

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

FORM S-3

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, Suite B14402
Cambridge, Massachusetts 02139
(617) 863-5500
(Address, including zip code, and telephone number, including
area code, of registrant's principal executive offices)

Steven F. McAllister
Chief Financial Officer
InVivo Therapeutics Holdings Corp.
One Kendall Square, Suite B14402
Cambridge, Massachusetts 02139
(617) 863-5500
(Name, address, including zip code, and telephone number, including area code, of agent for service)

With a copy to:
Bradley A. Jacobson, Esq.
Greenberg Traurig, LLP
One International Place
Boston, Massachusetts 02110
Telephone: (617) 310-6205
Facsimile: (617) 279-8402

Approximate date of commencement of proposed sale to public: From time to time after this registration statement becomes effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. o

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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. x

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

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. o

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. o

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. o

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 definition of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o Accelerated filer x
Non-accelerated filer o Smaller reporting company o
(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered (1)	Amount to be Registered (2)	Proposed Maximum Offering Price Per Unit (2)	Proposed Maximum Aggregate Offering Price (2)	Amount of Registration Fee (2)
Common Stock	7,000,625	\$ 1.4375	\$ 10,063,398.44	\$ 1,169.37
(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the securities being registered under this registration statement include such indeterminate number of shares of common stock that may be issuable by the registrant with respect to the securities being registered hereunder as a result of stock splits, stock dividends, or similar transactions.				
(2) The shares of common stock being registered under this registration statement are issuable upon the exercise of outstanding warrants to purchase an aggregate of 7,000,625 shares of common stock. The warrants to purchase common stock, and shares of common stock issuable upon the exercise of such warrants, were previously registered pursuant to Registration Statement on Form S-3 (File No. 333-178584), which became effective on January 19, 2012. Pursuant to Rule 415(a)(6) under the Securities Act, the registration fee previously paid in connection with such unsold securities being registered under this registration statement will continue to be applied to such unsold securities in this registration statement.				

The registrant has an existing "shelf" registration statement on Form S-3 (File No. 333-178584), that was declared effective on January 19, 2012 and which expires on January 19, 2015 pursuant to Rule 415(a)(5) under the Securities Act. Warrants to purchase an aggregate of 7,000,625 shares of common stock issued under such registration statement remain outstanding. The registrant is filing this new registration statement for the sole purpose of ensuring that an effective registration statement covers the exercise of such previously issued warrants. Pursuant to Rule 415(a)(6) under the Securities Act, the registration fee previously paid in connection with such unsold securities being registered hereunder will continue to be applied to such securities in this registration statement. In accordance with the rules of the Securities and Exchange Commission (the "Commission"), the registrant may continue to offer and sell securities being registered hereunder during the grace period afforded by Rule 415(a)(5) under the Securities Act. If the registrant sells any securities being registered hereunder during the grace period, the registrant will identify in a pre-effective amendment to this registration statement the new amount of securities to be carried forward to this registration statement in reliance upon Rule 415(a)(6) under the Securities Act.

The registrant hereby 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 thereafter become effective in accordance with Section 8(a) of the Securities Act, or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), shall determine.

PROSPECTUS



INVIVO THERAPEUTICS HOLDINGS CORP.

7,000,625 Shares of Common Stock

We are offering up to 7,000,625 shares of common stock that are issuable upon the exercise of warrants to purchase common stock previously offered and sold by us on May 9, 2014. Each warrant represents the right to purchase one share of our common stock at an exercise price of \$1.4375 per share (as it may be adjusted pursuant to the terms of the warrants), and may be exercised at any time prior to 11:59 p.m. (New York time) on May 9, 2019.

Our common stock is quoted on the OTCQB under the symbol "NVIV." On January 13, 2015, the last sales price of our common stock was \$1.47 per share.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 3 of this prospectus and under similar headings in the other documents that are incorporated by reference into this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has 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 _____, 2015.

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ABOUT THIS PROSPECTUS

We have an existing "shelf" registration statement on Form S-3 (File No. 333-178584), that was declared effective on January 19, 2012, and which expires on January 19, 2015 pursuant to Rule 415(a)(5) under the Securities Act, subject to an 180-day grace period pending effectiveness of the registration statement of which this prospectus is a part. Of the securities issued under such registration statement, warrants to purchase an aggregate of 7,000,625 shares of our common stock remain outstanding and unexercised. We have filed a registration statement of which this prospectus is a part for the sole purpose of ensuring that an effective registration statement covers the exercise of these warrants.

You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized any other person to provide you with different information. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

You should not assume that the information appearing in this prospectus is accurate as of any date other than the date on the front cover of this prospectus, or that the information contained in any document incorporated by reference is accurate as of any date other than the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since such dates.

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PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our securities. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus, including the information under the heading “Risk Factors” beginning on page 3 and the information incorporated by reference in this prospectus.

InVivo Therapeutics Holdings Corp.

We are a pioneering biomaterials and biotechnology company with a focus on the treatment of spinal cord injuries. Our proprietary technologies incorporate intellectual property that is licensed under our exclusive, world-wide license from Children’s Medical Center Corporation and the Massachusetts Institute of Technology, as well as intellectual property that has been developed internally in collaboration with our advisors and partners. At September 30, 2014, we were considered a “development stage enterprise” and will continue to be so until we commence commercial operations. A development stage enterprise is one in which planned principal operations have not commenced or, if its operations have commenced, there has been no significant revenue from operations. Development stage companies report cumulative costs from the date of inception of the enterprise.

Our development stage started on November 28, 2005 and continued through September 30, 2014. As of September 30, 2014, we have experienced total net losses since inception of approximately \$91,870,000. As a development stage enterprise, we expect to incur substantial operating losses in the future and are therefore dependent upon external financing, such as from equity and debt offerings, to finance our operations. Before we can derive revenue or cash inflows from the commercialization of any of our products, we will need to conduct clinical studies and obtain regulatory approval to commercialize our products.

Overall, we expect our research and development (R&D) expenses to be substantial and to increase for the foreseeable future as we continue the development and clinical investigation of our current and future products. However, expenditures on R&D programs are subject to many uncertainties, including whether we develop our products with a partner or independently, or whether we develop or acquire products and product candidates. At this time, due to the uncertainties and inherent risks involved in our development stage business, we cannot estimate in a meaningful way the duration of, or the costs to complete, our R&D programs or whether, when or to what extent we will generate revenues or cash inflows from the commercialization and sale of any of our products. While we are currently focused on advancing the development of our Neuro-Spinal Scaffold, our future R&D expenses will depend on the determinations we make as to the scientific and clinical prospects of each potential product, as well as our ongoing assessment of the regulatory requirements and each product’s commercial potential. In addition, we may make acquisitions of businesses, technologies or intellectual property rights that we believe would be necessary, useful or complementary to our current business. Any investment made in a potential acquisition could affect our results of operations and reduce our limited capital resources, and any issuance of equity securities in connection with a potential acquisition could be substantially dilutive to our stockholders.

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Recent Events

Our investigational degradable polymer Neuro-Spinal Scaffold (the “Scaffold”) is currently being studied in an early feasibility, five subject pilot study under our approved Investigational Device Exemption (IDE) application for the treatment of complete traumatic acute spinal cord injury. The U.S. Food and Drug Administration (the “FDA”) approved the study which is intended to capture safety and feasibility of the Neuro-Spinal Scaffold for the treatment of complete functional spinal cord injury, as well as to gather preliminary evidence of the clinical effectiveness of the Scaffold.

The pilot study was initially approved for up to six clinical sites across the United States, and as of October 2014, the number of allowable clinical sites was expanded to up to 20. The FDA also approved various changes to the protocol for the study related to the broadening of the study’s eligibility criteria. In October 2014, we also announced that the first participant was enrolled in our pilot study at the Barrow Neurological Institute in Phoenix, Arizona. Under the conditions of the FDA’s approval of our IDE application, our pilot study was initially staggered such that each patient that meets the eligibility criteria would be followed for three months prior to enrolling the next patient in the study. In December 2014, barring significant safety issues, the FDA approved an expedited enrollment plan. In January 2015, about three months after the first subject was enrolled, we opened enrollment for the second subject. Upon enrollment of the second subject, we intend to submit one month of safety data for that subject to the FDA together with the previous subject’s data, and we will then be able to have concurrent enrollment for the remaining three subjects. There will be no additional mandatory holds between enrollment of the final three subjects.

If our pilot study is successful, we then expect to conduct a pivotal study to show safety and probable benefit in order to obtain FDA approval to commence commercialization under a Humanitarian Device Exemption. However, even if we are able to obtain FDA approval of our Scaffold, because the Scaffold is new, unproven technology, we will have to demonstrate the clinical utility of the product and gain acceptance from physicians and obtain third party reimbursement for our product and there can be no assurance that we will be able to do so. For major markets outside the United States, we would be required to seek regulatory approvals in those markets after the clinical studies or trials are conducted in the United States.

Corporate Information

InVivo Therapeutics Corporation was incorporated on November 28, 2005 under the laws of the State of Delaware and on October 26, 2010, it completed a reverse merger transaction with and became a wholly-owned subsidiary of InVivo Therapeutics Holdings Corp., a company incorporated under the laws of the State of Nevada.

Our principal executive offices are located at One Kendall Square, Suite B14402, Cambridge, Massachusetts 02139, and our telephone number is (617) 863-5500. Our website is www.invivotherapeutics.com. The information on our website is not incorporated by reference into this prospectus and should not be considered to be part of this prospectus.

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The Offering

Securities offered by us	7,000,625 shares of common stock issuable upon the exercise of outstanding warrants
Offering price	\$1.4375 per share
Use of proceeds	We intend to use the net proceeds from the securities offered hereby for general corporate purposes. See “Use of Proceeds” on page 5.
Risk factors	Investing in our securities involves significant risks. See “Risk Factors” on page 3 of this prospectus.
OTCQB symbol	NVIV

RISK FACTORS

Investing in our securities involves significant risks. Please see the risk factors under the heading “Risk Factors” in our most recent Annual Report on Form 10-K, as revised or supplemented by our Quarterly Reports on Form 10-Q filed with the SEC since the filing of our most recent Annual Report on Form 10-K, each of which are on file with the SEC and are incorporated by reference in this prospectus. Before making an investment decision, you should carefully consider these risks as well as other information we include or incorporate by reference in this prospectus.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any document we file with the SEC at the SEC’s Public Reference Room at 100 F Street, N.E., Washington, DC 20549. Please call 1-800-SEC-0330 for more information on the operation of the Public Reference Room. Our SEC filings are also available to the public on the SEC’s Internet site at www.sec.gov.

This prospectus is part of a registration statement that we filed with the SEC. This prospectus does not contain all of the information contained in the registration statement, including certain exhibits and schedules, in accordance with SEC rules and regulations. You should review the information in and exhibits to the registration statement for further information about us and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

Our website is www.invivotherapeutics.com. The information on our website is not incorporated by reference in this prospectus.

SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION

This prospectus, including the information incorporated by reference into this prospectus, contains, and any prospectus supplement may contain, statements that are forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). All statements, other than statements of historical facts,

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included or incorporated in this prospectus or any prospectus supplement regarding our strategy, future operations, financial position, future revenues and earnings, projected margins and expenses, prospects, potential acquisitions or strategic alliances, plans and objectives of management are forward-looking statements. The words “anticipates,” “believes,” “estimates,” “expects,” “intends,” “may,” “plans,” “projects,” “will,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. You should not place undue reliance on these forward-looking statements. These statements are not guarantees of future performance and are subject to certain risks, uncertainties, and other factors, some of which are beyond our control, are difficult to predict, and could cause actual results to differ materially from those expressed or forecasted in the forward-looking statements. The risks and uncertainties to which these statements are subject include, but are not limited to, those risks and uncertainties described in “Risk Factors” and elsewhere in this prospectus, the accompanying prospectus supplement, and the documents incorporated by reference herein and therein. You should read these risks and other cautionary statements made in this prospectus, and in the documents we incorporate by reference as being applicable to all related forward-looking statements wherever they appear in the prospectus, and in the documents incorporated by reference. We do not assume any obligation to update any forward-looking statements made by us.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate” into this prospectus the information contained in other documents and reports that we file with the SEC. This means that we can disclose important information to you by referring to other documents that contain that information. Any information that we incorporate by reference is considered part of this prospectus. The documents and reports that we list below are incorporated by reference into this prospectus, other than any portion of any such documents that are not deemed “filed” under the Exchange Act in accordance with the Exchange Act and applicable SEC rules.

In addition, all documents and reports which we file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus and prior to the termination of the offering made hereby are incorporated by reference in this prospectus as of the respective filing dates of these documents and reports.

We have filed the following documents with the SEC. These documents are incorporated herein by reference as of their respective dates of filing:

- (1) Our Annual Report on Form 10-K for the fiscal year ended December 31, 2013, filed on March 17, 2014, as amended on April 29, 2014;
- (2) Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed on May 12, 2014;
- (3) Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2014, filed on August 6, 2014;
- (4) Our Quarterly Report on Form 10-Q for the quarter ended September 30, 2014, filed on November 5, 2014;
- (5) Our Current Reports on Form 8-K filed on April 30, May 6, May 19, May 30, June 23, July 31, August 5, September 29, November 12 and December 9, 2014; and

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- (6) The description of our common stock contained in our Registration Statement on Form 8-A filed on June 30, 2006, including any amendments or reports filed for the purpose of updating such description.

The documents incorporated by reference in this prospectus are available from us upon request. We will provide a copy of any and all of the information that is incorporated by reference in this prospectus to any person, without charge, upon written or oral request. Exhibits to SEC filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus. Requests for such copies should be directed to the following:

InVivo Therapeutics Holdings Corp.
One Kendall Square, Suite B14402
Cambridge, Massachusetts 02139
Attn: Investor Relations
Telephone: (617) 863-5500

Statements contained in documents that we file with the SEC and that are incorporated by reference in this prospectus will automatically update and supersede information contained in this prospectus, including information in previously filed documents or reports that have been incorporated by reference in this prospectus, to the extent the new information differs from or is inconsistent with the old information. Any statement so modified or superseded will not be deemed to be a part of this prospectus, except as so modified or superseded. Because information that we later file with the SEC will update and supersede previously incorporated information, you should look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any documents previously incorporated by reference have been modified or superseded.

USE OF PROCEEDS

We currently intend to use the estimated net proceeds from the sale of these securities for general corporate purposes, including for the research, development and pre-clinical studies for our product candidates, the completion of the pilot clinical study of our Scaffold, and for working capital.

We have not yet determined the amount of net proceeds to be used specifically for any of the foregoing purposes. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds from the sale of these securities. Pending any use, as described above, we intend to invest the net proceeds in high-quality, short-term, interest-bearing securities.

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THE SECURITIES WE MAY OFFER

We are offering up to 7,000,625 shares of common stock issuable upon the exercise of outstanding warrants to purchase common stock. The following briefly summarizes the general terms and provisions of our common stock and the warrants to purchase common stock pursuant to which such shares of common stock may be issued. You should read the provisions of our articles of incorporation, as amended, our bylaws, as amended, and other relevant agreements relating to our securities before you make an investment decision with respect to our securities.

Description of Common Stock

The following is a description of our common stock. It may not contain all the information that is important to you. You can access complete information by referring to our articles of incorporation and bylaws.

Under our articles of incorporation, we have authority to issue 200,000,000 shares of common stock, par value \$0.00001 per share. As of December 31, 2014, there were 93,812,000 shares of common stock issued and outstanding. All shares of common stock will, when issued, be duly authorized, fully paid and nonassessable. Accordingly, the full price for the outstanding shares of common stock will have been paid at issuance and any holder of our common stock will not be later required to pay us any additional money for such common stock.

In addition, as of September 30, 2014:

- there were outstanding warrants to purchase an aggregate of up to 10,208,849 shares of our common stock at a weighted average exercise price of \$1.43 per share;
- there were an aggregate of 8,901,655 shares of our common stock subject to outstanding stock options at a weighted average exercise price of \$1.76 per share; and
- an aggregate of 4,294,800 shares of our common stock were reserved for future issuances under our incentive compensation plans and 401(k) plan.

The holders of common stock are entitled to one vote per share on all matters submitted to a vote of the stockholders, including the election of directors. Generally, all matters to be voted on by stockholders must be approved by a majority (or, in the case of election of directors, by a plurality) of the votes entitled to be cast by all shares of common stock that are present in person or represented by proxy. Except as otherwise provided by law, amendments to our articles of incorporation generally must be approved by a majority of the votes entitled to be cast by all outstanding shares of common stock. Our articles of incorporation do not provide for cumulative voting in the election of directors. The holders of common stock will be entitled to such cash dividends as may be declared from time to time by the board of directors from funds available. The holders of common stock have no preferential or preemptive right and no subscription, redemption or conversion privileges with respect to the issuance of additional shares of our common stock. Upon liquidation, dissolution or winding up of the company, the holders of common stock will be entitled to receive pro rata all assets available for distribution to such holders after payment of our liabilities.

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Description of Outstanding Warrants to Purchase Common Stock pursuant to which the Offered Shares of Common Stock may be Issued

The following description summarizes the material terms and provisions of the warrants to purchase common stock originally issued on May 9, 2014. Each warrant currently has an exercise price of \$1.4375 per share, subject to adjustment pursuant to its terms as summarized below, and is exercisable at any time until 11:59 p.m. (New York time) on May 9, 2019. Each warrant is currently exercisable for one share of common stock.

The warrants will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). Unless otherwise specified in the warrant, the holder will not have the right to exercise any portion of the warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% (subject to increase or decrease by a holder to any other percentage not in excess of 9.99% upon 61 days' prior written notice to us and any such increase or decrease will apply only to the holder sending such notice and not to any other holder of the warrants) of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants.

In the event that shares of common stock underlying the warrants are no longer registered under the Exchange Act, the holder may, in its sole discretion, exercise the warrant in whole or in part and, in lieu of making cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, elect instead to receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the warrant.

Subject to applicable laws, the warrants may be transferred at the option of the holders upon surrender of the warrants to us together with the appropriate instruments of transfer.

The exercise price and the number of shares issuable upon valid exercise of the warrants are subject to adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock, sales of our common stock at a price per share less than the exercise price then in effect (or securities convertible or exercisable into common stock at a conversion or exercise price less than the exercise price then in effect) and also upon any distributions of assets, including cash, stock or other property to our stockholders.

Upon the consummation of a "Fundamental Transaction" (as defined below), the holder of the warrant will have the right to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of shares then issuable upon exercise in full of the warrant without regard to any limitations on exercise contained in the warrant.

A "Fundamental Transaction" is defined in the warrants as a transaction where (i) we, or any of our subsidiaries, directly or indirectly, in one or more related transactions (1) consolidate or merge with or into any other entity, (2) sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our respective properties or assets to any other person or entity, (3) allow any other entity to make a purchase, tender or exchange offer that is accepted by the holders of more than 50% of the outstanding shares of our voting stock, (4) consummate a stock or share purchase agreement or other business combination with any other entity whereby such other person or entity acquires more than 50% of the outstanding shares of our voting stock, or (5) (I) reorganize, recapitalize or reclassify our common

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stock, (II) effect or consummate a stock combination, reverse stock split or other similar transaction involving our common stock or (III) make any public announcement or disclosure with respect to any stock combination, reverse stock split or other similar transaction involving our common stock, or (ii) any "person" or "group" (as these terms are used for purposes of Sections 13(d) and 14(d) of the Exchange Act and the rules and regulations promulgated thereunder) is or shall become the "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of 50% of the aggregate ordinary voting power represented by our issued and outstanding voting stock.

Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our common stock, the holder of a warrant does not have the rights or privileges of a holder of our common stock, including any voting rights, until the holder exercises the warrant.

Registrar and Transfer Agent

The registrar and transfer agent for our common stock is Continental Stock Transfer & Trust Company.

Trading Market

Our common stock is quoted on the OTCQB under the symbol “NVIV.”

CERTAIN ANTI-TAKEOVER AND INDEMNIFICATION PROVISIONS OF OUR ARTICLES OF INCORPORATION, BY-LAWS AND NEVADA LAW

Anti-Takeover Effects of Provisions of Nevada State Law

We may be, or in the future we may become, subject to Nevada’s control share laws. A corporation is subject to Nevada’s control share law if it has more than 200 stockholders, at least 100 of whom are stockholders of record and residents of Nevada, and if the corporation does business in Nevada, including through an affiliated corporation. This control share law may have the effect of discouraging corporate takeovers. We currently have less than 100 stockholders of record who are residents of Nevada.

The control share law focuses on the acquisition of a “controlling interest,” which means the ownership of outstanding voting shares that would be sufficient, but for the operation of the control share law, to enable the acquiring person to exercise the following proportions of the voting power of the corporation in the election of directors: (1) one-fifth or more but less than one-third; (2) one-third or more but less than a majority; or (3) a majority or more. The ability to exercise this voting power may be direct or indirect, as well as individual or in association with others.

The effect of the control share law is that an acquiring person, and those acting in association with that person, will obtain only such voting rights in the control shares as are conferred by a resolution of the stockholders of the corporation, approved at a special or annual meeting of stockholders. The control share law contemplates that voting rights will be considered only once by the other stockholders. Thus, there is no authority to take away voting rights from the control shares of an acquiring person once those rights have been approved. If the stockholders do not grant voting rights to the control shares acquired by an acquiring person, those shares do not become permanent non-voting shares. The acquiring person is free to sell the shares to others. If the buyer or buyers of those shares themselves do not acquire a controlling interest, the shares are not governed by the control share law.

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If control shares are accorded full voting rights and the acquiring person has acquired control shares with a majority or more of the voting power, a stockholder of record, other than the acquiring person, who did not vote in favor of approval of voting rights, is entitled to demand fair value for such stockholder’s shares.

In addition to the control share law, Nevada has a business combination law, which prohibits certain business combinations between Nevada corporations and “interested stockholders” for three years after the interested stockholder first becomes an interested stockholder, unless the corporation’s board of directors approves the combination in advance. For purposes of Nevada law, an interested stockholder is any person who is: (a) the beneficial owner, directly or indirectly, of 10% or more of the voting power of the outstanding voting shares of the corporation, or (b) an affiliate or associate of the corporation and at any time within the previous three years was the beneficial owner, directly or indirectly, of 10% or more of the voting power of the then-outstanding shares of the corporation. The definition of “business combination” contained in the statute is sufficiently broad to cover virtually any kind of transaction that would allow a potential acquirer to use the corporation’s assets to finance the acquisition or otherwise to benefit its own interests rather than the interests of the corporation and its other stockholders.

The effect of Nevada’s business combination law is to potentially discourage parties interested in taking control of the company from doing so if it cannot obtain the approval of our board of directors.

Anti-Takeover Effects of Provisions of Our Articles of Incorporation and Bylaws

Our articles of incorporation provide for a classified board of directors. This provision could prevent a party who acquires control of a majority of our outstanding common stock from obtaining control of the board until our second annual stockholders meeting following the date the acquirer obtains the controlling stock interest. The classified board provision could have the effect of discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us and could increase the likelihood that incumbent directors will retain their positions. In addition, under our bylaws, directors may be removed only for cause and only by the affirmative vote of the holders of at least 80% of the voting power of our then outstanding shares of capital stock entitled to vote generally in the election of directors, voting together as a single class.

Our bylaws also provide that stockholders may only act at meetings of stockholders and not by written consent in lieu of a stockholders’ meeting. Our bylaws provide that stockholders may not call a special meeting of stockholders. Rather, only the Chairman of the Board, the President or the board of directors pursuant to a resolution approved by a majority of the entire board of directors are able to call special meetings of stockholders. Our bylaws also provide that stockholders may only conduct business at special meetings of stockholders that was specified in the notice of the meeting. These provisions may discourage another person or entity from making a tender offer, even if it acquired a majority of our outstanding voting stock, because the person or entity could only take action at a duly called stockholders’ meeting relating to the business specified in the notice of meeting and not by written consent.

Indemnification of Directors and Officers

Nevada Revised Statutes (“NRS”) Sections 78.7502 and 78.751 provide us with the power to indemnify any of our 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, our 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 to repay the expenses if it is determined that such officer or director is not entitled to be indemnified.

Our bylaws include an indemnification provision under which we have the power to indemnify our directors, officers, former directors and officers, employees and other agents (including heirs and personal representatives) against all costs, charges and expenses actually and reasonably incurred, including an amount paid to settle an action or satisfy a judgment to which a director or officer is made a party by reason of being or having been a director or officer of the company. Our 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 unless it is determined that the party is entitled to be indemnified under our bylaws. No advance will be made by the company to a party if it is determined that the party acted in bad faith. 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. Our 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. These provisions may be sufficiently broad to indemnify such persons for liabilities arising under the Securities Act, in which case such provision is against public policy as expressed in the Securities Act and is therefore unenforceable.

We maintain an insurance policy on behalf of our directors and officers, covering certain liabilities which may arise as a result of the actions of the directors and officers.

We have entered into an indemnification agreement with each of our officers and directors pursuant to which they will be indemnified by us, subject to certain limitations, for any liabilities incurred by them in connection with their role as officers or directors of the company.

PLAN OF DISTRIBUTION

We are offering up to 7,000,625 shares of our common stock issuable upon the exercise of outstanding warrants to purchase common stock. We are not offering any new warrants or any other securities pursuant to the registration statement of which this prospectus is a part.

The warrants pursuant to which shares of our common stock may be issued pursuant to this prospect were originally issued on May 9, 2014, and are exercisable at any time until 11:59pm (New York time) on May 9, 2019. These warrants were offered and sold pursuant to the Registration Statement on Form S-3, File No. 333-178584, as supplemented by a prospectus supplement filed with the SEC on May 7, 2014. In connection with such offering, we agreed to indemnify the underwriter and its affiliates against certain liabilities, including liability under the Securities Act, and liabilities arising from breaches of the representations and warranties contained in the underwriter agreement. We have also agreed to contribute to payments the underwriter and its affiliates may be required to make in respect of such liabilities.

EXPERTS

Our balance sheets as of December 31, 2013 and 2012, and the related statements of operations, changes in stockholders' deficit and cash flows for the years then ended and for the period from November 28, 2005 (inception) to December 31, 2013 have been included herein and in the registration statement in reliance upon the report of Wolf & Company, P.C., independent registered public accountants, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

LEGAL MATTERS

Certain legal matters, including the legality of the securities offered, will be passed upon for us by our counsel, Greenberg Traurig, LLP, Boston, Massachusetts.



INVIVO THERAPEUTICS HOLDINGS CORP.

7,000,625

**Shares of
Common Stock**

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PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The expenses payable by the registrant in connection with the issuance and distribution of the securities being registered are set forth in the following table (all amounts except the registration fee are estimated):

SEC registration fee	\$	1,169*
Legal fees and expenses		10,000
Accounting fees and expenses		5,000
Printing fees and expenses		3,000
Transfer agent fees and expenses		**
Total	\$	19,169

* Previously paid.

** Estimated expenses not presently known.

Item 15. Indemnification of Directors and Officers.

Nevada Revised Statutes (“NRS”) Sections 78.7502 and 78.751 provide us with the power to indemnify any of our 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, our 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 to repay the expenses if it is determined that such officer or director is not entitled to be indemnified.

Our bylaws include an indemnification provision under which we have the power to indemnify our directors, officers, former directors and officers, employees and other agents (including heirs and personal representatives) against all costs, charges and expenses actually and reasonably incurred, including an amount paid to settle an action or satisfy a judgment to which a director or officer is made a party by reason of being or having been a director or officer of the company. Our 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 unless it is determined that the party is entitled to be indemnified under our bylaws. No advance will be made by the company to a party if it is determined that the party acted in bad faith. 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. Our 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. These provisions may be sufficiently broad to indemnify such persons for liabilities arising under the Securities Act in which case such provision is against public policy as expressed in the Securities Act and is therefore unenforceable.

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We maintain an insurance policy on behalf of our directors and officers, covering certain liabilities which may arise as a result of the actions of the directors and officers.

We have entered into an indemnification agreement with each of our officers and directors pursuant to which they will be indemnified by us, subject to certain limitations, for any liabilities incurred by them in connection with their role as officers or directors of the company.

Item 16. Exhibits.

The exhibits listed in the Exhibit Index immediately preceding the exhibits are filed as part of this registration statement.

Item 17. 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 20% 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), (a)(1)(ii) and (a)(1)(iii) do not apply if the information required to be included in a 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 the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the 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.

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(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.

(5) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i)(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however,* that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; or

(6) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

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(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 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to 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.

(h)(3) 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 Securities and Exchange Commission such indemnification is against public policy as expressed in the 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.

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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-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, Commonwealth of Massachusetts, on this 16th day of January, 2015.

INVIVO THERAPEUTICS HOLDINGS CORP.

By: /s/ Mark D. Perrin
Mark D. Perrin
Chief Executive Officer

We, the undersigned directors of InVivo Therapeutics Holdings Corp., hereby severally constitute and appoint Mark D. Perrin 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-3 filed herewith and any and all pre-effective and post-effective amendments to said registration statement and generally to do all such things in our name and behalf in our capacities as directors to enable InVivo Therapeutics Holdings Corp. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our 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 and on the dates indicated.

Signature	Title	Date
<u>/s/ Mark D. Perrin</u> Mark D. Perrin	Chief Executive Officer and Director	January 16, 2015
<u>/s/ Steven F. McAllister</u> Steven F. McAllister	Chief Financial Officer	January 16, 2015
<u>/s/ John A. McCarthy, Jr.</u> John A. McCarthy, Jr.	Non-Executive Chairman of the Board	January 16, 2015
<u>/s/ Kenneth DiPietro</u> Kenneth DiPietro	Director	January 16, 2015
<u>/s/ Daniel R. Marshak</u> Daniel R. Marshak	Director	January 16, 2015
<u>/s/ C. Ann Merrifield</u> C. Ann Merrifield	Director	January 16, 2015
<u>/s/ Richard J. Roberts</u> Richard J. Roberts	Director	January 16, 2015

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EXHIBIT INDEX

EXHIBIT NUMBER	DESCRIPTION
3.1	Articles of Incorporation of InVivo Therapeutics Holdings Corp., as amended (incorporated by reference from Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011, as filed with the SEC on November 14, 2011).
3.2	Amended and Restated Bylaws of InVivo Therapeutics Holdings Corp. (incorporated by reference from Exhibit 3.1 to the Registrant's Current Report on Form 8-K, as filed with the SEC on April 24, 2012).
4.1	Form of Warrant to be issued pursuant to the Underwriting Agreement dated May 6, 2014 (incorporated by reference from Exhibit 4.1 to the Registrant's Current Report on Form 8-K, as filed with the SEC on May 6, 2014).
*5.1	Opinion of Greenberg Traurig, LLP.

- *23.1 Consent of Wolf & Company, P.C.
- *23.2 Consent of Greenberg Traurig, LLP (included in Exhibit 5.1).
- *24.1 Power of Attorney (contained in signature page).

* Filed herewith.



January 16, 2015

InVivo Therapeutics Holdings Corp.
One Kendall Square, Suite B14402
Cambridge, MA 02139

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as legal counsel to InVivo Therapeutics Holdings Corp., a Nevada corporation (the "Company"), in connection with the registration statement on Form S-3, as amended (the "Registration Statement"), being filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Act"), on the date hereof.

You have provided us with a draft of the Registration Statement in the form in which it will be filed with the Commission. The Registration Statement relates to the registration of up to an aggregate of 7,000,625 shares of common stock (the "Warrant Shares") that are issuable upon the exercise of warrants to purchase common stock ("Warrants") previously offered and sold by the Company on May 9, 2014. The Warrants, and shares of common stock issuable upon the exercise of the Warrants, were previously registered pursuant to the Registration Statement on Form S-3 (File No. 333-178584), which became effective on January 19, 2012 and which expires on January 19, 2015 pursuant to Rule 415(a)(5) under the Act.

We have made such legal and factual examinations and inquiries, including an examination of originals or copies certified or otherwise identified to our satisfaction of such documents, corporate records and instruments, as we have deemed necessary or appropriate for purposes of this opinion. In our examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals and the conformity to authentic original documents of all documents submitted to us as copies. As to facts material to the opinions, statements and assumptions expressed herein, we have, with your consent, relied upon oral or written statements and representations of officers and other representatives of the Company and others. We have not independently verified such factual matters.

We are opining herein only as to the federal laws of the United States, the laws of the Commonwealth of Massachusetts, and the General Corporation Law of the state of Nevada, in each case as in effect on the date of this opinion, and we express no opinion with respect to the laws of any other jurisdiction or, in the case of Nevada, any other laws, or as to any matters of municipal law or the laws of any other local agencies within any state.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, the Warrant Shares have been duly authorized by the Company and, when and to the extent issued in accordance with the terms of, and in the manner contemplated by, the Warrants, including the due and proper exercise of the Warrants and payment in full to the Company of the exercise price for the Warrant Shares as required thereunder, and as described in the Registration Statement, the Warrant Shares will be validly issued, fully paid and non-assessable.

This opinion is being delivered solely for the benefit of the Company and such other persons as are entitled to rely upon it pursuant to applicable provisions of the Act. This opinion may not be used, quoted, relied upon or referred to for any other purpose nor may this opinion be used, quoted, relied upon or referred to by any other person, for any purpose, without our prior written consent.

We consent to your filing this opinion as an exhibit to the Registration Statement and to the reference to our firm in the Prospectus under the heading "Legal Matters." In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

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-3 of InVivo Therapeutics Holdings Corp. of our reports dated March 17, 2014, relating to our audits of the consolidated financial statements and internal control over financial reporting, which appear in the Annual Report on Form 10-K of InVivo Therapeutics Holdings Corp. for the year ended December 31, 2013.

We also consent to the reference to our Firm under the caption “Experts” in the Prospectus, which is part of this Registration Statement.

/s/ Wolf & Company, P.C.

Wolf & Company, P.C.
Boston, Massachusetts
January 16, 2015
