

Lightwave Logic, Inc.
Form S-1
June 01, 2011

As Filed with the Securities and Exchange Commission on June 1, 2011

Registration No. 333-

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

FORM S-1

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

LIGHTWAVE LOGIC, INC.

(Name of Registrant As Specified in its Charter)

Nevada
*(State or Other Jurisdiction of
Incorporation
or Organization)*

3080
*(Primary Standard Industrial
Classification Code Number)*

82-049-7368
(I.R.S. Employer Identification No.)

121 Continental Drive, Suite 110
Newark, DE 19713
Telephone: (302) 356-2717

(Address and Telephone Number of Principal Executive Offices)

James S. Marcelli
Chief Executive Officer
121 Continental Drive, Suite 110
Newark, DE 19713
Telephone: (302) 356-2717

(Name, Address and Telephone Number of Agent for Service)

Copies to:

Clayton E. Parker, Esq.
Matthew Ogurick, Esq.
K&L Gates LLP
200 South Biscayne Boulevard, Suite 3900
Miami, Florida 33131-2399
Telephone: (305) 539-3306
Facsimile: (305) 358-7095

Approximate Date of Proposed Sale to the Public: As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. S

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. "

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. "

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement the same offering. "

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer
 Accelerated filer
 Non-accelerated filer
 Smaller reporting company

(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities Being Registered	Number of Shares to be Registered(1)	Proposed Maximum Offering Price per Share(2)	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee
Common Stock, \$0.001 par value per share	10,000,000	\$ 1.25	\$ 12,500,000	\$ 1,452

(1)

Pursuant to Rule 416 under the Securities Act, the shares being registered hereunder include such indeterminate number of shares of common stock as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.

(2)

Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(c) under the Securities Act. The price per share and aggregate offering price are based on the average of the high and low sales prices of the registrant's common stock on May 19, 2011, as reported on the Over-the-Counter Bulletin Board.

The Registrant amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall hereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until the registration statement shall become effective on such date as the Commission, acting pursuant to Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission becomes effective. This prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

**PRELIMINARY
PROSPECTUS**

SUBJECT TO COMPLETION

JUNE 1, 2011

10,000,000 Shares

Common Stock

This prospectus relates to the sale of up to 10,000,000 shares of our common stock which may be offered by the selling shareholder, Lincoln Park Capital Fund, LLC, or Lincoln Park, from time to time. The shares of common stock being offered by the selling shareholder are issuable pursuant to the Lincoln Park Purchase Agreement, which we refer to in this prospectus as the Purchase Agreement. Please refer to the section of this prospectus entitled "The Lincoln Park Transaction" for a description of the Purchase Agreement and the section entitled "Selling Shareholder" for additional information. Such registration does not mean that Lincoln Park will actually offer or sell any of these shares. We will not receive any proceeds from the sales of shares of our common stock by the selling shareholder; however, we may receive proceeds of up to \$20,000,000 under the Purchase Agreement.

Our common stock is currently quoted on the Over-the-Counter Bulletin Board under the symbol "LWLG". On May 19, 2011, the last reported sale price of our common stock was \$1.25 per share.

Investing in our securities involves a high degree of risk. See Risk Factors beginning on page 11 of this prospectus for a discussion of information that should be considered in connection with an investment in our securities.

The selling shareholder is an underwriter within the meaning of the Securities Act of 1933, as amended. The selling shareholder is offering these shares of common stock and may sell all or a portion of these shares from time to time in market transactions, in negotiated transactions or otherwise, and at prices and on terms that will be determined by the then prevailing market price or at negotiated prices directly or through a broker or brokers, who may act as agent or as principal or by a combination of such methods of sale. For additional information on the methods of sale, you should refer to the section entitled Plan of Distribution .

Neither the Securities and Exchange Commission nor any state securities regulators have approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2011.

TABLE OF CONTENTS

<u>PROSPECTUS SUMMARY</u>	<u>3</u>
<u>SUMMARY FINANCIAL DATA</u>	<u>10</u>
<u>RISK FACTORS</u>	<u>11</u>
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	<u>23</u>
<u>USE OF PROCEEDS</u>	<u>24</u>
<u>CAPITALIZATION</u>	<u>25</u>
<u>MARKET FOR COMMON EQUITY AND RELATED SHAREHOLDER MATTERS</u>	<u>26</u>
<u>DILUTION</u>	<u>28</u>
<u>SELECTED FINANCIAL DATA</u>	<u>29</u>
<u>MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS</u>	<u>31</u>
<u>BUSINESS</u>	<u>45</u>
<u>MANAGEMENT</u>	<u>60</u>
	7

<u>EXECUTIVE COMPENSATION</u>	<u>64</u>
<u>CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS</u>	<u>68</u>
<u>PRINCIPAL SHAREHOLDERS</u>	<u>69</u>
<u>THE LINCOLN PARK TRANSACTION</u>	<u>71</u>
<u>SELLING SHAREHOLDER</u>	<u>75</u>
<u>DESCRIPTION OF SECURITIES</u>	<u>76</u>
<u>PLAN OF DISTRIBUTION</u>	<u>79</u>
<u>LEGAL MATTERS</u>	<u>80</u>
<u>EXPERTS</u>	<u>80</u>
<u>WHERE YOU CAN FIND ADDITIONAL INFORMATION</u>	<u>80</u>
<u>DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITY</u>	<u>81</u>
<u>FINANCIAL STATEMENTS</u>	<u>F-1</u>
<u>INFORMATION NOT REQUIRED IN PROSPECTUS</u>	

II-1

SIGNATURES

II-9

You should rely only on the information contained in this prospectus. We have not, and the selling shareholder has not, authorized any person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus is not an offer to sell, nor is the selling shareholder seeking an offer to buy, securities in any state where the offer or solicitation is not permitted. The information contained in this prospectus is complete and accurate as of the date on the front cover of this prospectus, but information may have changed since that date. We are responsible for updating this prospectus to ensure that all material information is included and will update this prospectus to the extent required by law.

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe that these industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data and we do not make any representation as to the accuracy of the information.

PROSPECTUS SUMMARY

The items in the following summary are described in more detail later in this prospectus. This summary does not contain all of the information you should consider. Before investing in our securities, you should read the entire prospectus carefully, including the Risk Factors beginning on page 11 and the financial statements and related notes beginning on page F-1.

Overview

We are a development stage research and development company. We have developed and are continuing to develop Application Specific Electro-Optic Polymers (ASEOP) and Non-Linear All-Optical Polymers (NLAOP) which have high electro-optic and optical activity. Both types of materials are thermally and photo-chemically stable, which we believe could have utility across a broad range of applications in devices that address markets including, without limitation, telecommunication, data communications, computing and photovoltaic cells.

Electro-optic devices convert data from electric signals into optical signals for use in communications systems and in optical interconnects for high-speed data transfer. We expect our patented and patent-pending technologies, when completed and tested, to be utilized by electro-optic device manufacturers, such as telecommunications component and systems manufacturers, networking and switching suppliers, semiconductor companies, aerospace companies and government agencies.

Our electro-optic polymers (polymers) are property-engineered at the molecular level (nanotechnology level) to meet the exacting thermal, environment and performance specifications demanded by electro-optic devices. We believe that

our patented and patent pending technologies will enable us to design electro-optic polymers that are free from the numerous diverse inherent flaws that plague competitive polymer technologies employed by other companies and research groups. We engineer our polymers with the intent to have temporal, thermal, chemical and photochemical stability within our patent pending molecular architectures.

Our non-linear all optical polymers have demonstrated resonantly enhanced Third-order properties approximately 2,630 times larger than fused silica which means that they are highly photo-optically active in the absence of an RF layer. In this way they differ from our electro-optical polymers and are considered more advanced next-generation materials.

Our patented and patent pending molecular architectures are based on a well-understood chemical and quantum mechanical occurrence known as aromaticity. Aromaticity provides a high degree of molecular stability. Aromaticity is what will enable our core molecular structures to maintain stability under a broad range of polymerization conditions that otherwise appear to affect other current polymer molecular designs. Polymers, polymer-based devices and the processes used to create them are often patentable, which can provide the developers of such technology with a significant competitive advantage. We consider our proprietary intellectual property to be unique.

Our Business Development

PSI-TEC Corporation, referred to in this prospectus as PSI-TEC, was founded in 1991 and incorporated under the laws of the State of Delaware on September 12, 1995. PSI-TEC was founded in Upland, Pennsylvania by Dr. Frederick J. Goetz where he established a laboratory with a small amount of private funding. PSI-TEC subsequently moved its operations to laboratory space provided by the U.S. Army on the Aberdeen Proving Grounds in cooperation with a division of the Department of Defense for the advancement of ultra wide-bandwidth satellite telecommunications. Thereafter, PSI-TEC commenced operations of its own organic synthesis and thin-films laboratory in Wilmington, Delaware.

In order to become a non-reporting publicly-traded corporation, in July 2004 PSI-TEC reorganized with our Company whereby (i) our Company changed its name from Eastern Idaho Internet Services, Inc. to PSI-TEC Holdings, Inc.; (ii) our Company acquired all of the issued and outstanding shares of PSI-TEC stock; (iii) PSI-TEC became our Company's wholly-owned operating subsidiary; and (iv) our Company's then sole officer and director resigned, PSI-TEC's nominees were elected to our Company's board of directors and new management was appointed. For accounting purposes, this acquisition transaction was accounted for as a reverse-acquisition, whereby PSI-TEC was deemed to have purchased our Company. As a result, the historical financial statements of PSI-TEC became the historical financial statements of our Company.

Immediately prior to the time of the reorganization transaction, our Company was a non-reporting development stage company whose stock was traded on the Pink Sheets and that was seeking other business opportunities. It had no substantive business operations. Our Company was originally incorporated under the laws of the State of Nevada on June 24, 1997 as Eastern Idaho Internet Services, Inc. to operate as an Internet services marketing firm. It was unsuccessful in this venture, and in June 1998 it ceased its operations and sold all of its operating assets.

On October 20, 2006, in order to consolidate the operations of PSI-TEC Holdings, Inc. and PSI-TEC (PSI-TEC Holdings, Inc.'s wholly-owned subsidiary), PSI-TEC Holdings, Inc. and PSI-TEC completed a parent-subsiary merger whereby PSI-TEC Holdings, Inc., a Nevada corporation, survived and changed its name to Third-Order Nanotechnologies, Inc. No change of control or domicile occurred as a result of the merger.

On March 10, 2008, Third-order Nanotechnologies, Inc. changed its name to Lightwave Logic, Inc. to better suit its strategic business plan and to facilitate shareholder recognition of the Company and its business.

Unless the context otherwise requires, all references to the Company, we, our or us and other similar terms means Lightwave Logic, Inc., a Nevada corporation.

Recent Developments

In January 2010, we entered into an agreement with the University of Alabama at Tuscaloosa to conduct cooperative development, analytical testing, optimization, and scale-up of our proprietary materials platform, which should help shorten the time to market for our new Polymeric Electro-Optic materials.

In March 2010, we successfully concluded the electrical and optical performance testing stage of our proof of principle prototype phase modulator and began Application Engineering of our technology in customer design environments and working directly with interested large system suppliers to attempt to engineer specific individual product materials and device designs for sale to or by these suppliers.

In October of 2010, we completed the concept stage of a novel design for an advanced optical computing application and moved forward into the design stage with Celestech, Inc. of Chantilly, Virginia. This project will incorporate one of our Company's advanced electro-optical polymer materials.

In October of 2010, we announced the results of testing performed by Lehigh University which demonstrated the Third-order non-linear properties of our proprietary molecules in the Perkinamine NR™ chromophore class. Lehigh University determined that the material was 100 times stronger than the highest off-resonance small molecule currently known. They also determined that it was 2,600 times more powerful than fused

silica and demonstrated extremely fast (less than 1 picosecond) photo-induced non-linear response that would be capable of modulation at rates of 1 THz (terahertz).

In February and April 2011, respectively, the United States Patent Office granted our Company two patents: US Patent No. 7,894,695 covering our Tricyclic Spacer System for Non-Linear Optical Devices and US Patent No. 7,919,619 for Heterocyclical Chromophore Architectures directed to our Perkinamine™ chromophores. These composition of matter patents taken together protect the core of our electro-optical materials portfolio.

In March 2011, we entered into a research and development agreement with the City University of New York's Laboratory for Nano Micro Photonics (LaNMP) to develop Third-order non-linear devices. We believe that the combination of LaNMP's device capabilities together with our materials expertise should accelerate the development of all-optical devices.

In March 2011, the United States Patent Office granted our Company 2 patents: US Patent No. 7,919,619 for Heterocyclical Chromophore Architectures directed to our Perkinamine™ chromophores and US Patent No. 7,894,695 covering our Tricyclic Spacer System for Non-Linear Optical Devices. These composition of matter patents taken together protect the core of our electro-optical materials portfolio.

In March 2011, the City University of New York's Laboratory for Nano Micro Photonics (LaNMP) fabricated our first-ever all optical waveguide using one of our Perkinamine NR™ chromophores. It is anticipated that LaNMP will use this device architecture to develop various all-optical devices including an all-optical transistor.

In March 2011, we announced a two-year research and development collaboration with the University of Alabama to explore the advanced energy capture properties of our Perkinamine™ class of chromophores. Our material absorbs light across a wide range of wavelengths from near infra-red into the near ultraviolet. The University intends to explore how to efficiently capture a wide range of solar radiation with our material.

Award

On September 26, 2006, we were awarded the 2006 Electro-Optic Materials Technology Innovation of the Year Award by Frost & Sullivan. Frost & Sullivan's Technology Innovation of the Year Award is bestowed upon candidates whose original research has resulted in innovations that have, or are expected to bring, significant contributions to multiple industries in terms of adoption, change, and competitive posture. This award recognizes the quality and depth of our Company's research and development program as well as the vision and risk-taking that enabled us to undertake such an endeavor.

Corporate Information

Our principal executive office is located at 121 Continental Drive, Suite 110, Newark, Delaware 19713, and our telephone number is (302)-356-2717. Our website address is www.lightwavelogic.com. Information contained in, or accessible through, our website does not constitute a part of, and is not incorporated into, this prospectus. Also, this prospectus includes the names of various government agencies and the trade names of other companies. Unless specifically stated otherwise, the use or display by us of such other parties' names and trade names in this prospectus is not intended to and does not imply a relationship with, or endorsement or sponsorship of us by, any of these other parties.

The Offering

Common stock outstanding prior to the offering (1)	44,126,872 shares, including the 150,830 initial commitment shares already issued to Lincoln Park under the Purchase Agreement and included in this offering
Common Stock offered by the selling shareholder	10,000,000 shares, consisting of the 150,830 initial commitment shares already issued to Lincoln Park, up to 301,659 shares to be issued to Lincoln Park as additional commitment shares and the remaining shares to be purchased from time to time under the Purchase Agreement
Common stock to be outstanding after giving effect to the issuance of 10,000,000 shares to Lincoln Park under the Purchase Agreement	54,126,872 shares
Use of proceeds	We will not receive any proceeds from the sale of the shares of common stock by Lincoln Park. However, we may receive up to \$20,000,000 from sales of shares under the Purchase Agreement. Any proceeds that we receive from sales to Lincoln Park under the Purchase Agreement will be used to further our business plan of expanding our research and development of our polymer materials technologies, commercialize potential optical devices and materials and for general and administrative purposes. See Use of Proceeds .
Over-the-Counter Bulletin Board symbol	LWLG
Risk factors	This investment involves a high degree of risk. See Risk Factors for a discussion of factors you should consider carefully before making an investment decision.

(1)

The number of shares of our common stock set forth above is based on 44,126,872 shares of common stock outstanding as of May 18, 2011, and excludes:

options to purchase 4,097,000 shares of our common stock pursuant to our 2007 Employee Stock Plan, of which 3,409,500 have vested as of May 18, 2011, at a weighted average exercise price of \$1.20 per share; and

warrants to purchase an aggregate of 3,264,000 shares of our common stock, of which 2,845,250 have vested as of May 18, 2011, at a weighted average exercise price of \$0.77 per share.

On May 3, 2011, we executed a Purchase Agreement and a Registration Rights Agreement with the selling shareholder, Lincoln Park Capital Fund, LLC, or Lincoln Park. Under the Purchase Agreement, we have the right to sell to Lincoln Park up to \$20,000,000 of our common stock at our option as described below.

Pursuant to the Registration Rights Agreement, we are filing this registration statement and prospectus with the SEC covering the shares that may be issued to Lincoln Park under the Purchase Agreement. We do not have the right to commence any sales of our shares to Lincoln Park until the SEC has declared effective the registration statement. Thereafter, over approximately 30 months, and subject to certain terms and conditions, we have the right to direct Lincoln Park to make periodic purchases of up to \$1,000,000 of our common stock per sale depending on certain conditions as set forth in the Purchase Agreement as often as every five business days up to the aggregate commitment of \$20,000,000. The purchase price of the shares will be based on the market prices of our shares immediately prior to the time of sale as computed under the Purchase Agreement without any fixed discount. In no

event, however, will Lincoln Park be obligated to purchase shares of our common stock under the Purchase Agreement at a price of less than \$1.00 per share. We may, at any time, and in our sole discretion, terminate the Purchase Agreement without fee, penalty or cost upon notice to Lincoln Park. Lincoln Park may not assign or transfer its rights and obligations under the Purchase Agreement.

Upon signing the Purchase Agreement, we issued 150,830 shares of our common stock to Lincoln Park as a commitment fee for entering into the Purchase Agreement(which shares are included in this offering), and we may issue up to an additional 301,659 shares pro rata (which shares are included in this offering) if and when we sell additional shares to Lincoln Park under the Purchase Agreement.

Under the Purchase Agreement and the Registration Rights Agreement, we are required to register 10,000,000 shares, which includes the 150,839 shares already issued and the 301,659 shares which we are required to issue pro rata in the future as a commitment fee if and when we sell shares to Lincoln Park under the Purchase Agreement.

Although the Purchase Agreement provides that we may sell up to \$20,000,000 of our common stock to Lincoln Park, we are only registering 10,000,000 shares to be purchased thereunder, which may or may not cover all such shares purchased by Lincoln Park under the Purchase Agreement, depending on the purchase price per share.

Of the 10,000,000 shares offered under this prospectus:

150,839 shares already issued to Lincoln Park as a commitment fee for entering into the Purchase Agreement; and

301,659 shares represent shares that we are required to issue proportionally in the future, as a commitment fee, if and when we sell additional shares to Lincoln Park under the Purchase Agreement; and

The remainder represents shares we may sell to Lincoln Park under the Purchase Agreement.

Except as otherwise indicated herein, all information in this prospectus, including the number of shares that will be outstanding after this offering, assumes or gives effect to no exercise of options or warrants outstanding on the date of

this prospectus or in the future, except as specifically set forth herein.

As of May 18, 2011, there were 44,126,872 shares outstanding, of which 30,597,321 shares were held by non-affiliates. If all of the 10,000,000 shares offered by Lincoln Park were issued and outstanding as of the date hereof, such shares would represent 18.48% of the total common stock outstanding, or 24.64% of the non-affiliates shares outstanding (assuming that the shares offered by Lincoln Park are not held by affiliates). The number of shares ultimately offered for sale by Lincoln Park is dependent upon the number of shares that we sell to Lincoln Park under the Purchase Agreement. If we elect to issue more than the 10,000,000 shares offered under this prospectus, which we have the right but not the obligation to do, we must first register under the Securities Act the resale by Lincoln Park of any additional shares we may elect to sell to Lincoln Park before we can sell such additional shares.

Glossary of Select Technology Terms Used Herein

All-optical devices

All-optical devices convert data in the form of input light signals to a secondary light data stream. The future market of all-optic devices is expected to include all-optical transistors.

All-optical transistors

All-optical transistors are devices currently under development that use an input light signal to switch a secondary light signal. All-optical transistors are expected to enable the fabrication of an entirely new generation of high-speed

computers that operate on light instead of electricity. We believe that this will significantly improve computation speeds.

Aromaticity

Aromaticity causes an extremely high degree of molecular stability. It is a molecular arrangement wherein atoms combine into a ring or rings and share their electrons among each other. Aromatic compounds are extremely stable because the electronic charge distributes evenly over a great area preventing hostile moieties, such as oxygen and free radicals, from finding an opening to attack.

CLD-1

An electro-optic material based upon unstable polyene molecular architectures. Unlike our own molecular designs, CLD-1 is not a CSC model molecule and exhibits thermal degradation at low temperatures (~250 C) making it less suitable for commercial and military applications.

CSC (Cyclical Surface Conduction) theory

Most charge-transfer dyes (e.g. Disperse Red 1, CLD, FTC) are based upon a polyene architecture wherein the ground state and first excited state differ by the alteration of single and double bonds. CSC model molecules use nitrogenous heterocyclical structures.

Electro-optic devices

Electro-optic devices convert data from electric signals into optical signals for use in communications systems and in optical interconnects for high-speed data transfer.

Electro-optic materials

Electro-optic materials are materials that are engineered at the molecular level. Molecular level engineering is commonly referred to as nanotechnology.

Electro-optic modulators

Electro-optic modulators are electro-optic devices that perform electric-to-optic conversions within the infrastructure of the Internet.

Nanotechnology

Nanotechnology refers to the development of products and production processes at the molecular level, which is a scale smaller than 100 nanometers (a nanometer is one-billionth of a meter).

Nitrogenous heterocyclical structure

A multi-atom molecular ring or combination of rings that contain nitrogen.

Plastics/Polymers

Polymers, also known as plastics, are large carbon-based molecules that bond many small molecules together to form a long chain. Polymer materials can be engineered and optimized using nanotechnology to create a system in which unique surface, electrical, chemical and electro-optic characteristics can be controlled. Materials based on polymers are used in a multitude of industrial and consumer products, from automotive parts to home appliances and furniture, as well as scientific and medical equipment.

Polymerization

Polymerization is a molecular engineering process that provides the environmental and thermal stability necessary for functional electro-optical devices. Polymer materials can be engineered and optimized using nanotechnology to create a system in which unique surface, electrical, chemical and electro-optic characteristics can be controlled.

Thermal Gravimetric Analysis (TGA)

The basic principle in TGA is to measure the mass of a sample as a function of temperature. This, in principle, simple measurement is an important and powerful tool in solid state chemistry and materials science. The method, for example, can be used to determine water of crystallisation, follow degradation of materials, determine reaction kinetics, study oxidation and reduction, or to teach the principles of stoichiometry, formulae and analysis.

Zwitterionic-aromatic push-pull

Most charge-transfer dyes (e.g. Disperse Red 1, CLD, FTC) have an excited state (such as during photonic absorption) wherein a full charge is separated across the molecule. Such a molecule is said to be excited-state zwitterionic. Within such a molecular system the zwitterionic state is unstable and the molecule typically collapses rapidly into its lower dipole ground state. In our molecular designs, the excited state is further stabilized by the aromatization of the molecular core. In that aromaticity stabilizes this excited state, it is said to "pull" the molecule into this higher energy state; on the other hand, the unstable zwitterionic state is said to "push" the molecule out of the excited state.

SUMMARY FINANCIAL DATA

The following tables summarize our financial data. We have derived the following summary of our statement of operations data for the years ended December 31, 2010 and 2009 from our audited financial statements appearing later in this prospectus. We have derived the following summary of our statement of operations data for the three months ended March 31, 2011 and 2010 and balance sheet data as of March 31, 2011 from our unaudited financial statements appearing later in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future. You should read the summary of our financial data set forth below together with our financial statements and the related notes to those statements, as well as Management's Discussion and Analysis of Financial Condition and Results of Operations appearing later in this prospectus.

	Years Ended December 31,		Three Months Ended March 31,	
	2010	2009	2011	2010
Statement of Operations Data:				
NET SALES	\$ 3,200	\$ -	\$ -	-
COST AND EXPENSE				
Research and development	1,709,171	1,662,813	466,864	366,432
General and administrative	2,006,900	1,058,071	459,246	644,274
LOSS FROM OPERATIONS	(3,712,871)	(2,720,884)	(926,110)	(1,010,706)
OTHER INCOME (EXPENSE)	(361)	(987)	115	54
NET LOSS	\$ (3,713,232)	\$ (2,721,871)	\$ (925,995)	(1,010,652)
Basic and Diluted Loss per Share	\$ (0.09)	\$ (0.07)	\$ (0.02)	(0.03)
Basic and Diluted Weighted Average Number of Shares	42,253,450	39,431,766	43,966,153	41,166,542
Balance Sheet Data:			As of March 31, 2011	
Current assets			\$	631,728

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Property and equipment - net		94,849
Other assets		
Intangible assets - net		359,308
TOTAL ASSETS	\$	1,085,885
TOTAL LIABILITIES		147,169
TOTAL STOCKHOLDERS' EQUITY		938,716
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$	1,085,885

RISK FACTORS

Before you make a decision to invest in our securities, you should consider carefully the risks described below, together with other information in this prospectus. If any of the following events actually occur, our business, operating results, prospects or financial condition could be materially and adversely affected. This could cause the trading price of our common stock to decline and you may lose all or part of your investment. The risks described below are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also significantly impair our business operations and could result in a complete loss of your investment.

We have incurred substantial operating losses since our inception and will continue to incur substantial operating losses for the foreseeable future.

Since our inception, we have been engaged primarily in the research and development of our electro-optic polymer materials technologies and potential products. As a result of these activities, we incurred significant losses and experienced negative cash flow since our inception. We incurred a net loss of \$3,713,232 for the year ended December 31, 2010 and \$2,721,871 for the year ended December 31, 2009. We anticipate that we will continue to incur operating losses through at least the remainder of 2011.

We may not be able to generate significant revenue either through development contracts from the U.S. government or government subcontractors or through customer contracts for our potential products or technologies. We expect to continue to make significant operating and capital expenditures for research and development and to improve and expand production, sales, marketing and administrative systems and processes. As a result, we will need to generate significant additional revenue to achieve profitability. We cannot assure you that we will ever achieve profitability.

Our independent auditors have expressed substantial doubt about our ability to continue as a going concern.

Our independent auditors have included an explanatory paragraph in their audit report issued in connection with our financial statements which states that our significant losses and negative cash flow during our development stage raise substantial doubt about our ability to continue as a going concern. Our ability to continue as a going concern is dependent upon our ability to successfully complete our development program and, ultimately, attain profitable operations, which is dependent upon future events, including obtaining adequate financing to fulfill our development activities and achieving a level of revenue adequate to support our cost structure. Our financial statements do not include any adjustments that might result from the outcome of these uncertainties. We cannot assure you that we will be able to secure the necessary financing and/or equity investment or achieve an adequate sales level.

We will require additional capital to continue to fund our operations. If we do not obtain additional capital, we may be required to substantially limit our operations.

Our business does not presently generate the cash needed to finance our current and anticipated operations. Based on our current operating plan and budgeted cash requirements, we believe that we have sufficient funds to finance our operations through August 2011, however, we will need to obtain additional future financing after that time to finance our operations until such time that we can conduct profitable revenue-generating activities. We expect that we will need to seek additional funding through public or private financings, including equity financings, and through other arrangements, including collaborative arrangements. Poor financial results, unanticipated expenses or unanticipated opportunities could require additional financing sooner than we expect. Other than the Lincoln Park financing transaction, we have no plans or arrangements with respect to the possible acquisition of additional financing, and such financing may be unavailable when we need it or may not be available on acceptable terms.

In May 2011, we entered into the Purchase Agreement with Lincoln Park, under which we may direct Lincoln Park to purchase up to \$20,000,000 worth of shares of our common stock over a 30-month period, once the registration statement of which this prospectus forms a part has been declared effective by the SEC. If we make

sales of our common stock under the Purchase Agreement, we would be able to fund our operations for a longer period of time. However, the extent to which we will rely on the Purchase Agreement with Lincoln Park as a source of funding will depend on a number of factors, including the prevailing market price of our common stock and volume of trading and the extent to which we are able to secure working capital from other sources. Specifically, Lincoln Park does not have the obligation to purchase any shares of our common stock on any business day that the price of our common stock is less than \$1.00 per share.

We are registering the resale of 10,000,000 shares by Lincoln Park pursuant to this prospectus. In the event we elect to issue more than the 10,000,000 shares offered hereby, we would be required to file a new registration statement and have it declared effective by the SEC. If obtaining sufficient funding from Lincoln Park does not occur or is prohibitively dilutive, we will need to secure another source of funding in order to satisfy our working capital needs. Should the financing we require to sustain our working capital needs be unavailable or prohibitively expensive when we require it, the consequences could be a material adverse effect on our business, operating results, financial condition and prospects.

Our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors, including the factors discussed elsewhere in this prospectus. We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect.

Additional financing may not be available to us, due to, among other things, our Company not having a sufficient credit history, income stream, profit level, asset base eligible to be collateralized, or market for its securities. If we raise additional funds by issuing equity or convertible debt securities, the percentage ownership of our existing shareholders may be reduced, and these securities may have rights superior to those of our common stock. If adequate funds are not available to satisfy either short-term or long-term capital requirements, or if planned revenues are not generated, we may be required to substantially limit our operations.

We may not be able to access the full amounts available under the Purchase Agreement, which could prevent us from accessing the capital we need to continue our operations which could have an adverse affect on our business.

Under the Purchase Agreement, we may direct Lincoln Park to purchase up to \$20,000,000 worth of shares of our common stock over a 30-month period. On any trading day selected by us, we may sell to Lincoln Park up to \$200,000 of common stock by delivering a purchase notice to Lincoln Park. The Purchase Price of such shares is equal to the lesser of: (i) the lowest sale price of our common stock on the purchase date; or (ii) the arithmetic average of the three lowest closing sale prices for our common stock during the twelve consecutive trading days ending on the trading day immediately preceding the purchase date. Lincoln Park does not have the right or the obligation to purchase any shares of our common stock on any business day that the market price of our common stock is less than \$1.00. To the extent that the market price of our common stock is below \$1.00 per share on a trading day, we would not receive any proceeds under the Purchase Agreement for that day.

If the market price of our common stock is not below \$9.50 per share, our sales will be limited to up to \$1,000,000 of our common stock on each purchase date. If the market price of our common stock is not below \$4.50 per share, our sales will be limited to up to \$500,000 of our common stock on each purchase date. If the market price of our common stock is not below \$3.50 per share, our sales will be limited to up to \$400,000 of our common stock on each purchase date. If the market price of our common stock is not below \$2.50 per share, our sales will be limited to up to \$300,000 of our common stock on each purchase date.

Depending on the prevailing market price of our common stock, we may not be able to sell shares to Lincoln Park for the maximum \$20,000,000 over the term of the agreement. In addition, we are only registering 10,000,000 shares of our common stock under this prospectus. Assuming a purchase price of \$1.25 per share, the closing sale price of our common stock on May 19, 2011, and the issuance to Lincoln Park of 10,000,000 shares, which would be comprised of 9,851,412 shares purchased at \$1.25 per share and 148,588 shares issued as additional pro rata commitment shares for no additional consideration, the proceeds to us would only be \$12,500,000. In the

event we elect to issue more than 10,000,000 shares, we would be required to file a new registration statement and have it declared effective by the SEC.

The sale of shares of our common stock to Lincoln Park under the Purchase Agreement may cause substantial dilution to our existing stockholders and could cause the price of our common stock to decline.

Under the Purchase Agreement, we may sell to Lincoln Park, from time to time and under certain circumstances, up to \$20,000,000 of our common stock. We do not have the right to commence any sales of our shares to Lincoln Park under the Purchase Agreement until the SEC h