

**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 Number)

**One Broadway, 14<sup>th</sup> Floor**  
**Cambridge, Massachusetts**  
(Address of Principal Executive Offices)

**02142**  
(Zip Code)

**InVivo Therapeutics Corporation 2007 Employee, Director and Consultant Stock Plan**  
(Full Title of the Plan)

**Frank M. Reynolds**  
**Chief Executive Officer**  
**InVivo Therapeutics Holdings Corp.**  
**One Broadway, 14<sup>th</sup> Floor**  
**Cambridge, Massachusetts 02142**  
(Name and Address of Agent for Service)

**(617) 475-1520**  
(Telephone Number, Including Area Code, of Agent for Service)

*Copies to:*  
**Thomas B. Rosedale, Esq.**  
**BRL Law Group LLC**  
**425 Boylston Street, 3<sup>rd</sup> Floor**  
**Boston, Massachusetts 02116**  
**(617) 399-6931**

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    | 2,953,187 shares           | \$0.0726(2)                               | \$214,402(2)                              | \$24.90                    |
|                                      | 1,487,223 shares           | \$0.9128(2)                               | \$1,357,538(2)                            | \$157.61                   |
|                                      | 1,475,147 shares           | \$1.00(2)                                 | \$1,475,147(2)                            | \$171.26                   |
| Total:                               | 5,915,557 shares           |   | \$3,047,087                               | \$353.77                   |

- (1) In accordance with Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), this registration statement shall be deemed to cover any additional securities that may from time to time be offered or issued to prevent dilution resulting from stock splits, stock dividends or similar transactions.
- (2) All of such shares are issuable upon the exercise of outstanding options to purchase the number of shares at the exercise price listed. Pursuant to Rule 457(h)(1), the aggregate offering price and the fee have been computed upon the basis of the price at which the options may be exercised.

## EXPLANATORY NOTE

InVivo Therapeutics Holdings Corp. (the “Registrant”) is filing this Registration Statement on Form S-8 to register the issuance of 5,915,557 shares, as adjusted, of common stock, \$.00001 par value per share (the “Common Stock”), of the Registrant authorized for issuance under the InVivo Therapeutics Corporation 2007 Employee, Director and Consultant Stock Plan (the “2007 Plan”). On October 26, 2010, the Registrant acquired InVivo Therapeutics Corporation (“InVivo”), through the completion of a reverse merger transaction. InVivo is now a wholly-owned subsidiary of the Registrant. Due to the merger, the Registrant assumed the 2007 Plan.

### PART I INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

#### Item 1. Plan Information.

The information required by Item 1 will be included in documents sent or given to participants in the plan covered by this registration statement pursuant to Rule 428(b)(1) of the Securities Act.

#### Item 2. Registrant Information and Employee Plan Annual Information.

The written statement required by Item 2 will be included in documents sent or given to participants in the plan covered by this registration statement pursuant to Rule 428(b)(1) of the Securities Act.

### PART II INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

#### Item 3. Incorporation of Documents by Reference.

The Registrant is subject to the informational and reporting requirements of Sections 13(a), 14, and 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and in accordance therewith files reports, proxy statements and other information with the Securities and Exchange Commission (the “Commission”). The following documents, which are on file with the Commission, are incorporated in this registration statement by reference:

(a) The Registrant’s latest annual report filed pursuant to Section 13(a) or 15(d) of the Exchange Act or the latest prospectus filed pursuant to Rule 424(b) under the Securities Act that contains audited financial statements for the Registrant’s latest fiscal year for which such statements have been filed.

(b) All other reports filed pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by the document referred to in (a) above.

(c) The description of the Registrant’s Common Stock contained in the Registrant’s registration statement on Form 8-A filed under the Exchange Act, incorporating by reference the information contained in the Registrant’s registration statement on Form SB-2 (File No. 333-133350), including any amendment or report filed for the purpose of updating such description.

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

Any documents or information “furnished” and not “filed” in accordance with the Commission rules shall not be deemed incorporated in this registration statement.

#### Item 4. Description of Securities

Not applicable.

#### Item 5. Interests of Named Experts and Counsel

Not applicable.

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**Item 6. Indemnification of Directors and Officers**

Nevada Revised Statutes (“NRS”) Sections 78.7502 and 78.751 provides the Registrant with the power to indemnify any of its directors, officers, employees and agents. The person entitled to indemnification must have conducted himself in good faith, and must reasonably believe that his conduct was in, or not opposed to, the Registrant’s best interests. In a criminal action, the director, officer, employee or agent must not have had reasonable cause to believe that his conduct was unlawful.

Under NRS Section 78.751, advances for expenses may be made by agreement if the director or officer affirms in writing that he has met the standards for indemnification and will personally repay the expenses if it is determined that such officer or director did not meet those standards.

The Registrant’s bylaws include an indemnification provision under which it has the power to indemnify its directors, officers, former directors and officers, employees and other agents (including heirs, executors, administrators and personal representatives) against all expenses actually and reasonably incurred by or imposed upon him or her in connection with the defense of any claim, action, suit or proceeding, civil or criminal (including any amount paid to settle an action or satisfy a judgment thereof approved by the Board of Directors as being in the best interests of the Registrant), against him or her by reason of his or her being or having been such director, officer, employee or agent, except when he or she shall be adjudged by a court of competent jurisdiction to be liable for gross negligence or willful misconduct in the performance of duty. The Registrant’s bylaws further provide for the advancement of all expenses incurred in connection with a proceeding upon receipt of an undertaking by or on behalf of such person to repay such amounts if it is determined that the party is not entitled to be indemnified under the bylaws. These indemnification rights are contractual, and as such will continue as to a person who has ceased to be a director, officer, employee or other agent, and will inure to the benefit of the heirs, executors and administrators of such a person.

The Registrant’s bylaws do not eliminate or limit the liability of a director for: (i) an act or omission which involves intentional misconduct, fraud or a knowing violation of law; or (ii) the payment of dividends in violation of NRS 78.300.

The Registrant maintains an insurance policy on behalf of its directors and officers, covering certain liabilities which may arise as a result of the actions of the directors and officers.

The Registrant has entered into agreements with all of its directors and officers affirming the Registrant’s obligation to indemnify them to the fullest extent permitted by law and providing various other protections.

**Item 7. Exemption from Registration Claimed.**

Not applicable.

**Item 8. Exhibits**

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

**Item 9. Undertakings**

(a) The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the “Calculation of Registration Fee” table in the effective registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

*provided however*, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in the post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in this registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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 the City of Cambridge, Massachusetts on March 31, 2011.

INVIVO THERAPEUTICS HOLDINGS CORP.

By: /s/ Frank M. Reynolds  
Name: Frank M. Reynolds  
Title: Chief Executive Officer, Chief Financial Officer and Director (Principal Executive Officer and Principal Financial and Accounting Officer)

POWER OF ATTORNEY

We, the undersigned officers and directors of InVivo Therapeutics Holdings Corp., hereby severally constitute Frank W. Reynolds our true and lawful attorney with full power to him to sign for us and in our names in the capacities indicated below, the Registration Statement on Form S-8 filed herewith and any and all subsequent amendments to said Registration Statement, and generally to do all such things in our names and behalf in our capacities as officers and directors to enable InVivo Therapeutics Holdings Corp. to comply with all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by said attorney to said Registration Statement and any and all amendments thereto.

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

| Signature   | Title   | Date           |
|---|---|----------------|
| <u>/s/ Frank M. Reynolds</u><br>Frank M. Reynolds   | Chief Executive Officer, Chief Financial Officer and Director<br>(Principal Executive Officer and Principal Financial and Accounting Officer) | March 30, 2011 |
| <u>/s/ George Nolen</u><br>George Nolen             | Director  | March 30, 2011 |
| <u>/s/ Christi M. Pedra</u><br>Christi M. Pedra     | Director  | March 30, 2011 |
| <u>/s/ Richard J. Roberts</u><br>Richard J. Roberts | Director  | March 28, 2011 |
| <u>/s/ Adam K. Stern</u><br>Adam K. Stern           | Director  | March 31, 2011 |

## EXHIBIT INDEX

| <u>Exhibit<br/>Number</u> | <u>Description</u>   |
|---------------------------|--|
| 4.1                       | Agreement and Plan of Merger, dated October 4, 2010, by and between Design Source, Inc. and InVivo Therapeutics Holdings Corp. is incorporated herein by reference to Exhibit 2.2 to the Registrant's Current Report on Form 8-K filed on October 6, 2010 (File No. 000-52089).  |
| 4.2                       | Agreement and Plan of Merger and Reorganization, dated as of October 26, 2010, by and among InVivo Therapeutics Holdings Corp. (f/k/a Design Source, Inc.), a Nevada corporation, InVivo Therapeutics Acquisition Corp., a Delaware corporation and InVivo Therapeutics Corporation, a Delaware corporation, is incorporated herein by reference to Exhibit 2.1 of the Registrant's Current Report on Form 8-K filed on November 1, 2010 (File No. 000-52089). |
| 4.3                       | Certificate of Merger is incorporated herein by reference to Exhibit 2.2 to the Registrant's Current Report on Form 8-K filed on November 1, 2010 (File No. 000-52089).  |
| 4.4                       | Articles of Incorporation of InVivo Therapeutics Holdings Corp., as amended, is incorporated herein by reference to Exhibit 3.1 of the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 000-52089).   |
| 4.5                       | Amended and Restated Bylaws of InVivo Therapeutics Holdings Corp. is incorporated herein by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K filed on March 15, 2011 (File No. 000-52089).  |
| 5                         | Opinion of BRL Law Group LLC.  |
| 23.1                      | Consent of BRL Law Group LLC (included in Exhibit 5).  |
| 23.2                      | Consent of Wolf & Company, P.C., Independent Registered Public Accounting Firm.  |
| 24                        | Power of Attorney (included in the signature pages of this Registration Statement).  |
| 99.1                      | InVivo Therapeutics Corporation 2007 Employee, Director and Consultant Stock Plan is incorporated herein by reference to Exhibit 10.9 to the Registrant's Current Report on Form 8-K filed on November 1, 2010 (File No. 000-52089).   |

BRL Law Group LLC  
425 Boylston Street, 3<sup>rd</sup> Floor  
Boston, Massachusetts 02116

March 31, 2011

InVivo Therapeutics Holdings Corp.  
One Broadway, 14<sup>th</sup> Floor  
Cambridge, MA 02142

Re: Registration Statement on Form S-8

Ladies and Gentlemen:

We have acted as counsel to InVivo Therapeutics Holdings Corp. (the “Company”) in connection with the Registration Statement on Form S-8 (the “Registration Statement”) to be filed with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the “Securities Act”), relating to an aggregate of 5,915,557 shares of Common Stock, \$.00001 par value per share (the “Shares”), of the Company to be issued pursuant to InVivo Therapeutics Corporation 2007 Employee, Director and Consultant Stock Plan (the “Plan”).

We have examined the Articles of Incorporation of the Company and the By-Laws of the Company, each as amended to date, and originals, or copies certified to our satisfaction, of all pertinent records of the meetings (and written consents in lieu thereof) 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 as originals, the conformity to original documents of all documents submitted as copies, the authenticity of the originals of such latter documents and the legal competence of all signatories to such documents.

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

It is understood that this opinion is to be used only in connection with the offer and sale of the Shares while the Registration Statement is in effect.

Based upon and subject to 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 non-assessable.

We hereby consent to the filing of this opinion as an exhibit to 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 Securities and Exchange Commission.

Very truly yours,

/s/ BRL Law Group LLC

BRL Law Group LLC

**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 24, 2011, 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, 2010.

A handwritten signature in black ink that reads "Wolf & Company, P.C." in a cursive, slightly slanted script.

Wolf & Company, P.C.  
Boston, Massachusetts  
March 31, 2011