

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

FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

INVIVO THERAPEUTICS HOLDINGS CORP.

(Exact Name of Registrant as Specified in Its Charter)

Nevada
(State or Other Jurisdiction of
Incorporation or Organization)

36-4528166
(I.R.S. Employer
Identification No.)

One Kendall Square, Building 1400 East, Floor 4
Cambridge, Massachusetts
(Address of Principal Executive Offices)

02139
(Zip Code)

InVivo Therapeutics Holdings Corp. 2010 Equity Incentive Plan
(Full Title of the Plan)

Francis M. Reynolds
Chief Executive Officer
InVivo Therapeutics Holdings Corp.
One Kendall Square, Building 1400 East, Floor 4
Cambridge, Massachusetts 02139
(Name and Address of Agent for Service)

(617) 863-5500
(Telephone Number, Including Area Code, of Agent For Service)

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 ☐ Accelerated filer ☐
Non-accelerated filer ☐ (Do not check if a smaller reporting company) Smaller reporting company ☒

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share	Proposed maximum aggregate offering price	Amount of registration fee
Common Stock, \$0.00001 par value per share	300,000 Shares	\$2.38 (2)	\$714,000.00 (2)	\$ 81.83
Common Stock, \$0.00001 par value per share	25,000 Shares	\$2.25 (2)	\$ 56,250.00 (2)	\$ 6.45
Common Stock, \$0.00001 par value per share	25,000 Shares	\$2.37 (2)	\$ 59,250.00 (2)	\$ 6.79
Common Stock, \$0.00001 par value per share	24,889 Shares	\$2.49 (2)	\$ 61,973.61 (2)	\$ 7.11
Common Stock, \$0.00001 par value per share	2,625,111 Shares	\$2.45 (3)	\$6,431,521.95 (3)	\$737.05
Total	3,000,000 Shares	n/a	\$7,322,995.56	\$839.23

- (1) Pursuant to Rule 416 promulgated under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement shall also cover any additional shares of Common Stock that become issuable under the InVivo Therapeutics Holdings Corp. 2010 Equity Incentive Plan (the "Plan") by reason of any stock dividend, stock split, recapitalization, or any other similar transaction without receipt of consideration that results in an increase in the number of outstanding shares of Common Stock of the Registrant. The securities covered by this Registration Statement consist of (i) 374,889 shares reserved for issuance upon exercise of outstanding options granted under the Plan and (ii) 2,625,111 shares available for future awards under the Plan.
- (2) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(h) of the Securities Act, based upon the exercise price per share of outstanding but unexercised options.
- (3) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(h) of the Securities Act, based upon the average of the high and low sale prices of the Registrant's Common Stock on the OTC Bulletin Board on August 16, 2012 (\$2.45), in accordance with Rule 457(c) under the Securities Act of 1933, as amended.

**REGISTRATION OF ADDITIONAL SECURITIES
PURSUANT TO GENERAL INSTRUCTION E**

This Registration Statement is being filed to register an additional 3,000,000 shares of the Common Stock of InVivo Therapeutics Holdings Corp. (the “Registrant”) that may be issued under the InVivo Therapeutics Holdings Corp. 2010 Equity Incentive Plan. Pursuant to General Instruction E of Form S-8, the Registrant hereby incorporates by reference the contents of the Registrant’s Registration Statement on Form S-8 (No. 333-176110) as previously filed with the Securities and Exchange Commission (the “SEC”) on August 5, 2011, except for Items 3 and 8 which are being updated by this Registration Statement.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following documents filed with the SEC are incorporated by reference in this Registration Statement:

(a) The Registrant’s Annual Report on Form 10-K for the fiscal year ended December 31, 2011 filed with the SEC on March 15, 2012;

(b) All other reports filed pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), since December 31, 2011; and

(c) The description of the Registrant’s Common Stock contained in the Registrant’s Registration Statement on Form 8-A filed with the SEC on June 30, 2006, including any amendments or reports filed for the purpose of updating that description.

In addition, all documents filed by the Registrant pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, after the date hereof and prior to the filing of a post-effective amendment which indicates that all securities offered herein have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference herein and to be part hereof from the date of filing such documents. Any statement contained herein or in a document incorporated by reference 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 such statement is modified or superseded by any other subsequently filed document which is incorporated or is deemed to be incorporated by reference herein. 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.

Item 8. Exhibits.

The Exhibit Index immediately preceding the exhibits is incorporated herein by reference.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, 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 Cambridge, Massachusetts, on August 22, 2012.

INVIVO THERAPEUTICS HOLDINGS CORP.

By: /s/ Francis M. Reynolds
Francis M. Reynolds
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS that each individual whose signature appears below constitutes and appoints Francis M. Reynolds as such person's true and lawful attorney-in-fact and agent with full power of substitution and resubstitution, for such person in such person's name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement (or any Registration Statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto, and all documents in connection therewith, with the SEC, granting unto said attorney-in-fact and agent 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 such person might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or any substitute or substitutes of him, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>/s/ Francis M. Reynolds</u> Francis M. Reynolds	Chairman, Chief Executive Officer, President and Chief Financial Officer (Principal Executive Officer, Principal Financial Officer and Principal Accounting Officer)	August 22, 2012
<u>/s/ Richard J. Roberts</u> Richard J. Roberts	Director	August 22, 2012
<u>/s/ George Nolen</u> George Nolen	Director	August 22, 2012
<u>Adam K. Stern</u> Adam K. Stern	Director	August , 2012

EXHIBIT INDEX

<u>No.</u>	<u>Description</u>
4.1	InVivo Therapeutics Holdings Corp. 2010 Equity Incentive Plan, as amended, incorporated by reference to Appendix A of the Registrant's Schedule 14A Proxy Statement, as filed with the SEC on April 19, 2012.
5.1	Opinion of Greenberg Traurig, LLP, counsel to the Registrant.
23.1	Consent of Greenberg Traurig, LLP (included in Exhibit 5.1).
23.2	Consent of Wolf & Company, P.C.
24.1	Power of attorney (included on the signature page to this Registration Statement).

[Greenberg Traurig, LLP Letterhead]

August 22, 2012

InVivo Therapeutics Holdings Corp.
One Kendall Square
Building 1400 East, Floor 4
Cambridge, Massachusetts 02139

Re: **Additional Shares to be Issued Under the InVivo Therapeutics Holdings Corp. 2010 Equity Incentive Plan**

Ladies and Gentlemen:

We have assisted in the preparation of a Registration Statement on Form S-8 (the “Registration Statement”) to be filed with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”), relating to 3,000,000 shares (the “Shares”) of common stock, \$0.00001 par value per share (the “Common Stock”), of InVivo Therapeutics Holdings Corp., a Nevada corporation (the “Company”), that may be issued under the Company’s 2010 Equity Incentive Plan, as amended (the “Plan”).

We have examined the Articles of Incorporation and Bylaws of the Company, each as amended and restated to date, and originals, or copies certified to our satisfaction, of all pertinent records of the meetings of the directors and stockholders of the Company, the Registration Statement and such other documents relating to the Company as we have deemed material for the purposes of this opinion.

In our examination of the foregoing documents, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, photostatic or other copies, the authenticity of the originals of any such documents and the legal competence of all signatories to such documents.

We assume that the appropriate action will be taken, prior to the offer and sale of the Shares in accordance with the Plan, to register and qualify the Shares for sale under all applicable state securities or “Blue Sky” laws.

We express no opinion herein as to the laws of any state or jurisdiction other than the Nevada General Corporation Law and the federal laws of the United States of America.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized for issuance and, when the Shares are issued and paid for in accordance with the terms and conditions of the Plan, the Shares will be validly issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion with the Commission in connection with the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act. In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

/s/ Greenberg Traurig, LLP

Greenberg Traurig, LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-8 of InVivo Therapeutics Holdings Corp. of our report, dated March 14, 2012, relating to our audit of the consolidated financial statements which appear in the Annual Report on Form 10-K of the Registrant for the year ended December 31, 2011.

/s/ Wolf & Company, P.C.

Wolf & Company, P.C.
Boston, Massachusetts
August 22, 2012