

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

FORM S-8

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

DISCOVERY LABORATORIES, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or Other Jurisdiction of Incorporation)

94-3171943
(I.R.S. Employer Identification Number)

2600 Kelly Road, Suite 100
Warrington, Pennsylvania 18976-3622
(Address, Including Zip Code and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Discovery Laboratories, Inc. 401(k) Plan
(Full title of the plan)

David L. Lopez, C.P.A., Esq.
Executive Vice President, General Counsel
Discovery Laboratories, Inc.
2600 Kelly Road, Suite 100
Warrington, Pennsylvania 18976
(215) 488-9300
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
Ira L. Kotel, Esq.
Sonnenschein Nath & Rosenthal LLP
Two World Financial Center
New York, New York 10281
(212) 768-6700

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.

Large accelerated filer
Non-accelerated filer (Do not check if a smaller reporting company)

Accelerated filer
Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount 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	1,300,000	\$0.23	\$299,000	\$21.32

- (1) Pursuant to Rule 416 promulgated under the Securities Act of 1933, as amended, this registration statement shall be deemed to cover any additional shares of common stock, par value \$0.001 per share, that become issuable under the 401(k) Plan by reason of any stock splits, stock dividends or similar transactions. In addition, this registration statement also covers an indeterminate amount of interests to be offered or sold pursuant to the Discovery Laboratories Inc. 401(k) Plan.
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rules 457(c) and (h) promulgated under the Securities Act of 1933, as amended, by taking the average of the high and low sales price per share of the common stock on The Nasdaq Capital Market on September 23, 2010.

REGISTRATION OF ADDITIONAL SECURITIES

This registration statement is being filed pursuant to General Instruction E of Form S-8 under the Securities Act of 1933, as amended (the "Securities Act"), to register an additional 1,300,000 shares of our common stock, par value \$0.001 per share, that may be issued pursuant to the 401(k) Plan (the "Plan") of Discovery Laboratories, Inc. (the "Company") plus an indeterminate amount of interests in the Plan. The Company previously registered shares of its common stock for issuance under the Plan on registration statements on Form S-8 filed with the Securities and Exchange Commission (the "Commission") on November 12, 2003 (File No. 333-110412), September 28, 2006 (File No. 333-137643), December 23, 2008 (File No. 333-156443), January 22, 2010 (File No. 333-164470) and March 31, 2010 (File No. 333-165809). Pursuant to General Instruction E to Form S-8, the contents of such registration statements, including all exhibits thereto as applicable, are incorporated herein by reference.

All documents subsequently filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Securities Exchange Act of 1934, as amended, prior to the filing of a post-effective amendment which indicates that all securities offered have been sold or which deregisters all such securities then remaining unsold, shall be deemed to be incorporated by reference herein and to be part hereof from the date of filing of such documents. Any statement contained herein or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this registration statement to the extent that a statement contained herein or in any other subsequently filed document which also is incorporated or deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this registration statement.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 8. Exhibits.

<u>Exhibit No.</u>	<u>Description</u>	<u>Method of Filing</u>
4.1	Form of Discovery Laboratories Inc. 401(k) Plan	Incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-8 filed on January 22, 2010 (File No. 333-164470).
5.1	Opinion of Sonnenschein Nath & Rosenthal LLP, legal counsel.*	Filed herewith.
23.1	Consent of Sonnenschein Nath & Rosenthal LLP (included in Exhibit 5.1)	Filed herewith.
23.2	Consent of Ernst & Young LLP, independent registered public accounting firm.	Filed herewith.
24.1	Powers of Attorney (included in signature page to this registration statement).	Filed herewith.

* In accordance with Item 8 of Form S-8, and in lieu of the opinion of counsel or determination contemplated by Item 601(b)(5) of Regulation S-K, the Company hereby undertakes that it will submit the Plan and all amendments thereto to the Internal Revenue Service ("IRS") in a timely manner, and that it will make all changes required by the IRS in order to qualify the Plan.

SIGNATURES

Pursuant to the requirements of the Securities Act, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Warrington, Commonwealth of Pennsylvania on this 28th day of September, 2010.

DISCOVERY LABORATORIES, INC.
(Registrant)

By: /s/ W. Thomas Amick

W. Thomas Amick
interim Chief Executive Officer

POWER OF ATTORNEY

We, the undersigned officers and directors of Discovery Laboratories, Inc., and each of us, do hereby constitute and appoint each of W. Thomas Amick, and David L. Lopez, CPA., Esq., or any of them, each acting alone, his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, to do any and all acts and things in our name, place and stead, in any and all capacities, in connection with this registration statement on Form S-8 under the Securities, or any registration statement for the same offering that is to be effective upon filing under the Securities Act, including, without limitation, to sign for us or any of us in our names in the capacities indicated below any and all amendments or supplements to this registration statement, including any and all post-effective amendments to the registration statement, and to sign any and all additional registration statements relating to the same offering of securities as this registration statement that are filed pursuant to Rule 462(b) under the Securities Act, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission and any applicable securities exchange or securities self-regulatory body, granting unto said attorneys-in-fact and agents, each acting alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities indicated on the dates indicated.

Signature	Name & Title	Date
/s/ W. Thomas Amick	W. Thomas Amick Chairman of the Board of Directors and interim Chief Executive Officer	September 28, 2010
/s/ John G. Cooper	John G. Cooper President and Chief Financial Officer	September 28, 2010
/s/ John Tattory	John Tattory Vice President, Finance and Controller (Principal Accounting Officer)	September 28, 2010
/s/ Herbert McDade	Herbert McDade, Jr. Director	September 28, 2010
/s/ Max Link	Max Link, Ph.D. Director	September 28, 2010
	Antonio Esteve, Ph.D. Director	
/s/ Marvin E. Rosenthale	Marvin E. Rosenthale, Ph.D. Director	September 28, 2010
	Bruce Peacock Director	

September 28, 2010

Board of Directors
Discovery Laboratories, Inc.
2600 Kelly Road, Suite 100
Warrington, Pennsylvania 18976-3622

Re: Discovery Laboratories, Inc. 401(k) Plan

Ladies and Gentlemen:

We have acted as counsel for Discovery Laboratories, Inc., a Delaware corporation (the "Company"), in connection with the preparation of the Company's registration statement on Form S-8, and any amendments thereto (the "Registration Statement"), as filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), for the registration under the Securities Act of up to 1,300,000 shares (the "Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock") to be issued pursuant to the Company's 401(k) Plan (the "Plan").

In connection with this opinion, we have examined originals or copies, certified or otherwise identified to our satisfaction, of (i) the Plan; (ii) the Company's Restated Certificate of Incorporation, as amended; (iii) the Company's Amended and Restated By-Laws; and (iv) resolutions adopted by the Company's Board of Directors on September 10, 2010. We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and such agreements, certificates of public officials, certificates of officers or other representatives of the Company, and such other documents, certificates and records as we have deemed necessary or appropriate as a basis for the opinions set forth herein. As to various questions of fact material to this opinion, we have also relied upon representations and warranties of the Company and upon such certificates and other instruments of officers of the Company and public officials furnished to us by the Company, in each case without independent investigation or verification of their accuracy. We have also assumed that there are no agreements or understandings between or among the Company and any participants in the Plans that would expand, modify or otherwise affect the terms of the Plans or the respective rights or obligations of the participants thereunder, and that each award agreement setting forth the terms of each grant of options or other awards under the Plans is consistent with the Plans and has been duly authorized and validly executed and delivered by the parties thereto.

In our examination, we have assumed (i) the genuineness of all signatures; (ii) the authenticity of all documents submitted to us as originals; (iii) the conformity to original documents of all documents submitted to us as certified, conformed or photostatic, electronic or facsimile copies and the authenticity of the originals of such documents; (iv) the authority of all persons signing any document; (v) the enforceability of all the documents and agreements we have reviewed in accordance with their respective terms against the parties thereto; and (vi) the truth and accuracy of all matters of fact set forth in all certificates and other instruments furnished to us.

Based upon the foregoing, and subject to the assumptions, qualifications and limitations set forth herein, we are of the opinion that the Shares, when issued and paid for in accordance with the terms of the Plan, will be validly issued, fully paid and non-assessable.

No opinion is expressed herein with respect to any laws other than Delaware corporate law (which includes the Delaware General Corporation Law and applicable provisions of the Delaware constitution, as well as reported judicial opinions interpreting same). No opinion is expressed as to the effect that the law of any other jurisdiction may have upon the subject matter of the opinion expressed herein under conflicts of law principles, rules and regulations or otherwise.

This opinion is expressed as of the date hereof. We assume no obligation to supplement this letter if any applicable laws change after the date hereof or if we become aware of any new facts that might affect any view expressed herein after the date hereof.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement. In giving this consent, we do not hereby admit that we are within the category of persons whose consent is required by Section 7 of the Securities Act or the rules and regulations promulgated thereunder by the Commission.

We are delivering this opinion to you at your request in accordance with the requirements on Item 601(b)(5) of Regulation S-K under the Securities Act, and not for any other purpose. We call your attention to the fact that Ira L. Kotel, a member of this firm, is a holder of shares of Common Stock.

Very truly yours,

/s/ Sonnenschein Nath & Rosenthal LLP
Sonnenschein Nath & Rosenthal LLP

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8 No. 333-00000) pertaining to the Discovery Laboratories, Inc. 401(k) Plan of our reports dated March 10, 2010, with respect to the consolidated financial statements of Discovery Laboratories, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2009, and the effectiveness of internal control over financial reporting of Discovery Laboratories, Inc. filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Philadelphia, Pennsylvania
September 27, 2010
