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

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): February 13, 2009

Electro-Optical Sciences, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**000-51481**	**13-3986004**
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

3 West Main Street, Suite 201, Irvington, New York	**10533**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code **(914) 591-3783**

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instructions A.2. below):

o Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

o Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

o Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

o Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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Item 8.01 — Other Events

On February 13, 2009, the Registrant issued a press release announcing the results of the MelaFind® clinical trials program. A copy of the press release is attached as Exhibit 99.1 to this report and is incorporated herein by reference.

Item 9.01 — Financial Statements and Exhibits

(d) Exhibits.

EXHIBIT NO.	DESCRIPTION
99.1	Press Release of the Registrant, dated February 13, 2009, titled “Electro-Optical Sciences Announces Positive Top-Line Results from Landmark MelaFind® Pivotal Trial”

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Electro-Optical Sciences, Inc.

Date: February 13, 2009

By: /s/ Richard I. Steinhart
Chief Financial Officer
(Principal Financial Officer)

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EXHIBIT INDEX

EXHIBIT NO.	DESCRIPTION
99.1	Press Release of the Registrant, dated February 13, 2009, titled “Electro-Optical Sciences Announces Positive Top-Line Results from Landmark MelaFind® Pivotal Trial”

Exhibit 99.1

Electro-Optical Sciences Announces Positive Top-Line Results from Landmark MelaFind® Pivotal Trial

Company to File PMA Application with FDA

Largest Prospective Clinical Study Ever Conducted in Melanoma Detection

Company to Host Conference Call at 8:30 a.m. EST Friday

IRVINGTON, NY (February 13, 2009) – Electro-Optical Sciences, Inc. ("EOS") (NASDAQ: MELA) today announced positive top-line results of its pivotal trial of MelaFind, a non-invasive, point-of-care instrument to assist in the early detection of melanoma, the deadliest form of skin cancer. The blinded study, conducted at seven centers across the US, included 1,831 pigmented skin lesions from 1,383 patients, making this the largest prospective study ever conducted in melanoma detection. EOS is working to complete its Pre-Market Approval (PMA) application and expects to file it with the US Food and Drug Administration (FDA) shortly.

"MelaFind appears to be an excellent tool to help detect melanoma at the earliest, most treatable stage," said Gary D. Monheit, MD, Associate Clinical Professor of Dermatology at the University of Alabama in Birmingham and the lead investigator for the MelaFind pivotal trial. "With no cure for late stage melanoma, early detection is our best defense against this cancer, which has reached epidemic proportions."

Prior to the start of the study, EOS and the FDA entered into a binding protocol agreement to stipulate the sensitivity and specificity endpoints that should be used to determine the safety and effectiveness of MelaFind.

MelaFind detected 112 of 114 (98% sensitivity; lower confidence bound of 95%) melanomas that were eligible and evaluable for primary sensitivity endpoint analysis, and 125 of 127 (98% sensitivity; lower confidence bound greater than 95%) melanomas overall. The protocol agreement calls for sensitivity endpoints of greater than 95% lower confidence bound[1].

MelaFind's specificity, the ability to accurately rule out disease, was significantly superior (9.5%) to that of the study dermatologists (3.7%), who are skin cancer experts (p-value less than 0.02). The protocol agreement calls for MelaFind to be more specific than the study physicians at a p-value[2] of less than 0.05.

Almost half of the melanomas in the study were melanoma in situ, the most curable yet most difficult form of melanoma to detect.

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1 A lower confidence bound of greater than 95% indicates that if the study were repeated, there would be less than a 5% chance that the sensitivity would be below 95%.

2 A p-value of less than 0.05 indicates a less than 5% probability that the observed difference was due to chance.

“These clinically compelling data suggest that MelaFind may help detect melanoma earlier, and more accurately differentiate many of the non-malignant lesions that mimic melanoma,” said Darrell Rigel, MD, Clinical Professor of Dermatology at New York University Medical School. “This should lead to improved biopsy efficiency and help reduce the number of unnecessary biopsies, which can be painful and scarring.”

The skin cancer experts who participated in this study had previously made the decision to biopsy all 1,831 pigmented skin lesions prior to enrolling the patients in the MelaFind clinical trial.

In order to generate a comparison with dermatologists’ ability to accurately detect melanoma, EOS conducted a parallel pilot readers’ study with a different group of 39 dermatologists. Using images and clinical histories of 23 randomly-selected melanomas from the pivotal study, this group of dermatologists, on average, would have decided to biopsy only approximately 18 (80%) of the melanomas, whereas the MelaFind result would have led to a biopsy of 22 of the melanomas (biopsy sensitivity of 96%). A larger readers’ study to provide additional data regarding the sensitivity of MelaFind relative to physicians will commence shortly. Data from these studies will be submitted to the FDA.

“We are extremely pleased with the outcome of the pivotal study and are now focused on completing our PMA to submit to the FDA as quickly as possible,” said Joseph V. Gulfo, MD, President and CEO of EOS. “Our mission with MelaFind has always been to provide a useful tool to aid in detecting melanoma at its earliest, most curable stage. We look forward to discussing these data with the agency.”

The company chose the final classification algorithm based on its success at identifying melanomas in a series of large, blinded and sequential internal classifier selection studies conducted immediately prior to the analysis of the pivotal trial data. Including the pivotal trial, the MelaFind classifier successfully detected 430 of the 432 melanomas against which it was tested.

There were no adverse events associated with the use of MelaFind.

The FDA has notified EOS that the MelaFind PMA will receive Expedited Review once the application is submitted. EOS plans to submit the findings from the pivotal study and the readers’ studies to peer-reviewed journals for publication.

MelaFind uses 10 different wavelengths of light to see where a clinician cannot – up to 2.5 millimeters below the skin’s surface. Using advanced algorithms, trained and developed on a database of 9,000 pigmented skin lesions and over 600 melanomas, including those from the pivotal study, the system provides an immediate result that informs the decision to biopsy.

Conference Call Information

EOS will host a conference call on Friday, February, 13 at 8:30 am ET. To participate, please dial 800-299-7089 fifteen minutes before the conference is scheduled to begin.

Callers outside of the U.S. should dial +617-801-9714. The conference call passcode is “Electro Optical Sciences”. The call will also be webcast live at www.eosciences.com in the investor relations section. A webcast replay of the call will be available for one month on the company’s website, or until March 13, 2009 by dialing 888-286-8010. Callers outside of the US should dial +617-801-6888. The replay participant code is 52141913. The replay on telephone will be available until February 27, 2009.

About Melanoma

Melanoma is the deadliest form of skin cancer, responsible for approximately 80% of skin cancer fatalities. The melanoma rate has continued to increase with an estimated 120,000 new cases projected in 2009. A recent National Cancer Institute report published in the July 10 online edition of the Journal of Investigative Dermatology indicates that annual incidence of melanoma among young adult Caucasian women rose 50% between 1980 and 2004. Melanoma is the most common cancer in women age 25 to 29 and the number one cancer killer of women age 30 to 35. Although no cure is currently available for advanced-stage melanoma, if caught early, melanoma is virtually 100% curable.

About Electro-Optical Sciences

EOS is a medical device company focused on designing and developing a non-invasive, point-of-care instrument to assist in the early detection of melanoma. MelaFind features a hand-held imaging device that emits light of multiple wavelengths to capture images of suspicious pigmented skin lesions and extract data. Using sophisticated algorithms, the data are then analyzed against a proprietary database of melanomas and benign lesions in order to provide information to assist in the determination of whether the lesion should be biopsied.

For more information on EOS, visit www.eosciences.com.

Safe Harbor

This press release includes “forward-looking statements” within the meaning of the Securities Litigation Reform Act of 1995. These statements include but are not limited to our plans, objectives, expectations and intentions and other statements that contain words such as “expects,” “contemplates,” “anticipates,” “plans,” “intends,” “believes” and variations of such words or similar expressions that predict or indicate future events or trends, or that do not relate to historical matters. These statements are based on our current beliefs or expectations and are inherently subject to significant uncertainties and changes in circumstances, many of which are beyond our control. There can be no assurance that our beliefs or expectations will be achieved. Actual results may differ materially from our beliefs or expectations due to economic, business, competitive, market and regulatory factors.

For further information contact:

Investors
David Carey

Lazar Partners Ltd.
212-867-1768
dcarey@lazarpartners.com

Media
Hollister Hovey
Lazar Partners Ltd.
646-871-8482
hhovey@lazarpartners.com