares."

* * * *

We hope that the foregoing has been responsive to the Staff's comments.

Should you have any questions relating to any of the foregoing, please feel free to contact the undersigned at (212) 328-6144. Thank you for your cooperation and attention to this matter.

Very truly yours,
/s/ Valerie A. Price
Valerie A. Price, Esq.

VAP/ma
Enclosure

cc: Joseph V. Gulfo, M.D
Karen Krumeich
William Bronner
Lewis B. Leventhal, CPA
David C. Peck, Esq.