

INVIVO THERAPEUTICS HOLDINGS CORP.
Form 424B5
March 14, 2016

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Filed Pursuant to Rule 424(b)(5)
Registration No. 333-188573

The information in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities has been declared effective by the Securities and Exchange Commission. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities, and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED MARCH 14, 2016

**Prospectus Supplement
(To Prospectus dated May 22, 2013)**

Shares of Common Stock

Warrants to Purchase

Shares of Common Stock

We are offering _____ shares of our common stock and warrants to purchase up to _____ shares of our common stock at an exercise price of \$ _____ per whole share of common stock pursuant to this prospectus supplement and the accompanying prospectus. The shares of common stock and warrants will be sold in units, with each unit consisting of one share of common stock and _____ of a warrant to purchase one share of common stock. Each unit will be sold at a price of \$ _____ per unit. The shares of common stock and warrants will be mandatorily separable immediately upon issuance.

Our common stock is traded on The NASDAQ Global Market under the symbol "NVIV." The last reported sale price of our common stock on March 11, 2016 was \$9.08 per share.

The warrants are not and will not be listed for trading on The NASDAQ Global Market, or any other securities exchange or nationally recognized trading system. There is no market through which the warrants may be sold, and purchasers may not be able to resell the warrants purchased under this prospectus supplement. This may affect the pricing of the warrants in the secondary market, the transparency and availability of trading prices, and the liquidity of the warrants.

Our business and an investment in our common stock include significant risks. See "Risk Factors" on page S-7 of this prospectus supplement and on page 2 of the accompanying prospectus, as well as in our periodic reports filed with the Securities and Exchange Commission and incorporated by reference in this prospectus supplement and the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement and the accompanying prospectus are truthful or complete. Any representation

to the contrary is a criminal offense.

| | Per Unit | Total |
|---|---------------------|--------------|
| Public offering price | \$ | \$ |
| Underwriting discount and commissions (1) | \$ | \$ |
| Proceeds, before expenses, to us | \$ | \$ |

- (1) For additional information about the expenses for which we have agreed to reimburse the underwriters in connection with this offering, see "Underwriting" beginning on page S-19 of this prospectus supplement.

We have granted the underwriters an option for a period of 30 days from the date of this prospectus supplement to purchase up to an additional _____ shares of common stock and/or additional warrants to purchase up to _____ shares of common stock at a price of \$ _____ per warrant to cover overallocments at the public offering price, less underwriting discounts and commissions.

The underwriters expect to deliver the shares against payment on or about March _____, 2016.

RAYMOND JAMES

The date of this prospectus supplement is March _____, 2016.

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About This Prospectus Supplement

This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of securities and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus dated May 22, 2013, including the documents incorporated by reference therein, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not, and the underwriters have not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus supplement entitled "Where You Can Find More Information" and "Incorporation of Certain Documents by Reference."

Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus supplement to "InVivo Therapeutics," "InVivo," "the Company," "our company," "we," "us," "our" or similar references mean collectively InVivo Therapeutics Holdings Corp. and its subsidiaries.

This prospectus supplement, the accompanying prospectus and the information incorporated herein and therein by reference include trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement or the accompanying prospectus are the property of their respective owners.

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Prospectus Supplement Summary

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement or the accompanying 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 supplement and the accompanying prospectus, including the information under the heading "Risk Factors" in this prospectus supplement on page S-7 and in the accompanying prospectus on page 2, and the information incorporated by reference in this prospectus supplement and the accompanying prospectus.

InVivo Therapeutics Holdings Corp.

Business Overview

We are a research and clinical-stage biomaterials and biotechnology company with a focus on treatment of spinal cord injuries (SCI). Our mission is to redefine the life of the SCI patient, and we are developing treatment options intended to provide meaningful improvement in patient outcomes following SCI. Our approach to treating acute SCIs is based on our investigational *Neuro-Spinal Scaffold* implant, an investigational bioresorbable polymer scaffold that is designed for implantation at the site of injury within a spinal cord contusion and is intended to treat acute spinal cord injury. We believe the *Neuro-Spinal Scaffold* implant is the only SCI therapy in development focused solely on treating acute SCI directly at the epicenter of the injury. The *Neuro-Spinal Scaffold* implant incorporates intellectual property licensed under an exclusive, world-wide license from Boston Children's Hospital ("BCH") and the Massachusetts Institute of Technology ("MIT"). We are continually evaluating other technologies and therapeutics that may be complementary to our development of the *Neuro-Spinal Scaffold* implant or offer the potential to bring us closer to our goal of redefining the life of the SCI patient.

Our Clinical and Pre-Clinical Programs

We currently have a clinical development program for acute SCI and a pre-clinical development program for chronic SCI.

Neuro-Spinal Scaffold implant for acute SCI

Our leading product under development is our *Neuro-Spinal Scaffold* implant, an investigational bioresorbable polymer scaffold that is designed for implantation at the site of injury within a spinal cord contusion. The *Neuro-Spinal Scaffold* implant is intended to provide support to the surrounding tissue after injury, minimizing expansion areas of necrosis, and supporting endogenous healing/repair processes following injury. This form of appositional healing harbors the promise of sparing white matter, increasing neural sprouting, and diminishing post-traumatic cyst formation.

The *Neuro-Spinal Scaffold* implant is composed of two biocompatible and bioresorbable polymers that are cast to form a highly porous investigational product:

Poly lactic-co-glycolic acid (PLGA), a polymer that is widely used in resorbable sutures and provides the biocompatible support for *Neuro-Spinal Scaffold* implant; and

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Poly-L-Lysine (PLL), a positively charged polymer commonly used to coat surfaces in order to promote cellular attachment.

Because of the complexity of spinal cord injuries, it is likely that multi-modal therapies will be required in order to maximize positive outcomes in SCI patients. In the future, we may attempt to further enhance the performance of our *Neuro-Spinal Scaffold* by multiple combination strategies involving electrostimulation devices, additional biomaterials, drugs approved by the U.S. Food & Drug Administration ("FDA"), or growth factors. We expect the *Neuro-Spinal Scaffold* will be regulated by the FDA as a Class III medical device.

Bioengineered Neural Trails injection program for chronic SCI

In December 2015, we announced our preclinical Bioengineered Neural Trails injection program for the treatment of chronic spinal cord injury. Bioengineered Neural Trails are injectable combinations of biomaterials and neural stem cells (NSCs) delivered using minimally-invasive surgical instrumentation and techniques to create trails across the chronic injury site. To support this program, we recently entered into an exclusive license agreement with the University of California, San Diego and an assignment agreement with James Guest, M.D., Ph.D., for issued patents covering technology related to the Bioengineered Neural Trails program, and we also have filed a provisional application in support of the Bioengineered Neural Trails injection program. We expect that our Bioengineered Neural Trails injection investigational product will be regulated by the FDA as a combination product, and we are targeting a pre-Investigational New Drug meeting with the FDA by the end of 2016.

Management

Members of our current senior management team bring significant experience to our company and are well-suited to realize our company's potential.

Mark D. Perrin: Mr. Perrin, our Chief Executive Officer, joined our company in January 2014, and has previously served as President and Chief Executive Officer of ConjuChem Biotechnologies and Executive Vice President and Chief Commercial Officer for Orphan Medical, until it was acquired by Jazz Pharmaceutical.

Dr. Thomas Ulich: Dr. Ulich, our Chief Scientific Officer, joined our company in February 2014, and previously headed preclinical research at Amgen Corporation and research and development at Alnylam Pharmaceuticals.

Dr. Lorianne Masuoka: Dr. Masuoka, our Chief Medical Officer, joined our company in March 2015, and previously managed clinical research, drug safety, biostatistics and data management, and clinical operations at Cubist Pharmaceuticals, Inc. and served as Senior Vice President and Chief Medical Officer at Nektar Therapeutics.

Tamara Joseph, JD: Ms. Joseph was named our Senior Vice President, General Counsel and Chief Compliance Officer in March 2014. She previously served as General Counsel of Cubist Pharmaceuticals Inc. and Transkaryotic Therapies, Inc.

Steven McAllister joined our company as interim Chief Financial Officer in December 2013, and was named our permanent Chief Financial Officer in June 2014, and has previously served as Vice President of Finance and Administration for the Spine and Bone Healing Technologies division of Biomet, Inc.

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Christopher McNulty, our Senior Vice President, Business Development and Investor Relations, joined our company in November 2013, and previously served as Senior Director of Business at Repligen Corporation and Associate Director of Business Development and Alliance Management at Genzyme Corporation.

Recent Developments

The INSPIRE Study

In late 2015, we completed our early feasibility pilot study of our *Neuro-Spinal Scaffold* under our approved Investigational Device Exemption application (IDE) for the treatment of complete, traumatic acute spinal cord injury. The study was intended to capture the 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 *Neuro-Spinal Scaffold*.

In January 2016, the FDA approved converting the pilot study into a pivotal probable benefit study formally known as The INSPIRE Study: InVivo Study of Probable Benefit of the *Neuro-Spinal Scaffold* for Safety and Neurologic Recovery in Subjects with Complete Thoracic AIS A Spinal Cord Injury. The purpose of the study is to evaluate whether the *Neuro-Spinal Scaffold* implant is safe and demonstrates probable benefit for the treatment of complete T2-T12/L1 spinal cord injury. The primary endpoint of The INSPIRE Study is defined as the proportion of patients achieving an improvement of at least one ASIA Impairment Scale (AIS) grade by 6 months. Additional endpoints of The INSPIRE Study include a reduction in pain and improvements in sensory and motor scores, bladder and bowel function, Spinal Cord Independence Measure and quality of life. We intend to submit the data from The INSPIRE Study for marketing approval using the Humanitarian Device Exemption, or HDE, regulatory pathway, which requires us to show the device does not pose an unreasonable or significant risk of illness or injury, and that the probable benefit of health outweighs the risk of injury or illness from its use.

The INSPIRE Study is currently approved to enroll up to 12 patients, but we expect that the FDA will approve 20 patients, inclusive of the five pilot patients, following the review of the complete 6-month data package for the first five patients. On February 23, 2016, we enrolled a sixth patient into The INSPIRE Study. There are currently 18 clinical sites participating in The INSPIRE Study, inclusive of an additional site announced in March 2016 at Thomas Jefferson University Hospital.

On February 29, 2016, we announced the Objective Performance Criterion, or the OPC, for the The INSPIRE Study. An OPC is a measure of study success that is used in clinical studies designed to demonstrate probable benefit in support of an HDE approval. We announced an OPC for The INSPIRE Study as 25% or more of the patients in the study demonstrating an improvement of at least one ASIA Impairment Scale (AIS) grade at six months post-implantation. Although our OPC is the fundamental component to demonstrate probable benefit, it is important to note that the OPC is not the only variable that the FDA evaluates when reviewing an HDE application. Approval is not guaranteed if the OPC is met, and even if the OPC is not met, the FDA may approve a therapy if probable benefit is supported by a comprehensive review of all clinical endpoints and preclinical results, as demonstrated by the sponsor's body of evidence.

In late February 2016, the FDA accepted our proposed HDE modular shell submission and review process for the *Neuro-Spinal Scaffold*. Our HDE modular shell is comprised of three

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modules, a preclinical studies module, a manufacturing module, and a clinical data module. As part of its review process, the FDA reviews modules, which are individual sections of the HDE submission, on a rolling basis. Following the submission of each module, the FDA reviews and provides feedback, typically within 90 days, allowing the applicant to receive feedback and potentially resolve any deficiencies during the review process. Upon receipt of the final module, which constitutes the complete HDE submission, the FDA will make a filing decision which may trigger the review clock for an approval decision.

In March 2016, we announced that the fifth patient in The INSPIRE Study had improved from a complete AIS A spinal cord injury to an incomplete AIS B spinal cord injury between the three-month and the six-month post-injury assessment. As a result, three of the first five patients from The INSPIRE Study have experienced various degrees of neurological recovery by the six-month point.

Equity

To date, we have raised approximately \$3.4 million through our previously announced "at the market" common equity program (our "ATM Program"), pursuant to which we were authorized to issue shares of common stock with an aggregate sale price of up to \$50 million under a Sales Agreement entered into with Cowen and Company, LLC ("Cowen") acting as sales agent. In March 2016, we entered into a termination agreement with Cowen, pursuant to which our ATM Program was terminated.

Corporate Information

We were incorporated on April 2, 2003, under the name of Design Source, Inc. On October 26, 2010, we acquired the business of InVivo Therapeutics Corporation, which was founded in 2005, and are continuing the existing business operations of InVivo Therapeutics Corporation as our wholly-owned subsidiary.

Our principal executive offices are located in leased premises at One Kendall Square, Building 1400 East, 4th Floor, Cambridge, Massachusetts 02139. Our telephone number is (617) 863-5500. We maintain a website at www.invivotherapeutics.com. Information contained on, or accessible through, our website is not a part of, and is not incorporated by reference into, this prospectus supplement or the accompanying prospectus.

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The Offering

| | |
|--|---|
| Common stock offered by us | shares (excluding shares of common stock issuable upon exercise of the warrants being offered in this offering). This prospectus supplement also relates to the offer and sale of the shares of common stock underlying the warrants being offered by us. |
| Warrants offered by us | Warrants to purchase up to shares of our common stock at an exercise price of \$ per whole share. The warrants will be exercisable upon issuance and will expire on the five-year anniversary of issuance. See "Description of our Securities Warrants." |
| Offering price | \$ |
| Common stock outstanding immediately after this offering | shares or shares of our common stock assuming the warrants offered in this offering were to be immediately issued and exercised in full. |
| Over-allotment option | The underwriters have an option to purchase up to an additional shares of our common stock and/or additional warrants to purchase up to shares of common stock from us to cover over-allotments at the public offering price, less underwriting discounts and commissions. The underwriters can exercise their option at any time within 30 days from the date of this prospectus supplement. |
| Use of proceeds | We intend to use the net proceeds from the common stock offered hereby to fund ongoing clinical trials and for general corporate purposes. See "Use of Proceeds." |
| Risk factors | Investing in our common stock involves significant risks. See "Risk Factors" on page S-7 of this prospectus supplement and on page 2 of the accompanying prospectus. |
| Listing of Common Stock | Our common stock trades on The NASDAQ Global Market under the symbol "NVIV," and the shares to be issued in connection with this offering will also be listed on The NASDAQ Global Market under the same symbol. The warrants are not and will not be listed on The NASDAQ Global Market or other securities exchange or nationally recognized trading system. |

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The number of shares of our common stock to be outstanding immediately after this offering as shown above is based on 27,555,948 shares outstanding as of December 31, 2015, and excludes as of that date:

1,156,779 shares of our common stock issuable upon exercise of warrants, having a weighted average exercise price of \$5.71 per share;

3,253,310 shares of our common stock issuable upon exercise of outstanding stock options, having a weighted average exercise price of \$7.47 per share;

3,524,946 shares of our common stock reserved for future issuances under our incentive compensation plans and 401(k) plan;

180,552 shares of common stock reserved for future sale under our employee stock purchase plan; and

shares of common stock issuable upon exercise of warrants to be issued in this offering.

Except as otherwise indicated, all information in the prospectus supplement assumes no exercise by the underwriters of their overallotment option.

The shares of common stock issuable upon the exercise of our outstanding warrants and the exercise price of the warrants are subject to anti-dilution adjustments in certain circumstances. See "Dilution" on page S-13 of this prospectus supplement for more information about these possible anti-dilution adjustments.

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Risk Factors

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks described below and those described in our Annual Report on Form 10-K for the year ended December 31, 2015 and the other documents incorporated herein by reference before deciding to invest in our securities. You should carefully consider the risks described in therein and the other information in this prospectus supplement and accompanying prospectus before you decide to invest in our common stock. Such risks and uncertainties are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect us. If any of those risks were to occur, our financial condition, operating results and prospects, and the market price of our common stock would likely decline and you could lose all or part of your investment.

Risks Related to Investment in Our Securities and this Offering

The price of our common stock may become volatile, which could lead to losses by investors and costly securities litigation.

The trading price of our common stock is likely to be highly volatile and could fluctuate in response to factors such as:

the status, completion and/or results of our clinical trials;

actual or anticipated variations in our operating results;

announcements of developments by us or our competitors;

regulatory actions regarding our products;

announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;

adoption of new accounting standards affecting our industry;

additions or departures of key personnel;

sales of our common stock or other securities in the open market; and

other events or factors, many of which are beyond our control.

The stock market is subject to significant price and volume fluctuations. In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been initiated against such company. Litigation initiated against us, whether or not successful, could result in substantial costs and diversion of our management's attention and resources, which could harm our business and financial condition.

Investors may experience dilution of their ownership interests because of the future issuance of additional shares of our common stock.

As of December 31, 2015, there were outstanding warrants to purchase 1,156,779 shares of our common stock, and outstanding options to purchase 3,253,310 shares of our common stock.

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We expect to issue additional equity awards to compensate employees, consultants and directors, and may issue additional shares to raise capital, to acquire other companies or technologies, to pay for services, or for other corporate purposes. Any such issuances will have the effect of diluting the interest of current stockholders. The future issuance of any such additional shares of common stock may create downward pressure on the trading price of the common stock. There can be no assurance that we will not be required to issue additional shares, warrants or other convertible securities in the future in conjunction with any capital raising efforts, including at a price (or at exercise prices) below the price at which shares of our common stock are currently trading on The NASDAQ Global Market.

We have never declared any cash dividends and do not expect to declare any in the near future.

We have never paid cash dividends on our common stock. It is currently anticipated that we will retain earnings, if any, for use in the development of our business and we do not anticipate paying any cash dividends in the foreseeable future.

Our management will have broad discretion as to the use of the net proceeds from this offering, and may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that you do not agree with or that do not improve our results of operations or enhance the value of our common stock, see "Use of Proceeds" below. Our failure to apply these funds effectively could have a material adverse effect on our business and cause the price of our common stock to decline.

You will experience immediate dilution in the book value per share of the common stock you purchase.

Because the price per share of our common stock being offered is substantially higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. If you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$ per share in the net tangible book value of the common stock. See "Dilution" in this prospectus supplement for a more detailed discussion of the dilution which you will incur if you purchase common stock in this offering.

You may not be able to resell your warrants.

There is no established trading market for the warrants being offered in this offering, and we do not expect such a market to develop. In addition, we do not intend to apply for listing of the warrants on any securities exchange or other nationally recognized trading system, and you may not be able to resell your warrants. If your warrants cannot be resold, you will have to depend upon any appreciation in the value of our common stock over the exercise price of the warrants in order to realize a return on your investment in the warrants.

Investors will have no rights as a common stockholder with respect to their warrants until they exercise their warrants and acquire our common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to the shares of our common stock underlying such warrants. Upon

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exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

Certain of our outstanding warrants may adjust as a result of this offering, which would result in dilution to our stockholders.

Our outstanding warrants issued on or about May 9, 2014 (the "2014 Warrants") to purchase a total of 395,716 shares of common stock as of December 31, 2015 at a current exercise price of \$5.75 per share contain so-called full-ratchet anti-dilution provisions. These anti-dilution provisions may be triggered by the issuance of the securities being offered hereby or upon any future issuance by us of shares of our common stock or common stock equivalents at a price per share below the then-exercise price of the warrants, subject to some exceptions. The determination of whether common stock was sold at a price below the exercise price of the 2014 Warrants is made pursuant to a formula set forth in the 2014 Warrants which, among other things, assigns value to warrants issued in a unit transaction. As a result of this offering, the exercise price of the 2014 Warrants will be adjusted downwards from \$5.75 to approximately \$ per share and the 2014 Warrants will be exercisable for approximately shares of common stock, which will result in further dilution to our stockholders.

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Special Note Regarding Forward-Looking Information

This prospectus supplement, the accompanying prospectus and the documents we have filed with the SEC that are incorporated by reference into this prospectus supplement and the accompanying prospectus contain "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements relate to future events or to our future operating or financial performance and involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

our limited operating history and history of net losses;

our ability to raise substantial additional capital to finance our planned operations and to continue as a going concern;

our ability to successfully commercialize our current and future product candidates, including our *Neuro-Spinal Scaffold*;

our ability to successfully complete clinical trials and obtain and maintain regulatory approval of our product candidates;

our ability to protect and maintain our intellectual property and licensing arrangements;

market acceptance of our technology and products;

our ability to promote, manufacture and sell our products, either directly or through collaborative and other arrangements with third parties;

our ability to attract and retain key personnel; and

our use of proceeds from this offering.

In some cases, you can identify forward-looking statements by terms such as "may," "might," "will," "should," "intends," "expects," "plans," "goals," "projects," "anticipates," "believes," "estimates," "predicts," "potential" or "continue" and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. We discuss many of these risks in greater detail under the heading "Risk Factors" on page S-7 of this prospectus supplement and on page 2 of the accompanying prospectus and in our SEC filings. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement.

You should read this prospectus supplement, the accompanying prospectus and the documents we have filed with the SEC that are incorporated by reference into this prospectus supplement and the accompanying prospectus completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

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You should rely only on the information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not, and the underwriters have not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. Unless required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments.

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Use of Proceeds

We estimate that the net proceeds from the sale of the _____ shares of common stock and warrants to purchase shares of common stock that we are offering will be approximately \$ _____, or approximately \$ _____ if the underwriters exercise in full their option to purchase up to _____ additional shares of common stock and/or additional warrants to purchase shares of common stock, after deducting the underwriting discount and estimated offering expenses payable by us.

We currently intend to use the estimated net proceeds from this offering to fund ongoing clinical trials and for general corporate purposes. We believe these proceeds, together with our existing cash, will be sufficient to fund operations through anticipated filing of our HDE application relating to our *Neuro-Spinal Scaffold*.

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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Our net tangible book value as of December 31, 2015 was \$16.9 million, or \$0.61 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of December 31, 2015. Dilution with respect to net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock (excluding shares of common stock issuable upon exercise of the warrants being offered) in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of _____ units in this offering (excluding _____ shares of common stock issuable upon exercise of the warrants being offered in this offering) at the public offering price of \$ _____ per unit and after deducting the underwriting discount and estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2015 would have been approximately \$ _____, or \$ _____ per share. This represents an immediate increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution of \$ _____ per share to investors in this offering. The following table illustrates this dilution on a per share basis:

| | |
|--|---------|
| Public offering price per unit | \$ |
| Net tangible book value per share as of December 31, 2015 | \$ 0.61 |
| Increase in net tangible book value per share attributable to investors in this offering | \$ |
| As adjusted net tangible book value per share as of December 31, 2015 after giving effect to this offering | \$ |
| Dilution per share to investors in this offering | \$ |

If the underwriters exercise in full their option to purchase up to _____ additional shares of common stock, the as adjusted net tangible book value after this offering would be \$ _____ per share, representing an increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution of \$ _____ per share to investors in this offering.

The number of shares of our common stock to be outstanding immediately after this offering as shown above is based on 27,555,948 shares outstanding as of December 31, 2015, and excludes as of that date:

1,156,779 shares of our common stock issuable upon exercise of warrants, having a weighted average exercise price of \$5.71 per share;

3,253,310 shares of our common stock issuable upon exercise of outstanding stock options, having a weighted average exercise price of \$7.47 per share;

3,524,946 shares of our common stock reserved for future issuances under our incentive compensation plans and 401(k) plan;

180,552 shares of common stock reserved for future sale under our employee stock purchase plan; and

_____ shares of common stock issuable upon exercise of warrants to be issued in this offering.

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As of December 31, 2015, our 2014 Warrants were exercisable for 395,716 shares of common stock for an exercise price of \$5.75 per share. The exercise price and the number of shares issuable upon exercise of the 2014 Warrants are subject to adjustment in the event of sales of our common stock at a price per share less than the exercise price of the 2014 Warrants 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). The determination of whether common stock was sold at a price below the exercise price of the 2014 Warrants is made pursuant to a formula set forth in the 2014 Warrants which, among other things, assigns value to warrants issued in a unit transaction. Upon consummation of this offering, we anticipate that the exercise price of our outstanding 2014 Warrants will be adjusted downwards from \$5.75 to \$ _____ per share and that the 2014 Warrants will be exercisable for _____ shares of our common stock.

To the extent that outstanding options or warrants outstanding as of December 31, 2015 have been or may be exercised or other shares are issued, investors purchasing our common stock in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

Table of Contents**Capitalization**

The following table sets forth our cash and cash-equivalents and our capitalization as of December 31, 2015 as follows:

On an actual basis; and

On an as-adjusted basis to give effect to our issuance and sale of units in this offering at a public offering price of \$ per unit, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, assuming no exercise of the underwriters' over-allotment option and excluding the proceeds, if any, from the exercise of warrants issued pursuant to this offering.

You should read the information in the following table in conjunction with our consolidated financial statements and the related notes and the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" contained in our Annual Report on Form 10-K for the year ended December 31, 2015 filed with the SEC and incorporated by reference in this prospectus supplement and the accompanying prospectus.

| (In thousands, except share and per share information) | As of December 31, 2015 | |
|--|-------------------------|-------------------------------|
| | Actual | As adjusted for this offering |
| Cash and cash equivalents (1) | \$ 20,194 | \$ |
| Current portion of long-term debt | \$ 395 | \$ 395 |
| Long-term debt, net of current portion | \$ 1,275 | \$ 1,275 |
| Stockholders' equity | | |
| Common stock, \$0.00001 par value; 50,000,000 shares authorized, 27,555,948 shares issued and outstanding, actual; shares issued and outstanding as adjusted | \$ 1 | \$ |
| Additional paid-in capital | \$ 150,497 | \$ |
| Accumulated deficit | (133,569) | (133,569) |
| Total stockholders' equity | \$ 16,929 | \$ 16,929 |
| Total capitalization | \$ 18,599 | \$ |

- (1) Does not include \$361 in restricted cash, which represents a security deposit related to the Company's credit card account and a standby letter of credit in favor of a landlord.

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Description of our Securities

We are offering _____ units, consisting of an aggregate of _____ shares of common stock and warrants to purchase an aggregate of _____ shares of common stock. Each unit consists of one share of common stock and _____ of a warrant to purchase one share of common stock at an exercise price of \$ _____ per whole share. The shares of common stock and the warrants are immediately separable and will be issued separately. This prospectus supplement also relates to the offering of the shares of common stock issuable upon exercise of the warrants being offered in this offering.

Common Stock

The following is a description of the material terms and provisions 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 50,000,000 shares of common stock, par value \$0.00001 per share. As of December 31, 2015, there were 27,555,948 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 December 31, 2015:

there were outstanding warrants to purchase an aggregate of up to 1,156,779 shares of our common stock at a weighted average exercise price of \$5.71 per share;

there were an aggregate of 3,253,310 shares of our common stock subject to outstanding stock options at a weighted average exercise price of \$7.47 per share;

3,524,946 shares of our common stock reserved for future issuances under our incentive compensation plans and 401(k) plan; and

180,552 shares of common stock reserved for future sale under our employee stock purchase plan.

The shares of common stock issuable upon the exercise of our outstanding warrants and the exercise price of the warrants are subject to anti-dilution adjustments in certain circumstances. See "Dilution" on page S-13 of this prospectus supplement for more information about these possible anti-dilution adjustments.

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 the 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 from funds available. The holders of common stock have no preferential or preemptive right and no subscription, redemption or

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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.

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 traded on The NASDAQ Global Market under the symbol "NVIV."

Warrants

Form. The warrants will be issued under a warrant agreement to be entered into between us and the warrant agent.

Exercise. The warrants will be exercisable upon issuance and will expire on the five-year anniversary of issuance. 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 of the exercise price within three trading days in available funds for the number of shares of common stock purchased upon such exercise. If a registration statement registering the issuance or the resale of the shares of common stock underlying the warrants under the Securities Act is not effective or available, the holder may, in its sole discretion, elect to exercise the warrant through a cashless exercise, in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the warrant. No fractional shares of common stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will pay the holders an amount in cash equal to the fractional amount multiplied by the current market price of our common stock.

Exercise Price. The exercise price per whole share of common stock purchasable upon exercise of the warrants is \$. The exercise price is subject to adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock and also upon any distribution of assets, including cash, stock or other property, to our stockholders.

Transferability. Subject to applicable laws, the warrants may be offered for sale, sold, transferred or assigned without our consent.

Exchange Listing. We do not plan on applying to list the warrants on The NASDAQ Global Market, any other national securities exchange or any other nationally recognized trading system.

Fundamental Transactions. In the event of a fundamental transaction, as described in the warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of

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securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such fundamental transaction.

Rights as a Stockholder. 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.

Warrant Agent. Our warrant agent is Continental Stock Transfer & Trust Company.

Table of Contents**Underwriting**

We have entered into an underwriting agreement with the underwriters named below. Raymond James & Associates, Inc., or Raymond James, is acting as the sole book-running manager and representative of the underwriters. The underwriting agreement provides for the purchase of a specific number of units comprised of shares of common stock and warrants to purchase common stock by each of the underwriters. The underwriters' obligations are several, which means that each underwriter is required to purchase a specified number of units, but is not responsible for the commitment of any other underwriter to purchase units. Subject to the terms and conditions of the underwriting agreement, each underwriter has severally agreed to purchase the number of units set forth opposite its name below:

| Underwriter | Number of Units |
|----------------------------------|------------------------|
| Raymond James & Associates, Inc. | |
| Total | |

The underwriters have agreed to purchase all of the units offered by this prospectus supplement (other than those covered by the over-allotment option described below) if any are purchased.

The shares of common stock and the warrants to purchase common stock offered hereby should be ready for delivery on or about March 1, 2016 against payment in immediately available funds.

The underwriters are offering the units subject to various conditions and may reject all or part of any order. The representative of the underwriters has advised us that the underwriters propose to offer the units directly to the public at the public offering price that appears on the cover page of this prospectus supplement. After the units are released for sale to the public, the representative may change the offering price and other selling terms at various times.

We have granted the underwriters an over-allotment option. This option, which is exercisable for up to 30 days after the date of this prospectus supplement, permits the underwriters to purchase up to _____ shares of common stock at a price of \$ _____ per share and/or warrants to purchase up to _____ shares of common stock at a price of \$ _____ per warrant from us to cover over-allotments, if any. If this option is exercised in full, the total gross proceeds will be \$ _____ million, and the total net proceeds to us will be \$ _____ million. The underwriters have severally agreed that, to the extent the over-allotment option is exercised, they will each purchase a number of additional units proportionate to the underwriter's initial amount reflected in the table, above.

The following table provides information regarding the amount of the discounts and commissions to be paid to the underwriters by us, before expenses:

| | Per Unit | Total Without Exercise of Over- Allotment Option | Total With Full Exercise of Over- Allotment Option |
|--|-----------------|---|---|
| Public offering price | \$ | \$ | \$ |
| Underwriting discounts and commissions | \$ | \$ | \$ |
| Proceeds, before expenses to us | \$ | \$ | \$ |

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We estimate that our total expenses of the offering, excluding the underwriting discounts and commissions, will be approximately \$ _____, which includes up to \$100,000 that we have agreed to reimburse the underwriters for the fees and expenses incurred by them in connection with the offering.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

We and our officers and directors have agreed to a 90-day "lock-up" with respect to shares of our common stock and other of our securities that they beneficially own, including securities that are convertible into shares of common stock and securities that are exchangeable or exercisable for shares of common stock. This means that, subject to certain exceptions, for a period of 90 days following the date of this prospectus supplement, we and such persons may not offer, sell, pledge or otherwise dispose of these securities without the prior written consent of Raymond James.

Rules of the SEC may limit the ability of the underwriters to bid for or purchase shares before the distribution of the shares is completed. However, the underwriters may engage in the following activities in accordance with the rules:

Stabilizing transactions The representative may make bids or purchases for the purpose of pegging, fixing or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.

Over-allotments and syndicate covering transactions The underwriters may sell more shares of our common stock in connection with this offering than the number of shares that they have committed to purchase. This over-allotment creates a short position for the underwriters. This short sales position may involve either "covered" short sales or "naked" short sales. Covered short sales are short sales made in an amount not greater than the underwriters' over-allotment option to purchase additional shares in this offering described above. The underwriters may close out any covered short position either by exercising its over-allotment option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in this offering.

Penalty bids If the representative purchases shares in the open market in a stabilizing transaction or syndicate covering transaction, it may reclaim a selling concession from the underwriters and selling group members who sold those shares as part of this offering.

Passive market making Market makers in the shares who are underwriters or prospective underwriters may make bids for or purchases of shares, subject to limitations, until the time, if ever, at which a stabilizing bid is made.

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Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of the shares if it discourages resales of the shares.

Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may occur on The NASDAQ Global Market or otherwise. If such transactions are commenced, they may be discontinued without notice at any time.

Electronic Delivery of Prospectus Supplement: A prospectus supplement in electronic format may be delivered to potential investors by one or more of the underwriters participating in this offering. The prospectus supplement in electronic format will be identical to the paper version of such preliminary prospectus supplement. Other than the prospectus supplement in electronic format, the information on any underwriter's website and any information contained in any other website maintained by an underwriter is not part of this prospectus supplement, the accompanying prospectus or the registration statement of which this prospectus supplement and the accompanying prospectus form a part.

NOTICE TO NON-U.S. INVESTORS

Investors are advised to contact their legal, financial or tax advisers to obtain an independent assessment of the financial and tax consequences of an investment in units.

BELGIUM

The offering is exclusively conducted under applicable private placement exemptions and therefore it has not been and will not be notified to, and this document or any other offering material relating to the units has not been and will not be approved by, the Belgian Banking, Finance and Insurance Commission ("Commission bancaire, financière et des assurances/Commissie voor het Bank, Financier en Assurantiewezen"). Any representation to the contrary is unlawful.

Each underwriter has undertaken not to offer sell, resell, transfer or deliver directly or indirectly, any units, or to take any steps relating/ancillary thereto, and not to distribute or publish this document or any other material relating to the units or to the offering in a manner which would be construed as: (a) a public offering under the Belgian Royal Decree of 7 July 1999 on the public character of financial transactions; or (b) an offering of securities to the public under Directive 2003/71/EC which triggers an obligation to publish a prospectus in Belgium. Any action contrary to these restrictions will cause the recipient and us to be in violation of the Belgian securities laws.

FRANCE

Neither this prospectus supplement nor any other offering material relating to the units has been submitted to the clearance procedures of the Autorité des marchés financiers in France. The units have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus supplement nor any other offering material relating to the units has been or will be: (a) released, issued, distributed or caused to be released, issued

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or distributed to the public in France; or (b) used in connection with any offer for subscription or sale of the units to the public in France. Such offers, sales and distributions will be made in France only: (i) to qualified investors (investisseurs qualifiés) and/or to a restricted circle of investors (cercle restreint d'investisseurs), in each case investing for their own account, all as defined in and in accordance with Articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French Code monétaire et financier; (ii) to investment services providers authorised to engage in portfolio management on behalf of third parties; or (iii) in a transaction that, in accordance with article L.411-2-II-1°-or-2°-or 3° of the French Code monétaire et financier and article 211-2 of the General Regulations (Règlement Général) of the Autorité des marchés financiers, does not constitute a public offer (appel public à l'épargne). Such units may be resold only in compliance with Articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French Code monétaire et financier.

UNITED KINGDOM / GERMANY / NORWAY / THE NETHERLANDS

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relevant Member State") an offer to the public of any units which are the subject of the offering contemplated by this prospectus supplement may not be made in that Relevant Member State other than the offers contemplated in this prospectus supplement in name(s) of Member State(s) where prospectus will be approved or passported for the purposes of a non-exempt offer once this prospectus supplement has been approved by the competent authority in such Member State and published and passported in accordance with the Prospectus Directive as implemented in name(s) of relevant Member State(s) except that an offer to the public in that Relevant Member State of any units may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

- (a) to legal entities which are authorised or regulated to operate in the financial markets or, if not so authorised or regulated, whose corporate purpose is solely to invest in securities;
- (b) to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000 and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts;
- (c) by the representative to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive);
or
- (d) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of units shall result in a requirement for the publication by the Company or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any units in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any units to be offered so as to enable an investor to decide to purchase any units, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression "Prospectus Directive" means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

This prospectus supplement and any other material in relation to the units is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified

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investors within the meaning of Article 2(1)(e) of the Prospective Directive ("qualified investors") that also (i) have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order, (ii) who fall within Article 49(2)(a) to (d) of the Order or (iii) to whom it may otherwise lawfully be communicated (all such persons together being referred to as "relevant persons"). The units are only available to, and any invitation, offer or agreement to purchase or otherwise acquire such units will be engaged in only with, relevant persons. This prospectus supplement and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other person in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this prospectus supplement or any of its contents.

ISRAEL

In the State of Israel, the units offered hereby may not be offered to any person or entity other than the following:

(a) a fund for joint investments in trust (i.e., mutual fund), as such term is defined in the Law for Joint Investments in Trust, 5754-1994, or a management company of such a fund;

(b) a provident fund as defined in Section 47(a)(2) of the Income Tax Ordinance of the State of Israel, or a management company of such a fund;

(c) an insurer, as defined in the Law for Oversight of Insurance Transactions, 5741-1981, (d) a banking entity or satellite entity, as such terms are defined in the Banking Law (Licensing), 5741-1981, other than a joint services company, acting for their own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;

(d) a company that is licensed as a portfolio manager, as such term is defined in Section 8(b) of the Law for the Regulation of Investment Advisors and Portfolio Managers, 5755-1995, acting on its own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;

(e) a company that is licensed as an investment advisor, as such term is defined in Section 7(c) of the Law for the Regulation of Investment Advisors and Portfolio Managers, 5755-1995, acting on its own account;

(f) a company that is a member of the Tel Aviv Stock Exchange, acting on its own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;

(g) an underwriter fulfilling the conditions of Section 56(c) of the Securities Law, 5728-1968;

(h) a venture capital fund (defined as an entity primarily involved in investments in companies which, at the time of investment, (i) are primarily engaged in research and development or manufacture of new technological products or processes and (ii) involve above-average risk);

(i) an entity primarily engaged in capital markets activities in which all of the equity owners meet one or more of the above criteria; and

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(j) an entity, other than an entity formed for the purpose of purchasing units in this offering, in which the shareholders equity (including pursuant to foreign accounting rules, international accounting regulations and U.S. generally accepted accounting rules, as defined in the Securities Law Regulations (Preparation of Annual Financial Statements), 1993) is in excess of NIS 250 million.

Any offeree of the units offered hereby in the State of Israel shall be required to submit written confirmation that it falls within the scope of one of the above criteria. This prospectus supplement will not be distributed or directed to investors in the State of Israel who do not fall within one of the above criteria.

ITALY

The offering of the units offered hereby in Italy has not been registered with the Commissione Nazionale per la Società e la Borsa ("CONSOB") pursuant to Italian securities legislation and, accordingly, the units offered hereby cannot be offered, sold or delivered in the Republic of Italy ("Italy") nor may any copy of this prospectus supplement or any other document relating to the units offered hereby be distributed in Italy other than to professional investors (operatori qualificati) as defined in Article 31, second paragraph, of CONSOB Regulation No. 11522 of 1 July, 1998 as subsequently amended. Any offer, sale or delivery of the units offered hereby or distribution of copies of this prospectus supplement or any other document relating to the units offered hereby in Italy must be made:

(a) by an investment firm, bank or intermediary permitted to conduct such activities in Italy in accordance with Legislative Decree No. 58 of 24 February 1998 and Legislative Decree No. 385 of 1 September 1993 (the "Banking Act");

(b) in compliance with Article 129 of the Banking Act and the implementing guidelines of the Bank of Italy; and

(c) in compliance with any other applicable laws and regulations and other possible requirements or limitations which may be imposed by Italian authorities.

SWEDEN

This prospectus supplement has not been nor will it be registered with or approved by Finansinspektionen (the Swedish Financial Supervisory Authority). Accordingly, this prospectus supplement may not be made available, nor may the units offered hereunder be marketed and offered for sale in Sweden, other than under circumstances which are deemed not to require a prospectus under the Financial Instruments Trading Act (1991: 980).

SWITZERLAND

The units being offered pursuant to this prospectus supplement will not be offered, directly or indirectly, to the public in Switzerland and this prospectus supplement does not constitute a public offering prospectus as that term is understood pursuant to art. 652a or art. 1156 of the Swiss Federal Code of Obligations. We have not applied for a listing of the units being offered pursuant to this prospectus supplement on the SWX Swiss Exchange or on any other regulated securities market, and consequently, the information presented in this prospectus supplement does not necessarily comply with the information standards set out in the relevant listing rules. The units being offered pursuant to this prospectus supplement have not been registered with

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the Swiss Federal Banking Commission as foreign investment funds, and the investor protection afforded to acquirers of investment fund certificates does not extend to acquirers of units.

CANADA

Notice to Canadian Residents

This document constitutes an "exempt offering document" as defined in and for the purposes of applicable Canadian securities laws. No prospectus has been filed with any securities commission or similar regulatory authority in Canada in connection with the offer and sale of the securities described herein (the "Securities"). No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon this document or on the merits of the Securities and any representation to the contrary is an offence.

Canadian investors are advised that this document has been prepared in reliance on section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* ("NI 33-105"). Pursuant to section 3A.3 of NI 33-105, this document is exempt from the requirement to provide investors with certain conflicts of interest disclosure pertaining to "connected issuer" and/or "related issuer" relationships as would otherwise be required pursuant to subsection 2.1(1) of NI 33-105.

Resale Restrictions

The offer and sale of the Securities in Canada is being made on a private placement basis only and is exempt from the requirement to prepare and file a prospectus under applicable Canadian securities laws. Any resale of Securities acquired by a Canadian investor in this offering must be made in accordance with applicable Canadian securities laws, which may vary depending on the relevant jurisdiction, and which may require resales to be made in accordance with Canadian prospectus requirements, a statutory exemption from the prospectus requirements, in a transaction exempt from the prospectus requirements or otherwise under a discretionary exemption from the prospectus requirements granted by the applicable local Canadian securities regulatory authority. These resale restrictions may under certain circumstances apply to resales of the Securities outside of Canada.

Representations of Purchasers

Each Canadian investor who purchases the Securities will be deemed to have represented to the issuer and to each dealer from whom a purchase confirmation is received, as applicable, that the investor (i) is purchasing as principal, or is deemed to be purchasing as principal in accordance with applicable Canadian securities laws, for investment only and not with a view to resale or redistribution; (ii) is an "accredited investor" as such term is defined in section 1.1 of National Instrument 45-106 *Prospectus Exemptions* ("NI 45-106") or, in Ontario, as such term is defined in section 73.3(1) of the *Securities Act* (Ontario); and (iii) is a "permitted client" as such term is defined in section 1.1 of National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*.

Taxation and Eligibility for Investment

Any discussion of taxation and related matters contained in this document does not purport to be a comprehensive description of all of the tax considerations that may be relevant to a Canadian investor when deciding to purchase the Securities and, in particular, does not address any Canadian tax considerations. No representation or warranty is hereby made as to the tax consequences to a resident, or deemed resident, of Canada of an investment in the Securities or

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with respect to the eligibility of the Securities for investment by such investor under relevant Canadian federal and provincial legislation and regulations.

Rights of Action for Damages or Rescission

Securities legislation in certain of the Canadian jurisdictions provides certain purchasers of securities pursuant to an offering memorandum, including where the distribution involves an "eligible foreign security" as such term is defined in Ontario Securities Commission Rule 45-501 *Ontario Prospectus and Registration Exemptions* and in Multilateral Instrument 45-107 *Listing Representation and Statutory Rights of Action Disclosure Exemptions*, as applicable, with a remedy for damages or rescission, or both, in addition to any other rights they may have at law, where the offering memorandum, or other offering document that constitutes an offering memorandum, and any amendment thereto, contains a "misrepresentation" as defined under applicable Canadian securities laws. These remedies, or notice with respect to these remedies, must be exercised or delivered, as the case may be, by the purchaser within the time limits prescribed under, and are subject to limitations and defences under, applicable Canadian securities legislation. In addition, these remedies are in addition to and without derogation from any other right or remedy available at law to the investor.

Language of Documents

Upon receipt of this document, each Canadian investor hereby confirms that it has expressly requested that all documents evidencing or relating in any way to the sale of the Securities described herein (including for greater certainty any purchase confirmation or any notice) be drawn up in the English language only. *Par la réception de ce document, chaque investisseur canadien confirme par les présentes qu'il a expressément exigé que tous les documents faisant foi ou se rapportant de quelque manière que ce soit à la vente des valeurs mobilières décrites aux présentes (incluant, pour plus de certitude, toute confirmation d'achat ou tout avis) soient rédigés en anglais seulement.*

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Legal Matters

The validity of the common stock offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Greenberg Traurig, LLP, Boston, Massachusetts. Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., New York, New York, is counsel for the underwriters in connection with this offering.

Experts

The consolidated financial statements of InVivo Therapeutics Holdings Corp. and Subsidiary as of December 31, 2015 and for the year then ended and the effectiveness of internal control over financial reporting as of December 31, 2015 have been audited by RSM US LLP, an independent registered public accounting firm, as stated in their report thereon (which report expresses an unqualified opinion and includes an explanatory paragraph relating to the Company's ability to continue as a going concern), and incorporated by reference in this Prospectus and Registration Statement in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

The consolidated balance sheet of InVivo Therapeutics Holdings Corp. as of December 31, 2014, and the related consolidated statements of operations, changes stockholders' equity (deficit) and cash flows for each of the two years in the period ended December 31, 2014, have been audited by Wolf & Company, P.C., an independent registered public accounting firm, as indicated in their report with respect thereto, and are incorporated by reference herein in reliance upon the authority of said firm as experts in accounting and auditing.

Where You Can Find More Information

This prospectus supplement and the accompanying prospectus are part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and do not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus supplement or the accompanying prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference in this prospectus supplement and the accompanying prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

Incorporation of Certain Documents by Reference

The SEC allows us to "incorporate by reference" information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus. Information contained in this prospectus supplement and the accompanying prospectus and information that we file with the SEC in the future and incorporate by reference in this prospectus supplement and the accompanying prospectus will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings (other than Current

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Reports on Form 8-K furnished under Item 2.02 or Item 7.01 and exhibits filed on such form that are related to such items) we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the prospectus supplement and before the sale of all the securities covered by this prospectus supplement:

our Annual Report on Form 10-K for the fiscal year ended December 31, 2015, filed on March 4, 2016;

our Current Report on Form 8-K filed on March 14, 2016;

the description of our common stock contained in our 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.

You may request a copy of these filings, at no cost, by writing or calling us at the following address or telephone number:

InVivo Therapeutics Holdings Corp.
One Kendall Square, Building 1400 East, 4th Floor
Cambridge, Massachusetts 02139
Attn: Investor Relations
(617) 863-5500

S-28

PROSPECTUS

INVIVO THERAPEUTICS HOLDINGS CORP.

\$100,000,000

Common Stock Warrants Units

This prospectus relates to common stock, warrants and units that we may sell from time to time in one or more offerings up to a total dollar amount of \$100,000,000 on terms to be determined at the time of sale. We will provide specific terms of these securities in supplements to this prospectus. You should read this prospectus and any supplement carefully before you invest. This prospectus may not be used to offer and sell securities unless accompanied by a prospectus supplement for those securities.

Our common stock is quoted on the OTC Bulletin Board under the symbol "NVIV." On May 10, 2013, the last sales price of our common stock as reported on the OTC Bulletin Board was \$3.00 per share.

These securities may be sold directly by us, through dealers or agents designated from time to time, to or through underwriters or through a combination of these methods. See "Plan of Distribution" in this prospectus. We may also describe the plan of distribution for any particular offering of these securities in any applicable prospectus supplement. If any agents, underwriters or dealers are involved in the sale of any securities in respect of which this prospectus is being delivered, we will disclose their names and the nature of our arrangements with them in a prospectus supplement. The net proceeds we expect to receive from any such sale will also be included in a prospectus supplement.

Investing in our securities involves a high degree of risk. Beginning on page 2, we discuss several "Risk Factors " that you should consider before investing in our securities.

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 May 22, 2013.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a "shelf" registration process. Under this shelf registration process, we may sell any combination of the securities described in this prospectus in one or more offerings up to a total dollar amount of \$100,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the securities being offered and the terms of that offering. The prospectus supplement may also add to, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with the additional information described under the heading "Where You Can Find More Information" carefully before making an investment decision.

You should rely only on the information contained or incorporated by reference in this prospectus or any applicable prospectus supplement. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. 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 or any applicable prospectus supplement is accurate as of any date other than the date on the front cover of this prospectus or the applicable prospectus supplement, 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 prospectus supplement or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since such dates.

Unless the context otherwise requires, the terms "InVivo," "the Company," "our company," "we," "us," "our" and similar names refer collectively to InVivo Therapeutics Holdings Corp. and its subsidiaries.

ABOUT INVIVO THERAPEUTICS HOLDINGS CORP.

We develop and commercialize new technologies for the treatment of spinal cord injuries. Our proprietary technology was co-invented by Robert S. Langer, ScD, Professor at Massachusetts Institute of Technology ("MIT") and Joseph P. Vacanti, MD, affiliated with Massachusetts General Hospital. The intellectual property rights that are the basis for our products are licensed under an exclusive, world-wide license from Children's Medical Center Corporation and MIT.

We intend to create new treatments for spinal cord injuries. Current treatments consist of a collection of approaches that only focus on symptoms of spinal cord injury. To date, we are not aware of any product on the market that addresses the underlying pathology of spinal cord injury.

Currently, there are no successful spinal cord injury treatment options for spinal cord injury patients. We take a different approach to spinal cord injury and focus on protection of the spinal cord and prevention of secondary injury rather than regeneration. Our platform technologies focus on minimizing tissue damage sustained following acute injury and promoting neural plasticity of the spared healthy tissue, which may result in full or partial functional recovery. The technologies encompass multiple strategies involving biomaterials, U.S. Food & Drug Administration approved drugs, growth factors, and human neural stem cells. We believe our approach could become a standard treatment for both acute and chronic spinal cord injuries.

We intend to leverage our primary platform technology to develop and commercialize several products as follows:

A biocompatible polymer scaffolding device to treat acute spinal cord injuries.

Biocompatible hydrogels for use as: dural sealants, dural replacements, nerve conduits and for local controlled release of methylprednisolone to treat spinal cord injuries and peripheral nerve injuries.

A biocompatible polymer scaffolding device seeded with autologous human neural stem cells to treat acute and chronic spinal cord injuries.

InVivo Therapeutics Corporation was incorporated on November 28, 2005 under the laws of the State of Delaware and on October 26, 2010 completed a reverse merger transaction with and became a wholly-owned subsidiary of InVivo Therapeutics Holdings Corporation, 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 worldwide web address is www.invivotherapeutics.com. The information on our web site is not incorporated by reference into this prospectus and should not be considered to be part of this prospectus.

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 and any prospectus supplement. The risks and uncertainties we have described are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business operations.

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 at the SEC's public reference room at 100 F Street, N.E., Washington, DC 20549. You should call 1-800-SEC-0330 for more information on the operation of the public reference room. Our SEC filings are also available to you 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 included in the registration statement, including certain exhibits and schedules. You can obtain a copy of the registration statement and exhibits from the SEC at the address listed above or from the SEC's Internet site.

Our Internet address is www.invivotherapeutics.com. The information on our Internet website is not incorporated by reference in this prospectus or any prospectus supplement.

SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION

This prospectus and each prospectus supplement includes and incorporates forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (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, 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. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated by these forward-looking statements. These important factors include the factors that we identify in the documents we incorporate by reference in this prospectus, as well as other information we include or incorporate by reference in this prospectus and any prospectus supplement. Please see the factors described under the heading "Risk Factors" of this prospectus. You should read these factors and other cautionary statements made in this prospectus and any accompanying prospectus supplement, and in the documents we incorporate by reference as being applicable to all related forward-looking statements wherever they appear in the prospectus and any accompanying prospectus supplement, 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 information 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, 2012, filed on March 12, 2013;
- (2) Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, filed on May 9, 2013;
- (3) Our Current Report on Form 8-K filed on April 17, 2013;
- (4) All of our filings pursuant to the Exchange Act after the date of filing the initial registration statement and prior to the effectiveness of the registration statement; and
- (5) 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.

You may request a copy of these documents, which will be provided to you at no cost, by writing or telephoning us at:

InVivo Therapeutics Holdings Corp.
One Kendall Square, Suite B14402
Cambridge, Massachusetts 02139
Attn: Investor Relations
(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 or any prospectus supplement, 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 any prospectus supplement 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, which may include the following:

the research, development and pre-clinical and clinical trials for our product candidates;

the acquisition of other companies, businesses, products or technologies;

the repayment and refinancing of debt;

capital expenditures;

working capital; and

any other purpose that we may specify in any prospectus supplement.

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. Our plans to use the estimated net proceeds from the sale of these securities may change, and if they do, we will update this information in a prospectus supplement.

THE SECURITIES WE MAY OFFER

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplements, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we so indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We will also include in the prospectus supplement information, where applicable, about material United States federal income tax considerations relating to the securities, and the securities exchange, if any, on which the securities will be listed.

We may sell from time to time, in one or more offerings:

common stock;

warrants to purchase common stock or units;

units comprised of common stock and warrants; or

any combination of the foregoing securities.

In this prospectus, we refer to the common stock, warrants and units collectively as "securities." The total dollar amount of all securities that we may issue will not exceed \$100,000,000.

This prospectus may not be used to consummate a sale of securities unless it is accompanied by a prospectus supplement.

DESCRIPTION OF COMMON STOCK

The following is a description of the material terms and provisions 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 March 31, 2013, there were 66,193,229 shares of common stock issued and outstanding. All shares of common stock will, when issued, be duly authorized, fully

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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 March 31, 2013:

there were outstanding warrants to purchase an aggregate of up to 15,400,787 shares of our common stock at a weighted average exercise price of \$1.36 per share;

there were an aggregate of 9,495,626 shares of our common stock subject to outstanding stock options at a weighted average exercise price of \$1.40 per share; and

1,512,042 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 the 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 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.

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 OTC Bulletin Board under the symbol "NVIV."

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of common stock or units. Warrants may be issued independently or together with common stock or units, and the warrants may be attached to or separate from such securities. We may issue warrants directly or under a warrant agreement to be entered into between us and a warrant agent. We will name any warrant agent in the applicable prospectus supplement. Any warrant agent will act solely as our agent in connection with the warrants of a particular series and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

The following is a description of the general terms and provisions of any warrants we may issue and may not contain all the information that is important to you. You can access complete information by referring to the applicable prospectus supplement. In the applicable prospectus supplement, we will describe the terms of the warrants and any applicable warrant agreement, including, where applicable, the following:

the title of the warrants;

the offering price and aggregate number of warrants offered;

the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security;

the date on and after which the warrants and the related securities will be separately transferable;

any information with respect to book-entry procedures;

in the case of warrants to purchase common stock or units, the number of shares of common stock or units, as the case may be, purchasable upon the exercise of one warrant and the price at which these securities may be purchased upon such exercise;

the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;

the terms of any rights to redeem or call the warrants;

any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

the dates on which the right to exercise the warrants will commence and expire;

the manner in which the warrant agreement and warrants may be modified;

a discussion of any material U.S. federal income tax considerations of holding or exercising the warrants;

the terms of the securities issuable upon exercise of the warrants; and

any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

DESCRIPTION OF UNITS

The following description, together with the additional information we include in any applicable prospectus supplement, summarizes the material terms and provisions of the units that we may offer under this prospectus. Units may be offered independently or together with common stock and warrants offered by any prospectus supplement, and may be attached to or separate from those securities.

While the terms we have summarized below will generally apply to any future units that we may offer under this prospectus, we will describe the particular terms of any series of units that we may offer in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below.

We will incorporate by reference into the registration statement of which this prospectus is a part the form of unit agreement, including a form of unit certificate, if any, that describes the terms of the series of units we are offering before the issuance of the related series of units. The following summaries of material provisions of the units and the unit agreements are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement applicable to a particular series of units. We urge you to read the applicable prospectus supplements related

to the units that we sell under this prospectus, as well as the complete unit agreements that contain the terms of the units.

General

We may issue units consisting of common stock and warrants. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time, or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the series of units, including the following:

the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;

any provisions of the governing unit agreement that differ from those described below; and

any provisions for the issuance, payment, settlement, transfer, or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those described under "Description of Common Stock," and "Description of Warrants," will apply to each unit and to the common stock and warrants included in each unit, respectively.

Issuance in Series

We may issue units in such amounts and in such numerous distinct series as we determine.

Enforceability of Rights by Holders of Units

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit, without the consent of the related unit agent or the holder of any other unit, may enforce by appropriate legal action its rights as holder under any security included in the unit.

Title

We, the unit agent, and any of their agents may treat the registered holder of any unit certificate as an absolute owner of the units evidenced by that certificate for any purposes and as the person entitled to exercise the rights attaching to the units so requested, despite any notice to the contrary.

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.

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 amended and restated 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 amended and restated bylaws also provide that stockholders may only act at meetings of stockholders and not by written consent in lieu of a stockholders' meeting. Our amended and restated bylaws provide that stockholders may not call a special meeting of stockholders. Rather, only the Chairman of our 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

amended and restated 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 and/or directors of the Company.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

directly to investors;

through agents to the public or to investors;

directly to agents;

to one or more underwriters or dealers for resale to the public or to investors;

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in "at the market offerings," within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market, or an exchange or otherwise; or

through a combination of any of these methods of sale.

The securities that we distribute by any of these methods may be sold, in one or more transactions, at:

a fixed price or prices, which may be changed;

market prices prevailing at the time of sale;

prices related to prevailing market prices; or

negotiated prices.

We will set forth in a prospectus supplement the terms of the offering of our securities, including:

the name or names of any agents or underwriters;

the purchase price of our securities being offered and the proceeds we will receive from the sale;

any over-allotment options under which underwriters may purchase additional securities from us;

any agency fees or underwriting discounts and commissions and other items constituting agents' or underwriters' compensation;

any public offering price;

any discounts or concessions allowed or reallocated or paid to dealers; and

any securities exchanges on which such common stock may be listed.

Underwriters

Underwriters, dealers and agents that participate in the distribution of the securities may be underwriters as defined in the Securities Act and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify in the applicable prospectus supplement any underwriters, dealers or agents and will describe their compensation. In no event will the aggregate value of compensation received or to be received by Financial Industry Regulatory Authority members or independent broker-dealers exceed 8% for the sale of the securities registered hereunder. We may have agreements with the underwriters, dealers and agents to indemnify them against specified civil liabilities, including liabilities under the Securities Act. Underwriters, dealers and agents may engage in transactions with or perform services for us or our subsidiaries in the ordinary course of their businesses.

If we use underwriters for a sale of securities, the underwriters will acquire the securities for their own account. The underwriters may resell the securities in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the

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time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. The underwriters will be obligated to purchase all the securities offered if they purchase any of the securities offered. We may change from time to time any initial public offering price and any discounts or concessions the underwriters allow or reallow or pay to dealers. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement naming the underwriters the nature of any such relationship.

If indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by particular institutions to purchase securities from us at

the public offering price set forth in such prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on the date or dates stated in such prospectus supplement. Each delayed delivery contract will be for an amount no less than, and the aggregate principal amounts of securities sold under delayed delivery contracts shall be not less nor more than, the respective amounts stated in the applicable prospectus supplement. Institutions with which such contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and others, but will in all cases be subject to our approval. The obligations of any purchaser under any such contract will be subject to the conditions that (a) the purchase of the securities shall not at the time of delivery be prohibited under the laws of any jurisdiction in the United States to which the purchaser is subject, and (b) if the securities are being sold to underwriters, we shall have sold to the underwriters the total principal amount of the securities less the principal amount thereof covered by the contracts. The underwriters and such other agents will not have any responsibility in respect of the validity or performance of such contracts.

Agents

We may designate agents who agree to use their reasonable efforts to solicit purchases for the period of their appointment or to sell securities on a continuing basis.

Direct Sales

We may also sell securities directly to one or more purchasers without using underwriters or agents. We may also make direct sales through subscription rights distributed to our shareholders on a pro rata basis, which may or may not be transferable. In any distribution of subscription rights to shareholders, if all of the underlying securities are not subscribed for, we may then sell the unsubscribed securities directly to third parties or may engage the services of one or more underwriters, dealers or agents, including standby underwriters, to sell the unsubscribed securities to third parties.

Trading Markets and Listing of Securities

Unless otherwise specified in the applicable prospectus supplement, each class or series of securities will be a new issue with no established trading market, other than our common stock, which is quoted on the OTC Bulletin Board. We may elect to list any other class or series of securities on any exchange, but we are not obligated to do so. It is possible that one or more underwriters may make a market in a class or series of securities, but the underwriters will not be obligated to do so and may discontinue any market making at any time without notice. We cannot give any assurance as to the liquidity of the trading market for any of the securities.

Stabilization Activities

In connection with an offering, an underwriter may purchase and sell securities in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of securities than they are required to purchase in the offering. "Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional securities from us, if any, in the offering. If the underwriters have an over-allotment option to purchase additional securities from us, the underwriters may close out any covered short position by either exercising their over-allotment option or purchasing securities in the open market. In determining the source of securities to close out the covered short position, the underwriters may consider, among other things, the price of securities available for purchase in the open market as compared to the price at which they may purchase securities through the over-allotment option. "Naked" short sales are any sales in excess of such option or where the underwriters do not have an over-allotment option. The underwriters must close out any naked short position by purchasing securities in the open market. A naked short position is more likely

to be created if the underwriters are concerned that there may be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.

Accordingly, to cover these short sales positions or to otherwise stabilize or maintain the price of the securities, the underwriters may bid for or purchase securities in the open market and may impose penalty bids. If penalty bids are imposed, selling concessions allowed to syndicate members or other broker-dealers participating in the offering are reclaimed if securities previously distributed in the offering are repurchased, whether in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. The impositions of a penalty bid may also effect the price of the securities to the extent that it discourages resale of the securities. The magnitude or effect of any stabilization or other transactions is uncertain. These transactions may be effected on the OTC Bulletin Board or otherwise and, if commenced, may be discontinued at any time.

EXPERTS

Our balance sheets as of December 31, 2012 and 2011, 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, 2012 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. If the securities are distributed in an underwritten offering, certain legal matters will be passed upon for the underwriters by counsel identified in the applicable prospectus supplement.

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RAYMOND JAMES

March , 2016
