

Prospectus Supplement
(To Prospectus Dated November 14, 2019)

154,000 Shares of Common Stock

Pre-Funded Warrants to Purchase up to 369,810 Shares of Common Stock

We are offering (i) 154,000 shares of our common stock and (ii) pre-funded warrants to purchase up to 369,810 shares of common stock to an institutional investor (the “Investor”) pursuant to this prospectus supplement, the accompanying prospectus and a securities purchase agreement with the Investor. Each pre-funded warrant will be exercisable upon issuance for one share of common stock at an exercise price of \$0.0001 per share. This prospectus supplement also relates to the offering of the shares of our common stock issuable upon the exercise of such pre-funded warrants.

In a concurrent private placement, we are selling to the Investor unregistered preferred investment options to purchase 100% of the number of shares of common stock and pre-funded warrants purchased by the Investor in this offering, or 523,810 shares of common stock. The preferred investment options will be exercisable upon issuance at an exercise price of \$5.05 per share and will expire five and one-half years from the date of issuance. The preferred investment options and the common stock issuable upon the exercise of the preferred investment options are not being registered under the Securities Act of 1933, as amended, or the Securities Act, are not being offered pursuant to this prospectus supplement and the accompanying prospectus, and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Regulation D promulgated thereunder.

Our common stock is listed on The Nasdaq Capital Market, or Nasdaq, under the symbol “NVIV.” On October 6, 2022, the last reported sale price of our common stock as reported on Nasdaq was \$7.98 per share. There is no established public trading market for the pre-funded warrants, and we do not expect a market to develop. We do not intend to apply for listing of the pre-funded warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the pre-funded warrants will be limited.

As of October 6, 2022, the aggregate market value of our outstanding common stock held by non-affiliates was \$12,584,151, which was calculated based on 1,390,514 shares of outstanding common stock held by non-affiliates and a price per share of \$9.05, which was the closing price of our common stock on August 17, 2022. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell, pursuant to the registration statement of which this prospectus supplement forms a part, securities in a primary offering with a value exceeding one-third of the aggregate market value of our common stock held by non-affiliates in any 12 calendar-month period, so long as the aggregate market value of our outstanding common stock held by non-affiliates remains below \$75 million. During the 12 calendar months prior to and including the date of this prospectus supplement (but excluding this offering), we have neither offered nor sold any securities pursuant to General Instruction I.B.6 of Form S-3.

We engaged H.C. Wainwright & Co., LLC as our exclusive placement agent to use its reasonable best efforts to solicit offers to purchase shares of our securities in connection with this offering. The placement agent has no obligation to purchase any of the shares of our securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. We have agreed to pay the placement agent the placement agent fees set forth in the table below and to provide certain other compensation to the placement agent. See “Plan of Distribution” beginning on page [S-21](#) of this prospectus supplement for more information regarding these arrangements.

Investing in the offered securities involves a high degree of risk. See “Risk Factors” beginning on page [S-8](#) of this prospectus supplement for a discussion of information 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 passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Per Pre-Funded Warrant	Total
Offering price	\$ 5.25	\$ 5.2499	\$2,749,965.52
Placement agent’s cash fees ⁽¹⁾	\$0.394	\$ 0.394	\$ 206,250.19
Proceeds, before expenses, to us	\$4.856	\$4.8559	\$2,543,715.33

- (1) We have agreed to pay the placement agent for certain of its expenses. In addition, we have agreed to issue to the placement agent, or its designees, preferred investment options to purchase a number of shares of our common stock equal to 6.5% of the (i) aggregate number of shares of common stock and pre-funded warrants being offered pursuant to this prospectus supplement and accompanying prospectus, and (ii) the aggregate number of shares issuable under pre-funded warrants sold in the separate private placement. The preferred investment options issued to the placement agent will have an exercise price equal to \$6.5625, which is equal to 125% of the offering price per share. See “Plan of Distribution” on page [S-21](#) of this prospectus supplement for a description of the compensation payable to the placement agent.
- (2) The amount of the offering proceeds to us presented in this table does not give effect to any exercise of the pre-funded warrants, the preferred investment options being issued in the concurrent private placement or the securities being issued in the separate private placement.

The Investor in this offering has also agreed to purchase pre-funded warrants and preferred investment options for approximately \$6.25 million in gross proceeds in a separate private placement that is expected to close concurrently with this offering and on substantially the same terms and conditions as this offering. H.C. Wainwright & Co., LLC is acting as placement agent for the concurrent private placement and will receive a placement agent fee for the securities offered and sold in the separate private placement that is equal to the placement agent fee the placement agent will receive on the securities sold in this offering. See “Plan of Distribution” on page [S-21](#) of this prospectus supplement for a description of the compensation payable to the placement agent. We refer to this offering, the concurrent private placement and the separate private placement collectively herein as the “offerings.”

We expect that delivery of the shares and pre-funded warrants being offered pursuant to this prospectus supplement and the accompanying prospectus will be made on or about October 11, 2022, subject to satisfaction of customary closing conditions.

H.C. Wainwright & Co.

The date of this prospectus supplement is October 7, 2022.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is the prospectus supplement, including the documents incorporated by reference, which describes the specific terms of this offering. The second part, the accompanying prospectus, including the documents incorporated by reference, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, as well as the additional information described under “Where You Can Find Additional Information” on page [S-25](#) of this prospectus supplement. These documents contain information you should consider when making your investment decision. This prospectus supplement may add, update or change information contained in the accompanying prospectus. 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 any document incorporated by reference therein filed prior to 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 filed after the date of this prospectus supplement and incorporated by reference in this prospectus supplement and 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 or incorporated by reference in this prospectus supplement, the accompanying prospectus and in any free writing prospectuses we may provide to you in connection with this offering. We have not, and the placement agent has not, authorized any other person to provide you with any information that is different. If anyone provides you with different or inconsistent information, you should not rely on it. We are offering to sell, and seeking offers to buy, our securities only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the offering of securities covered hereby in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of securities covered hereby and the distribution of this prospectus supplement outside the United States. This prospectus supplement does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus supplement or the accompanying prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

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.

All trademarks, trade names and service marks appearing in this prospectus supplement, the accompanying prospectus or the documents incorporated by reference herein or therein are the property of their respective owners. Use or display by us of other parties’ trademarks, trade dress or products is not intended to and does not imply a relationship with, or endorsements or sponsorship of, us by the trademark or trade dress owner. Solely for convenience, trademarks, tradenames and service marks referred to in this prospectus supplement, the accompanying prospectus or the documents incorporated by reference herein or therein appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or that the applicable owner will not assert its rights, to these trademarks and trade names.

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, the accompanying prospectus and the information incorporated by reference herein and therein. 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 entire prospectus supplement and the accompanying prospectus, including “Risk Factors” beginning on page S-8 of this prospectus supplement and in our [Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2022](#), along with our consolidated financial statements and notes to those consolidated financial statements and the other documents incorporated by reference in this prospectus supplement and the accompanying prospectus.

Business Overview

Overview

We are a research and clinical-stage biomaterials and biotechnology company with a focus on treatment of spinal cord injuries, or SCIs. Our approach to treating acute SCIs is based on our investigational Neuro-Spinal Scaffold™ implant, a bioresorbable polymer scaffold that is designed for implantation at the site of injury within a spinal cord and is intended to treat acute SCI. The Neuro-Spinal Scaffold implant incorporates intellectual property licensed under an exclusive, worldwide license from Boston Children’s Hospital, or BCH, and the Massachusetts Institute of Technology, or MIT. We also plan to evaluate other technologies and therapeutics that may be complementary to our development of the Neuro-Spinal Scaffold implant, such as stem cells, therapeutics or electrical stimulation, including in combination with learnings applied from our Neuro-Spinal Scaffold implant or technologies that offer the potential to bring us closer to our goal of redefining the life of the SCI patient.

The current standard of care for acute management of spinal cord injuries focuses on preventing further injury to the spinal cord. However, the current standard of care does not address repair of the spinal cord.

Our Clinical Program

We currently have one clinical development program for the treatment of acute SCI.

Our Neuro-Spinal Scaffold implant is an investigational bioresorbable polymer scaffold that is designed for implantation at the site of injury within a spinal cord. The Neuro-Spinal Scaffold implant is intended to promote appositional, or side-by-side, healing by supporting the surrounding tissue after injury, minimizing expansion of areas of necrosis, and providing a biomaterial substrate for the body’s own healing/repair processes following injury. We believe this form of appositional healing may spare white matter, increase neural sprouting, and diminish 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, a polymer that is widely used in resorbable sutures and provides the biocompatible support for Neuro-Spinal Scaffold implant; and
- Poly-L-Lysine, a positively charged polymer commonly used to coat surfaces in order to promote cellular attachment.

INSPIRE 2.0 Study

Our Neuro-Spinal Scaffold implant has been approved to be studied under our approved Investigational Device Exemption, or IDE, in the INSPIRE 2.0 Study, which is titled the “Randomized, Controlled, Single-blind Study of Probable Benefit of the Neuro-Spinal Scaffold™ for Safety and Neurologic Recovery in Subjects with Complete Thoracic AIS A Spinal Cord Injury as Compared to Standard of Care.” The purpose of the INSPIRE 2.0 Study is to assess the overall safety and probable benefit of the Neuro-Spinal Scaffold

for the treatment of neurologically complete thoracic traumatic acute SCI. The INSPIRE 2.0 Study is designed to enroll 10 subjects into each of the two study arms, which we refer to as the Scaffold Arm and the Comparator Arm. Patients in the Comparator Arm will receive the standard of care, which is spinal stabilization without dural opening or myelotomy. The INSPIRE 2.0 Study is a single blind study, meaning that the patients and assessors are blinded to treatment assignments. The FDA approved the enrollment of up to 35 patients in this study so that there would be at least 20 evaluable patients (10 in each study arm) at the primary endpoint analysis, accounting for events such as randomization or screen failures or deaths that would prevent a patient from reaching the primary endpoint visit. On June 2, 2022, we announced that we completed enrollment in the INSPIRE 2.0 Study and expect to present topline data from the INSPIRE 2.0 Study in the first quarter of 2023.

The primary endpoint of the INSPIRE 2.0 Study is defined as the proportion of patients achieving an improvement of at least one American Spinal Injury Association Impairment Scale (“AIS”) grade at six months post-implantation. Assessments of AIS grade are at hospital discharge, three months, six months, 12 months and 24 months. The definition of study success for INSPIRE 2.0 is that the difference in the proportion of subjects who demonstrate an improvement of at least one grade on AIS assessment at the 6-month primary endpoint follow-up visit between the Scaffold Arm and the Comparator Arm must be equal to or greater than 20%. In one example, if 50% of subjects in the Scaffold Arm have an improvement of AIS grade at the six-month primary endpoint and 30% of subjects in the Comparator Arm have an improvement, then the difference in the proportion of subjects who demonstrated an improvement is equal to 20% (50% minus 30% equals 20%) and the definition of study success would be met. In another example, if 40% of subjects in the Scaffold Arm have an improvement of AIS grade at the six-month primary endpoint and 30% of subjects in the Comparator Arm have an improvement, then the difference in the proportion of subjects who demonstrated an improvement is equal to 10% (40% minus 30% equals 10%) and the definition of study success would not be met. Additional endpoints include measurements of changes in neurological level of injury, sensory levels and motor scores, bladder, bowel and sexual function, pain, Spinal Cord Independence Measure, and quality of life.

Our Neuro-Spinal Scaffold was previously studied in The INSPIRE Study: the “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,” under an IDE application for the treatment of neurologically complete thoracic traumatic acute SCI. Although The INSPIRE Study was structured with an Objective Performance Criterion, or the OPC as the primary component for demonstrating probable benefit, the OPC is not the only variable that the FDA would evaluate when reviewing a future human device exemption, or HDE, application. Similarly, while our INSPIRE 2.0 Study is structured with a definition of study success requiring a minimum difference between study arms in the proportion of subjects achieving improvement, that success definition is not the only factor that the FDA would evaluate in the future HDE application. Approval is not guaranteed if the OPC is met for The INSPIRE Study or the definition of study success is met for the INSPIRE 2.0 Study, and even if the OPC or definition of study success are not met, the FDA may approve a medical device 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 2016, the FDA accepted our proposed HDE modular shell submission and review process for the Neuro-Spinal Scaffold implant. The HDE modular shell is comprised of three modules: a preclinical module, a manufacturing module, and a clinical data module. As part of its review process, the FDA reviews each module, 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 all three modules, which constitutes the complete HDE submission, the FDA makes a filing decision that may trigger the review clock for an approval decision. We submitted the first module (the preclinical module) in March 2017. In July 2021, the FDA informed us that our preclinical module was accepted. In December 2021, we submitted the second module (the manufacturing module) to the FDA. In June 2022, we received feedback from the FDA on the second module (the manufacturing module) and we are actively assessing the FDA’s responses and potential timelines for submitting a response for the second module.

Recent Developments***Concurrent Private Placement***

In a concurrent private placement, we are selling to the Investor preferred investment options to purchase up to 523,810 shares of our common stock, which is equal to 100% of the number of shares of our common stock and pre-funded warrants purchased by the Investor in this offering. We will receive proceeds from the preferred investment options solely to the extent they are exercised for cash. The preferred investment options will be exercisable upon issuance at an exercise price of \$5.05 per share and will expire five and one-half years from the date of issuance.

The preferred investment options to be sold in the concurrent private placement and the shares of common stock issuable upon exercise of the preferred investment options will constitute restricted securities under the Securities Act.

Separate Private Placement

The Investor in this offering has also agreed to purchase pre-funded warrants and preferred investment options for approximately \$6.25 million in gross proceeds in a separate private placement that is expected to close concurrently with this offering and on substantially the same terms and conditions as this offering. Each pre-funded warrant will be exercisable upon issuance at an exercise price of \$0.0001 per share and have no expiration. The preferred investment options will be exercisable upon issuance at an exercise price of \$5.05 per share and will expire five and one-half years from the date of issuance.

The securities to be sold in the separate private placement will constitute restricted securities under the Securities Act. H.C. Wainwright & Co., LLC is acting as placement agent for the separate private placement and will receive a placement agent fee for the securities sold in the separate private placement that is equal to the placement agent fee the placement agent will receive on the corresponding securities sold in this offering. See “Plan of Distribution” on page [S-21](#) of this prospectus supplement for a description of the compensation payable to the placement agent.

Warrant Amendments

Concurrent with the offerings, we entered into a warrant amendment agreement (the “Warrant Amendment Agreement”) with the Investor. Under the Warrant Amendment Agreement, we agreed to amend certain existing warrants to purchase up to 80,139 shares of common stock that were previously issued to the Investor in March 2020, April 2020 and October 2020, with exercise prices of \$68.75, \$40.50 and \$20.00 per share, respectively (the “Existing Warrants”), in consideration for its purchase of approximately \$9 million in gross proceeds of securities in the offerings. Under the Warrant Amendment Agreement, we agreed to (i) lower the exercise price of such Existing Warrant to \$5.05 per share and (ii) extend the original expiration date of such Existing Warrant to five and one-half years following the closing of the separate private placement. The amendment of the Existing Warrants pursuant to the Warrant Amendment Agreement is subject to the consummation of the separate private offering placement and the Investor’s satisfaction of its purchase commitment.

Registration Rights Agreement

On October 7, 2022, we entered into a registration rights agreement, or the Registration Rights Agreement, with the Investor, pursuant to which we agreed to register for resale the shares of common stock issuable upon exercise of the pre-funded warrants and the preferred investment options sold to the Investor in the separate private placement and the preferred investment options sold in the concurrent private placement, which we refer to collectively herein as the registrable securities.

Under the Registration Rights Agreement, we have agreed to file a registration statement on Form S-1 covering the resale by the Investor of the registrable securities with the SEC within 30 days following the date of this prospectus supplement. We have agreed to use commercially reasonable efforts to cause such registration statement to become effective and to keep such registration statement effective until the date the registrable securities covered by such registration statement have been sold or may be resold pursuant to

Rule 144 without restriction. We have agreed to be responsible for all fees and expenses incurred in connection with the registration of the registrable securities.

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 we 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, Suite B14402, 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.

THE OFFERING

*Common stock offered by us
pursuant to this prospectus
supplement*

154,000 shares of our common stock. Each share of common stock is being sold in this offering at a purchase price of \$5.25 per share.

*Pre-funded warrants offered us
pursuant to this prospectus
supplement*

Pre-funded warrants to purchase up to an aggregate of 369,810 shares of common stock. Each pre-funded warrant is being sold in this offering at a purchase price of \$5.2499 per share. We are offering the pre-funded warrants in lieu of shares of common stock because the Investor would otherwise beneficially own more than 9.99% of our outstanding common stock immediately following the closing of this offering.

Each pre-funded warrant will be exercisable upon issuance at an exercise price of \$0.0001 per share and have no expiration. This prospectus also relates to the offering of the shares of common stock issuable upon exercise of these pre-funded warrants.

Concurrent private placement

In a concurrent private placement, we are selling to the Investor preferred investment options to purchase up to 523,810 shares of our common stock, which is equal to 100% of the number of shares of our common stock and pre-funded warrants purchased by the Investor in this offering. We will receive proceeds from the preferred investment options solely to the extent they are exercised for cash. The preferred investment options will be exercisable upon issuance at an exercise price of \$5.05 per share and will expire five and one-half years from the date of issuance.

The preferred investment options being sold in the concurrent private placement and the common stock issuable upon the exercise of such preferred investment options are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a) (2) under the Securities Act and Regulation D promulgated thereunder. See “Private Placement of Preferred Investment Options.”

Separate private placement:

In a separate private placement, the Investor has agreed to purchase up to 1,190,476 shares of common stock and preferred investment options to purchase up to 1,190,476 shares of common stock for approximately \$6.25 million in gross proceeds. Each pre-funded warrant will be exercisable upon issuance at an exercise price of \$0.0001 per share and have no expiration. The preferred investment options will be exercisable upon issuance at an exercise price of \$5.05 per share and will expire five and one-half years from the date of issuance. The separate private placement is expected to close concurrently with this offering and on substantially the same terms and conditions as this offering.

The pre-funded warrants and preferred investment options being sold in the separate private placement and the common stock issuable upon the exercise of such pre-funded warrants and preferred investment options are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being

	<p>offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Regulation D promulgated thereunder. See “Separate Placement of Pre-Funded Warrants and Preferred Investment Options.”</p>
<i>Common stock to be outstanding after this offering</i>	<p>1,545,160 shares of common stock, assuming no exercise of any pre-funded warrants or preferred investment options being sold in the offerings.</p>
<i>Use of proceeds</i>	<p>We intend to use the net proceeds from this offering primarily for working capital and general corporate purposes, which may include activities in furtherance of potential commercialization of its investigational Neuro-Spinal Scaffold device, such as regulatory submissions and manufacturing matters, as well as for business development purposes. See “Use of Proceeds” on page S-14 of this prospectus supplement.</p>
<i>Risk factors</i>	<p>See “Risk Factors” beginning on page S-8 of this prospectus supplement and the other information included or incorporated by reference elsewhere in this prospectus supplement and the accompanying prospectus, for a discussion of factors you should carefully consider before deciding to invest in our securities.</p>
<i>Nasdaq Capital Market symbol</i>	<p>Our common stock is listed on the Nasdaq Capital Market under the symbol “NVIV.”</p> <p>There is no established trading market for any of the pre-funded warrants and we do not expect a market to develop. We do not intend to apply for a listing for any of the pre-funded warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the pre-funded warrants will be limited.</p>
	<p>The number of shares of common stock to be outstanding immediately after this offering is based on 1,391,160 shares of our common stock outstanding as of October 6, 2022, and excludes:</p> <ul style="list-style-type: none"> • 563,162 shares of common stock issuable upon the exercise of warrants outstanding as of October 6, 2022 at a weighted average exercise price of \$35.15 per share (before adjustment to reflect the Warrant Amendment Agreement); • 13,369 shares of common stock issuable upon the exercise of options outstanding as of October 6, 2022 at a weighted average exercise price of \$359.07 per share; and • 911,901 shares of common stock available for future awards under our stock incentive plans and for future issuance under our 401(k) plan as of October 6, 2022. <p>Unless otherwise indicated, all information in this prospectus supplement assumes no exercise of the outstanding options or warrants described in the bullets above and no exercise of the pre-funded warrants or preferred investment options sold in the offerings.</p>

RISK FACTORS

An investment in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks and uncertainties described below and under the section captioned "Risk Factors" contained in our most recent [Quarterly Report on Form 10-Q for the quarter ended June 30, 2022](#) and other filings we make with the Securities and Exchange Commission, or SEC, from time to time, which are incorporated by reference herein in their entirety, together with other information in this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein and in any free writing prospectus that we may authorize for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could suffer materially. In such event, the trading price of our common stock could decline and you might lose all or part of your investment.

Risks Related to This Offering

We have broad discretion over the use of our cash and cash equivalents, including the net proceeds we receive in the offerings, and may not use them effectively.

Our management has broad discretion to use our cash and cash equivalents, including the net proceeds we receive in the offerings, to fund our operations and could spend these funds in ways that do not improve our results of operations or enhance the value of our common stock. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use to fund operations, we may invest our cash and cash equivalents in a manner that does not produce income or that loses value.

Sales of our common stock by stockholders may have an adverse effect on the then prevailing market price of our common stock.

Sales of a substantial number of our common stock in the public market following the offerings could cause the market price of our common stock to decline and could impair our ability to raise capital through the sale of additional equity securities. We cannot predict the effect that future sales of our common stock or other equity-related securities would have on the market price of our common stock.

There is no public market for the pre-funded warrants to purchase common stock being offered by us in this offering.

There is no established public trading market for the pre-funded warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the pre-funded warrants on any securities exchange or other nationally recognized trading system, including The Nasdaq Capital Market. Without an active trading market, the liquidity of the warrants will be limited.

Holders of pre-funded warrants purchased in this offering will have no rights as common stockholders until such holders exercise their pre-funded warrants and acquire our common stock.

Until holders of pre-funded warrants acquire shares of our common stock upon exercise of the securities, such holders will have no rights with respect to the shares of our common stock underlying such securities. Upon exercise of the pre-funded warrants or preferred investment options, the holders thereof will be entitled to exercise the rights of common stockholders only as to matters for which the record date occurs after the exercise date.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the offering price for the securities in this offering. We may sell shares or other securities in any other offering at prices that are less than the price paid by the Investor in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders.

We have agreed not to sell any securities for a period of up to 60 days following the date on which the resale registration statement we will file pursuant to the Registration Rights Agreement becomes effective, subject to certain exceptions. We may resume sales following the earlier of the expiration of, or release from, this lock-up period.

For the foreseeable future, we do not intend to pay cash dividends on shares of our common stock so any gains will be limited to the value of our shares.

We currently anticipate that we will retain future earnings for the development, operation, and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any gains to stockholders will therefore be limited to the increase, if any, in our share price.

Risks Related to Our Business and Common Stock

We are wholly dependent on the success of one product candidate, the Neuro-Spinal Scaffold implant, for which we recently completed enrollment into the INSPIRE 2.0 Study, and for which we expect top-line clinical results in the first quarter of 2023. We cannot be certain that we will be able to obtain favorable clinical results in our clinical trials, including in the INSPIRE 2.0 Study, and further, we cannot be certain that regulatory authorities will accept the results of our clinical trials or interpret them the way that we do. Further, even if we are able to obtain favorable clinical results, including in the INSPIRE 2.0 Study, we may not be able to obtain regulatory approval for, or successfully commercialize, our Neuro-Spinal Scaffold implant.

We currently have only one product candidate, the *Neuro-Spinal Scaffold* implant, in clinical development, and our business depends almost entirely on the successful clinical development, regulatory approval, and commercialization of that product candidate, which may never occur. We expect top-line clinical results in the first quarter of 2023 for the INSPIRE 2.0 Study, and we cannot be certain that these data will be favorable, or even if favorable, whether regulatory authorities such as the FDA will accept the results of the trial.

We currently have no products available for sale, generate no revenues from sales of any products, and we may never be able to develop marketable products. Our *Neuro-Spinal Scaffold* implant will require substantial additional clinical development, testing, manufacturing process development, and regulatory approval before we are permitted to commence its commercialization. Before obtaining regulatory approval via the Humanitarian Device Exemption, or HDE, pathway for the commercial sale of any product candidate, we must demonstrate through extensive preclinical testing and clinical trials that the product candidate does not pose an unreasonable or significant risk of illness or injury, and that the probable benefit to health outweighs the risk of injury or illness from its use, taking into account the probable risks and benefits of currently available devices or alternative forms of treatment.

Although we have completed enrollment into our INSPIRE 2.0 Study, our clinical trial results may subsequently fail to meet the safety and probable benefit standards required to obtain regulatory approvals. For example, in the INSPIRE Study, two of the 16 evaluable patients were initially assessed to have improved from complete AIS A SCI to incomplete AIS B SCI, but each was later assessed to have reverted to complete AIS A SCI prior to the patient's 6-month examination. Of these two patients, one patient had converted back to AIS B and the other patient remained at AIS A at the six-month examination. There is known and published variability in some of the measures used to assess AIS improvement and these measures can vary over time or depending upon the examiner. While we implemented procedures in The INSPIRE Study and the INSPIRE 2.0 Study to limit such variations and will also implement procedures in any future clinical study to limit such variations, we cannot be certain that regulatory authorities will accept the results of our clinical trials or interpret them the way that we do.

Alternatively, if we were to seek premarket approval, or PMA, for our product candidate, that would require demonstration that the product is safe and effective for use in each target indication. This process can take many years. Of the large number of medical devices in development in the United States, only a small percentage successfully complete the regulatory approval process required by the FDA and are commercialized. Accordingly, even if we are able to obtain the requisite capital to continue to fund our development and clinical programs, we may be unable to successfully develop or commercialize our *Neuro-Spinal Scaffold* implant or any other product candidate.

The clinical trials of any of our current or future product candidates are, and the manufacturing and marketing of any such product candidates will be, subject to extensive and rigorous review and regulation by the FDA and other government authorities in the United States and in other countries where we intend to test and, if approved, market such product candidates.

Even if this offering is successful, we will need additional funding before achieving potential profitability. If we are unable to raise capital when needed, we could be forced to delay, reduce, or eliminate our product development programs or commercialization efforts, engage in one or more potential transactions, or cease our operations entirely.

If this offering is successful, we believe we have sufficient cash resources to continue our business operations through the first quarter of 2024. We expect that our expenses will increase in connection with our ongoing activities, particularly as we seek potential regulatory approval for our Neuro-Spinal Scaffold implant. If we obtain regulatory approval for any of our current or future product candidates, we expect to incur significant commercialization expenses related to manufacturing, marketing, sales, and distribution. Accordingly, we will need to obtain additional funding in connection with our continuing operations.

If we are unable to raise additional capital, we may seek to engage in one or more potential transactions, such as the sale of our company, a strategic partnership with one or more parties or the licensing, sale or divestiture of some of our assets or proprietary technologies, or we may be forced to cease our operations entirely. There can be no assurance that we will be able to enter into such a transaction or transactions on a timely basis or on terms that are favorable to us. If we are unable to raise capital when needed or on attractive terms, or should we engage in one or more potential strategic transactions, we could be forced to delay, reduce, or eliminate our research and development programs or any future commercialization efforts or to cease operations entirely. If we determine to change our business strategy or to seek to engage in a strategic transaction, our future business, prospects, financial position and operating results could be significantly different than those in historical periods or projected by our management. Because of the significant uncertainty regarding these events, we are not able to accurately predict the impact of any potential changes in our existing business strategy.

Our future funding requirements, both near and long term, will depend on many factors, including, but not limited to:

- the scope, progress, results, and costs of preclinical development, laboratory testing, clinical trials, and potential regulatory approval for our Neuro-Spinal Scaffold implant and any other product candidates that we may develop or acquire, including our INSPIRE 2.0 Study and the associated top-line data readout planned for the first quarter of 2023;
- future clinical trial results of our Neuro-Spinal Scaffold implant; including the results of the INSPIRE 2.0 Study;
- the timing of, and the costs involved in, obtaining regulatory approvals for the Neuro-Spinal Scaffold implant, and the outcome of regulatory review of the Neuro-Spinal Scaffold implant;
- the cost and timing of future commercialization activities for our products if any of our product candidates are approved for marketing, including product manufacturing, marketing, sales, and distribution costs;
- the revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;
- the cost of having our product candidates manufactured for clinical trials in preparation for regulatory approval and in preparation for commercialization;
- the cost and delays in product development as a result of any changes in regulatory oversight applicable to our product candidates;
- our ability to establish and maintain strategic collaborations, licensing, or other arrangements and the financial terms of such agreements;
- the cost and timing of establishing sales, marketing, and distribution capabilities;

- the costs involved in preparing, filing, prosecuting, maintaining, defending, and enforcing our intellectual property portfolio;
- the efforts and activities of competitors and potential competitors;
- the effect of competing technological and market developments; and
- the extent to which we acquire or invest in businesses, products, and technologies.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive, and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. For example, the top-line data from our INSPIRE 2.0 Study is expected in the first quarter of 2023, and the data may not support regulatory approval for the Neuro-Spinal Scaffold implant. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for several years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all.

There is substantial doubt about our ability to continue as a going concern, which will affect our ability to obtain future financing and may require us to curtail our operations.

Our consolidated financial statements as of June 30, 2022 were prepared under the assumption that we will continue as a going concern. At June 30, 2022, we had cash and cash equivalents of \$13.0 million and working capital of \$11.2 million. We estimate that our existing cash resources, together with the anticipated proceeds of the offerings, will be sufficient to fund our operations into the first quarter of 2024. This estimate is based on assumptions that may prove to be wrong; expenses could prove to be significantly higher, leading to a more rapid consumption of our existing resources.

Our ability to continue as a going concern will depend on our ability to obtain additional equity or debt financing, attain further operating efficiencies, reduce or contain expenditures, and, ultimately, to generate revenue.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein, contain and incorporate “forward-looking statements” within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements include statements made regarding our commercialization strategy, future operations, cash requirements and liquidity, capital requirements, and other statements on our business plans and strategy, financial position, and market trends. In some cases, you can identify forward-looking statements by terms such as “may,” “might,” “will,” “should,” “believe,” “plan,” “intend,” “anticipate,” “target,” “estimate,” “expect,” and other similar expressions. These forward-looking statements are subject to risks and uncertainties that could cause actual results or events to differ materially from those expressed or implied by the forward-looking statements, including factors such as our ability to raise substantial additional capital to finance our planned operations and to continue as a going concern; our ability to execute our strategy and business plan; our ability to obtain regulatory approvals for our products, including the *Neuro-Spinal Scaffold*[™]; our ability to successfully commercialize our current and future product candidates, including the *Neuro-Spinal Scaffold*; the progress and timing of our development programs; market acceptance of our products; our ability to retain management and other key personnel; our ability to promote, manufacture, and sell our products, either directly or through collaborative and other arrangements with third parties; and other factors detailed under “Risk Factors” in this prospectus supplement, our most recent Annual Report on Form 10-K. These forward-looking statements are only predictions, are uncertain, and involve substantial known and unknown risks, uncertainties, and other factors which may cause our actual results, levels of activity, or performance to be materially different from any future results, levels of activity, or performance expressed or implied by these forward-looking statements. Such factors include, among others, the following:

- 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;
- the length and impact of the ongoing COVID-19 pandemic;
- our ability to complete the INSPIRE 2.0 Study to support our existing Humanitarian Device Exemption application;
- our ability to execute our strategy and business plan;
- our ability to obtain regulatory approvals for our current and future product candidates, including our *Neuro-Spinal Scaffold* implant;
- our ability to successfully commercialize our current and future product candidates, including our *Neuro-Spinal Scaffold* implant;
- the progress and timing of our current and future development programs;
- our ability to successfully open, enroll and complete clinical trials and obtain and maintain regulatory approval of our current and future product candidates;
- our ability to protect and maintain our intellectual property and licensing arrangements;
- our reliance on third parties to conduct testing and clinical trials;
- market acceptance and adoption of our current and future technology and products;
- our ability to promote, manufacture and sell our current and future products, either directly or through collaborative and other arrangements with third parties; and
- our ability to attract and retain key personnel.

We cannot guarantee future results, levels of activity, or performance. You should not place undue reliance on these forward-looking statements, which speak only as of the respective dates as of which they were made. You are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions that are referenced in the section of this prospectus supplement entitled “Risk Factors.” You should also carefully review the risk factors and cautionary statements described

in the other documents we file from time to time with the SEC, specifically our most recent Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K. Except as required by applicable law, including the securities laws of the United States, we do not intend to update any of the forward-looking statements to conform these statements to reflect actual results, later events or circumstances, or to reflect the occurrence of unanticipated events.

USE OF PROCEEDS

We estimate that the net proceeds from the sale of the shares of common stock and pre-funded warrants offered by this prospectus will be approximately \$2.3 million after deducting the placement agent fees and estimated offering expenses payable by us. These estimates exclude the proceeds, if any, from the exercise of the pre-funded warrants and preferred investment options sold in this offering.

We intend to use the net proceeds from this offering primarily for working capital and general corporate purposes, which may include activities in furtherance of potential commercialization of its investigational Neuro-Spinal Scaffold device, such as regulatory submissions and manufacturing matters, as well as for business development purposes.

We cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering. Accordingly, our management will have broad discretion and flexibility in applying the net proceeds from the sale of securities sold pursuant to this prospectus supplement and accompanying prospectus.

Pending the uses described above, we intend to invest the net proceeds from this offering in a variety of capital preservation investments, including short-term, investment-grade and interest-bearing instruments.

DIVIDEND POLICY

We have never declared or paid cash dividends. We do not intend to pay cash dividends on our common stock for the foreseeable future, but currently intend to retain any future earnings to fund the development and growth of our business. The payment of cash dividends, if any, on our common stock, will rest solely within the discretion of our board of directors and will depend, among other things, upon our earnings, capital requirements, financial condition, and other relevant factors.

DESCRIPTION OF SECURITIES WE ARE OFFERING

Common Stock

We have authorized 251,000,000 shares of capital stock, consisting of 250,000,000 shares of common stock, par value \$0.00001 per share, and 1,000,000 shares of undesignated preferred stock, \$0.00001 par value per share. As of October 6, 2022, there were 1,391,160 shares of common stock issued and outstanding and no shares of preferred stock issued or outstanding.

The authorized and unissued shares of common stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange on which our securities may be listed. Unless approval of our stockholders is so required, our board of directors does not intend to seek stockholder approval for the issuance and sale of our common stock. All shares of common stock will, when issued, be duly authorized, fully paid and non-assessable. 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.

The holders of our common stock are entitled to one vote per share. 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. Additionally, any alteration, amendment or repeal of any provision of our bylaws would require the affirmative vote of the holders of at least 80% of the voting power of our then outstanding shares entitled to vote, voting together as a single class. 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. Our directors are divided into three classes. At each annual meeting of stockholders, directors elected to succeed those directors whose terms expire are elected for a term of office to expire at the third succeeding annual meeting of stockholders after their election. The holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared by our board of directors out of legally available funds; however, the current policy of our board of directors is to retain earnings, if any, for operations and growth. Upon liquidation, dissolution or winding-up, the holders of our common stock are entitled to share ratably in all assets that are legally available for distribution after payment of our liabilities. The holders of our common stock have no preemptive, subscription, redemption or conversion rights.

The foregoing description summarizes important terms of our capital stock, but is not complete. For the complete terms of our common stock, please refer to our articles of incorporation, as amended, and our amended and restated bylaws, as may be amended from time to time.

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company. Our common stock is listed on the Nasdaq Capital Market under the symbol “NVIV.”

Pre-Funded Warrants

The following summary of certain terms and provisions of the pre-funded warrants that are being issued hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the pre-funded warrant, which has been provided to the Investor in this offering and which will be filed with the U.S. Securities and Exchange Commission, or SEC, as an exhibit to a Current Report on Form 8-K in connection with this offering and incorporated by reference into the registration statement of which this prospectus supplement and accompanying prospectus forms a part. Prospective investors should carefully review the terms and provisions of the form of pre-funded warrant for a complete description of the terms and conditions of the pre-funded warrants.

Duration and Exercise Price

Each pre-funded warrant offered hereby will have an initial exercise price per share equal to \$0.0001. The pre-funded warrants will be exercisable upon issuance and will expire when exercised in full. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price.

Exercisability

The pre-funded warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the pre-funded warrant to the extent that the holder would own more than 9.99% of the outstanding common stock immediately after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may decrease the amount of beneficial ownership of outstanding stock after exercising the holder's pre-funded warrants down to 4.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the pre-funded warrants and Nevada law. The Investor of pre-funded warrants in this offering may also elect prior to the issuance of the pre-funded warrants to have the initial exercise limitation set at 4.99% of our outstanding common stock.

Cashless Exercise

In lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the pre-funded warrants.

Transferability

Subject to applicable laws, a pre-funded warrant may be transferred at the option of the holder upon surrender of the pre-funded warrant to us together with the appropriate instruments of transfer.

Fractional Shares

No fractional shares of common stock will be issued upon the exercise of the pre-funded warrants. Rather, the number of shares of common stock to be issued will be rounded to the nearest whole number.

Trading Market

There is no trading market available for the pre-funded warrants on any securities exchange or nationally recognized trading system, and we do not expect a trading market to develop. We do not intend to list the pre-funded warrants on any securities exchange or other trading market. Without a trading market, the liquidity of the pre-funded warrants will be extremely limited. The common stock issuable upon exercise of the pre-funded warrants is currently listed on the Nasdaq Capital Market.

Right as a Stockholder

Except as otherwise provided in the pre-funded warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the pre-funded warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their pre-funded warrants. The pre-funded warrants will provide that holders have the right to participate in distributions or dividends paid on our common stock.

Fundamental Transaction

In the event of a fundamental transaction, as described in the pre-funded 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 pre-funded warrants will be entitled to receive upon exercise of the pre-funded warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the pre-funded warrants immediately prior to such fundamental transaction.

CONCURRENT PRIVATE PLACEMENT

Preferred Investment Options

Concurrently with the closing of the sale of common stock in this offering, we also expect to issue and sell to the Investor in a private placement preferred investment options to purchase an aggregate of up to 523,810 of shares of our common stock at an initial exercise price equal to \$5.05 per share.

The preferred investment options and the shares of common stock issuable upon the exercise of the preferred investment options are not being registered under the Securities Act, are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder. Accordingly, the purchaser may only sell shares of common stock issued upon exercise of the preferred investment options pursuant to an effective registration statement under the Securities Act covering the resale of those shares, an exemption under Rule 144 under the Securities Act or another applicable exemption under the Securities Act.

Exercisability. The preferred investment options are immediately exercisable, and at any time thereafter up to the five and one-half year anniversary of the initial exercise date. The preferred investment options will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and, at any time a registration statement registering the issuance of the common stock underlying the preferred investment options under the Securities Act is effective and available for the issuance of such shares, or an exemption from registration under the Securities Act is available for the issuance of such shares, by payment in full in immediately available funds for the number of common stock purchased upon such exercise. If at the time of exercise there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the common stock underlying the preferred investment options, then the preferred investment options may also be exercised, in whole or in part, at such time by means of a cashless exercise, in which case the holder would receive upon such exercise the net number of common stock determined according to the formula set forth in the Warrant.

Exercise Limitation. A holder will not have the right to exercise any portion of the preferred investment options if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or 9.99% upon the request of the Investor prior to issuance) of the number of shares of common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the preferred investment options. However, any holder may increase or decrease such percentage, provided that any increase will not be effective until the 61st day after such election.

Exercise Price. The preferred investment options will have an exercise price of \$5.05 per share. The exercise price is subject to appropriate 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 distributions of assets, including cash, stock or other property to our stockholders.

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

Trading Market. There is no established trading market for the preferred investment options being issued in the concurrent private placement, and we do not expect a market to develop. We do not intend to apply for listing of the preferred investment options on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the preferred investment options will be limited.

Fundamental Transactions. In the event of a fundamental transaction, as described in the preferred investment options 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 preferred investment options will be entitled to receive upon exercise of the preferred investment options the kind and amount of securities, cash or other property that the holders would have received had they exercised the preferred investment options immediately

prior to such fundamental transaction. In addition, in the event of a fundamental transaction which is approved by our board of directors, the holders of the preferred investment options have the right to require us or a successor entity to redeem the preferred investment option for cash in the amount of the Black-Scholes value of the unexercised portion of the Warrant on the date of the consummation of the fundamental transaction. In the event of a fundamental transaction which is not approved by our Board, the holders of the preferred investment options have the right to require us or a successor entity to redeem the preferred investment option for the consideration paid in the fundamental transaction in the amount of the Black-Scholes value of the unexercised portion of the preferred investment option on the date of the consummation of the fundamental transaction.

Rights as a Shareholder. Except as otherwise provided in the preferred investment options or by virtue of such holder's ownership 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 preferred investment option.

Warrant Amendments

Concurrent with the offerings, we entered into a warrant amendment agreement (the "Warrant Amendment Agreement") with the Investor. Under the Warrant Amendment Agreement, we agreed to amend certain existing warrants to purchase up to 80,139 shares of common stock that were previously issued to the Investor in March 2020, April 2020 and October 2020, with exercise prices of \$68.75, \$40.50 and \$20.00 per share, respectively (the "Existing Warrants"), in consideration for their purchase of approximately \$9 million of our securities in the offerings. Under the Warrant Amendment Agreement, we agreed to (i) lower the exercise price of such Existing Warrant to \$5.05 per share and (ii) extend the original expiration date of such Existing Warrant to five and one-half years following the closing of the offering. The amendment of the Existing Warrants pursuant to the Warrant Amendment Agreement is subject to the consummation of the separate private placement and the Investor's satisfaction of its purchase commitment.

SEPARATE PRIVATE PLACEMENT

The Investor has agreed to purchase, in a separate private placement that is expected to close concurrently with this offering, pre-funded warrants to purchase up to an aggregate of 1,190,746 shares of common stock and accompanying preferred investment options to purchase up to an aggregate of 1,190,746 shares of common stock.

Each pre-funded warrant and accompanying preferred investment option are being sold together at a combined price of \$5.25, for gross proceeds of approximately \$6.25 million. We entered into a securities purchase agreement with the Investor under which we will issue and sell the securities to be purchased by the Investor. In addition, we entered into a registration rights agreement with the Investor, pursuant to which we agreed to register for resale the shares of common stock issuable upon exercise of the pre-funded warrants and the preferred investment options sold to the Investor in the concurrent private placement and the preferred investment options sold in the separate private placement.

Under the terms of the pre-funded warrants and preferred investment options being issued to the Investor in the separate private placement, the Investor is not permitted to exercise such securities to the extent that such exercise would result in the Investor (and its affiliates) beneficially owning more than 4.99% (or, at the election of the Investor prior to issuance, 9.99%) of the number of shares of our common stock outstanding immediately after giving effect to the issuance of shares of common stock issuable upon exercise of such securities. The Investor has the right to increase this beneficial ownership limitation to up to 9.99% in its discretion on 61 days' prior written notice to us.

PLAN OF DISTRIBUTION

We have engaged H.C. Wainwright & Co., LLC, which we refer to in this prospectus supplement as H.C. Wainwright or the placement agent, to act as our exclusive placement agent to solicit offers to purchase the securities offered by this prospectus supplement and accompanying prospectus. H.C. Wainwright is not purchasing or selling any securities, nor is it required to arrange for the purchase and sale of any specific number or dollar amount of securities, other than to use its reasonable best efforts to arrange for the sale of the securities by us. Therefore, we may not sell the entire amount of the securities being offered. There is no minimum amount of proceeds that is a condition to closing of this offering. We entered into a securities purchase agreement directly with the Investor for the purchase our securities in this offering and we will only sell to investors who have entered into the securities purchase agreement. H.C. Wainwright may engage one or more sub-placement agents or selected dealers to assist with the offering.

We expect to deliver the securities being offered pursuant to this prospectus supplement and accompanying prospectus on or about October 11, 2022, subject to satisfaction of customary closing conditions.

Fees and Expenses

The following table show the per share and total placement agent cash fees we will pay in connection with the sale of the securities in this offering, but excluding the concurrent private placement and the separate private placement, assuming the purchase of all of the securities we are offering.

Per share and pre-funded warrant placement agent cash fees	\$ 0.394
Total placement agent cash fees	\$206,250.19

We have agreed to pay the placement agent a total cash fee equal to 7.5% of the gross proceeds of the offerings and a management fee equal to 1% of the gross proceeds of the offerings. We will also pay the placement agent \$85,000 for non-accountable expense in connection with the offerings and clearing expenses in the amount of up to \$15,950.

We estimate the total offering expenses of the offerings that will be payable by us, excluding the placement agent fees and expenses, will be approximately \$0.1 million. After deducting the placement agent fees and our estimated offering expenses, we expect the net proceeds from this offering to be approximately \$2.3 million.

Placement Agent Warrants

Pursuant to an engagement letter with H.C. Wainwright, we have agreed to issue preferred investment options to H.C. Wainwright, or its designees, (the “Placement Agent Preferred Investment Options”) to purchase up to 111,429 shares of common stock, which is equal to 6.5% of the (i) aggregate number of shares of common stock and pre-funded warrants being offered pursuant to this prospectus supplement, and (ii) the aggregate number of shares issuable under pre-funded warrants being sold in the separate private placement. The Placement Agent Preferred Investment Options will have substantially the same terms as the preferred investment options being sold and issued in the concurrent private placement and the separate private placement except that they will have an exercise price of \$6.5625, which is equal to 125% of the offering price per share, and will terminate on October 11, 2027, which is five years from the commencement of the sales pursuant to this offering.

Right of First Refusal

In addition, we have granted a right of first refusal to the placement agent pursuant to which it has the right to act as the exclusive advisor, manager or underwriter or agent, as applicable, if we or our subsidiaries sell or acquire a business, finance any indebtedness using an agent, or raise capital through a public or private offering of equity or debt securities at any time prior to the 12 month anniversary of the date of this prospectus supplement.

Market Standoff

We have agreed not to sell any securities for a period of up to 60 days following the date on which the resale registration statement we will file pursuant to the Registration Rights Agreement becomes effective (the “Effective Date”), subject to certain exceptions. We have additionally agreed for a period of one year following the Effective Date not to issue any common stock pursuant to an agreement involving a transaction in which we (i) issue or sell any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive additional shares of our common stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon and/or varies with the trading prices of or quotations for the shares of common stock at any time after the initial issuance of such debt or equity securities, or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to our business or the market for the common stock or (ii) enter into, or effect a transaction under, any agreement, including, but not limited to, an equity line of credit or an “at-the-market offering”, whereby we may issue securities at a future determined price; provided that we may engage in an “at-the-market” offering six months following the Effective Date so long as the placement agent acts as the sales agent in such offering.

Other Relationships

The placement agent may, from time to time, engage in transactions with or perform services for us in the ordinary course of its business and may continue to receive compensation from us for such services.

Determination of Offering Price

The offering price of the securities we are offering was negotiated between us and the Investor, in consultation with the placement agent based on the trading of our common stock prior to the offering, among other things. Other factors considered in determining the offering price of the securities we are offering include the history and prospects of our company, the stage of development of our business, our business plans for the future and the extent to which they have been implemented, an assessment of our management, general conditions of the securities markets at the time of the offering and such other factors as were deemed relevant.

Transfer Agent and Registrar

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

Nasdaq Listing

Our common stock is listed on the Nasdaq Capital Market under the symbol “NVIV.”

Indemnification

We have agreed to indemnify the placement agent against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the placement agent may be required to make with respect to any of these liabilities.

Regulation M

The placement agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act and any fees received by it and any profit realized on the sale of the securities by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. The placement agent will be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of our securities by the placement agent. Under these rules and regulations, the placement agent may not (i) engage in any stabilization activity in connection with our securities and (ii) bid for or purchase any of our securities or attempt to induce any

person to purchase any of our securities, other than as permitted under the Exchange Act, until they have completed their participation in the distribution.

Separate Private Placement

The Investor in this offering has also agreed to purchase pre-funded warrants and preferred investment options for approximately \$6.25 million in gross proceeds in a separate private placement that is expected to close concurrently with this offering and on substantially the same terms and conditions as this offering. Each pre-funded warrant will be exercisable upon issuance at an exercise price of \$0.0001 per share and have no expiration. The preferred investment options will be exercisable upon issuance at an exercise price of \$5.05 per share and will expire five and one-half years from the date of issuance.

The securities to be sold in the separate private placement will constitute restricted securities under the Securities Act. H.C. Wainwright is acting as placement agent for the separate private placement.

LEGAL MATTERS

The validity of the securities offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Ballard Spahr LLP, Las Vegas, Nevada, and certain other legal matters will be passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP, Boston, Massachusetts.

EXPERTS

The consolidated financial statements of InVivo Therapeutics Holdings Corp. and subsidiary as of December 31, 2021 and 2020 and for the years then ended, incorporated in this prospectus supplement and the accompanying prospectus by reference from the InVivo Therapeutics Holdings Corp.'s [Annual Report on Form 10-K for the year ended December 31, 2021](#) 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 InVivo Therapeutics Holdings Corp.'s ability to continue as a going concern), incorporated herein by reference, and have been incorporated in this prospectus supplement and the accompanying prospectus in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to you on the SEC's Internet site at www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at www.invivotherapeutics.com. The information on our Internet website is not incorporated by reference in this prospectus or any prospectus supplement.

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

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus supplement and the accompanying 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 supplement and the accompanying prospectus. The documents and reports that we list below are incorporated by reference into this prospectus supplement and the accompanying 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 supplement and prior to the termination of the offering made hereby are incorporated by reference in this prospectus supplement and the accompanying 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 in this prospectus supplement and the accompanying prospectus by reference as of their respective dates of filing:

- (1) [Our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on March 7, 2022](#)
- (2) Our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2022 and June 30, 2022, filed with the SEC on [May 10, 2022](#) and [August 8, 2022](#), respectively;
- (3) [Our Definitive Proxy Statement on Schedule 14A for our annual meeting of stockholders held on September 9, 2022, filed with the SEC on August 18, 2022;](#)
- (4) Our Current Reports on Form 8-K filed with the SEC on [April 14, 2022](#), [April 26, 2022](#), [May 13, 2022](#), [May 26, 2022](#), [June 2, 2022](#), [July 12, 2022](#) and [September 13, 2022](#); and
- (5) The description of our common stock contained in our Registration Statement on [Form 8-A filed on April 15, 2015](#), as the description therein has been updated and superseded by the description of our capital stock contained in Exhibit 4.1 to our [Annual Report on Form 10-K for the year ended December 31, 2020](#), and 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 supplement or the accompanying prospectus will automatically update and supersede information contained in this prospectus supplement and the accompanying prospectus, including information in previously filed documents or reports that have been incorporated by reference in this prospectus supplement or the accompanying 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 supplement or the accompanying prospectus, except as so modified or superseded. Because information that we later file with the SEC will update and supersede previously incorporated information, you should look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus supplement or the accompanying prospectus or in any documents previously incorporated by

PROSPECTUS

**INVIVO THERAPEUTICS HOLDINGS CORP.****\$20,000,000****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 \$20,000,000 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 listed on The Nasdaq Capital Market under the symbol "NVIV." On October 25, 2019, the last sales price of our common stock as reported on The Nasdaq Capital Market was \$0.44 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.

As of September 15, 2019, the aggregate market value of our outstanding common stock held by non-affiliates was approximately \$5,766,788, which was calculated based on 9,301,271 shares of outstanding common stock held by non-affiliates and a price per share of \$0.62. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell, pursuant to the registration statement of which this prospectus forms a part, securities in a public primary offering with a value exceeding one-third of the aggregate market value of our common stock held by non-affiliates in any 12-month period, so long as the aggregate market value of our outstanding common stock held by non-affiliates remains below \$75 million. During the 12 calendar months prior to and including the date of this prospectus, we have not offered or sold any securities pursuant to General Instruction I.B.6 of Form S-3.

Investing in these securities involves certain risks. See "Risk Factors" included in any accompanying prospectus supplement and in the documents incorporated by reference in this prospectus for a discussion of the factors you should carefully consider before deciding to purchase these 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 November 14, 2019.

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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 \$20,000,000.

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” on page 3 of this prospectus 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 are a research and clinical-stage biomaterials and biotechnology company with a focus on treatment of spinal cord injuries, or SCIs. Our mission is to redefine the life of the SCI patient, and we seek to develop 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 ScaffoldM implant, a bioresorbable polymer scaffold that is designed for implantation at the site of injury within a spinal cord and is intended to treat acute SCI. The Neuro-Spinal Scaffold implant incorporates intellectual property licensed under an exclusive, worldwide license from Boston Children's Hospital, or BCH, and the Massachusetts Institute of Technology, or MIT. We also plan to evaluate 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.

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.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to you on the SEC's Internet site at *www.sec.gov*. Copies of certain information filed by us with the SEC are also available on our website at *www.invivotherapeutics.com*. The information on our Internet website is not incorporated by reference in this prospectus or any prospectus supplement.

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 should review the information and exhibits in the registration statement for further information about us and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements. You can obtain a copy of the registration statement and exhibits from the SEC's Internet site.

SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION

This prospectus and each prospectus supplement contains 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”). These statements include statements made regarding our commercialization strategy, future operations, cash requirements and liquidity, capital requirements, and other statements on our business plans and strategy, financial position, and market trends. In some cases, you can identify forward-looking statements by terms such as “may,” “might,” “will,” “should,” “believe,” “plan,” “intend,” “anticipate,” “target,” “estimate,” “expect,” and other similar expressions. These forward-looking statements are subject to risks and uncertainties that could cause actual results or events to differ materially from those expressed or implied by the forward-looking statements, including factors such as our ability to raise substantial additional capital to finance our planned operations and to continue as a going concern; our ability to execute our strategy and business plan; our ability to obtain regulatory approvals for our products, including the *Neuro-Spinal Scaffold*[™]; our ability to successfully commercialize our current and future product candidates, including the *Neuro-Spinal Scaffold*; the progress and timing of our development programs; market acceptance of our products; our ability to retain management and other key personnel; our ability to promote, manufacture, and sell our products, either directly or through collaborative and other arrangements with third parties; and other factors detailed under “Risk Factors” in our most recent Annual Report on Form 10-K and our most recent Quarterly Report on Form 10-Q. These forward looking statements are only predictions, are uncertain, and involve substantial known and unknown risks, uncertainties, and other factors which may cause our actual results, levels of activity, or performance to be materially different from any future results, levels of activity, or performance expressed or implied by these forward looking statements. Such factors include, among others, the following:

- 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 complete the INSPIRE 2.0 Study to support our existing Humanitarian Device Exemption application;
- our ability to execute our strategy and business plan;
- our ability to obtain regulatory approvals for our current and future product candidates, including our *Neuro-Spinal Scaffold* implant;
- our ability to successfully commercialize our current and future product candidates, including our *Neuro-Spinal Scaffold* implant;
- the progress and timing of our current and future development programs;
- our ability to successfully open, enroll and complete clinical trials and obtain and maintain regulatory approval of our current and future product candidates;
- our ability to protect and maintain our intellectual property and licensing arrangements;
- our reliance on third parties to conduct testing and clinical trials;
- market acceptance and adoption of our current and future technology and products;
- our ability to promote, manufacture and sell our current and future products, either directly or through collaborative and other arrangements with third parties; and
- our ability to attract and retain key personnel.

We cannot guarantee future results, levels of activity, or performance. You should not place undue reliance on these forward looking statements, which speak only as of the date of this prospectus. You are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions that are referenced in the section of any accompanying prospectus supplement entitled “Risk Factors.” You should also carefully review the risk factors and cautionary statements described in the other documents we file from time to time with the SEC, specifically our most recent Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K. Except as required by applicable law, including the securities laws of the United States, we do not intend to update any of the forward looking statements to conform these statements to reflect actual results, later events or circumstances, or to reflect the occurrence of unanticipated events.

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, 2018, filed on [April 1, 2019](#), including the information specifically incorporated by reference into the Annual Report on Form 10-K from our definitive proxy statement for the 2019 Annual Meeting of Stockholders, filed on [April 25, 2019](#);
- (2) Our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2019, filed on [May 10, 2019](#) and for the quarter ended June 30, 2019, filed on [August 13, 2019](#);
- (3) Our Current Reports on Form 8-K filed on [January 4, 2019](#) (Item 8.01 only), [January 14, 2019](#), [June 14, 2019](#), [July 5, 2019](#), [July 12, 2019](#), [July 19, 2019](#) and [September 27, 2019](#);
- (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 April 15, 2015, 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 to conduct our INSPIRE 2.0 clinical trial and for other business development activities, as well as for working capital and 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 \$20,000,000.

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, which are filed as exhibits to the registration statement of which this prospectus forms a part.

Under our articles of incorporation, as amended, we have authority to issue 25,000,000 shares of common stock, par value \$0.00001 per share. As of September 15, 2019, there were 9,313,070 shares of common stock issued and outstanding. All shares of common stock will, when issued, be duly authorized, fully paid and nonassessable. Accordingly, the full price for the outstanding shares of common stock will have been paid at issuance and any holder of our common stock will not be later required to pay us any additional money for such common stock.

In addition, as of September 15, 2019:

- there were outstanding warrants to purchase an aggregate of up to 7,673,130 shares of our common stock at a weighted average exercise price of \$4.78 per share;
- there were an aggregate of 124,890 shares of our common stock subject to outstanding stock options at a weighted average exercise price of \$35.15 per share;
- 7,500 shares of our common stock were issuable upon vesting of outstanding restricted stock units;
- 4,275 shares of our common stock were reserved for future issuances under our incentive compensation plans and 401(k) plan; and
- 7,923 shares of our common stock reserved for future issuance under our employee stock purchase 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 listed on The Nasdaq Capital Market 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 two 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 two 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 also not have had reasonable cause to believe that his conduct was unlawful. In addition, any of our directors, officers, employees or agents are entitled to indemnification if such person is successful on the merits or otherwise in defense of any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative against actual and reasonable expenses incurred in connection with defending such action.

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. Unless our articles are amended to provide for greater liability, neither our directors nor officers are individually liable to us or our stockholders or creditors for any act or omission as a director or officer unless it is proven that: (i) such act or omission constituted a breach of such director's or officer's fiduciary duties; and (ii) such breach involved intentional misconduct, fraud or a knowing violation of law. These provisions may be sufficiently broad to indemnify such persons for liabilities arising under the Securities Act, in which case such provisions are against public policy as expressed in the Securities Act and are 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.

FORMS OF SECURITIES

Each unit and warrant will be represented either by a certificate issued in definitive form to a particular investor or by one or more global securities representing the entire issuance of securities. Unless the applicable prospectus supplement provides otherwise, certificated securities in definitive form and global securities will be issued in registered form. Definitive securities name you or your nominee as the owner of the security, and in order to transfer or exchange these securities or to receive payments other than interest or other interim payments, you or your nominee must physically deliver the securities to the registrar, paying agent or other agent, as applicable. Global securities name a depositary or its nominee as the owner of the units or warrants represented by these global securities. The depositary maintains a computerized system that will reflect each investor's beneficial ownership of the securities through an account maintained by the investor with its broker/dealer, bank, trust company or other representative, as we explain more fully below.

Global Securities

We may issue the units and warrants in the form of one or more fully registered global securities that will be deposited with a depositary or its nominee identified in the applicable prospectus supplement and registered in the name of that depositary or nominee. In those cases, one or more global securities will be issued in a denomination or aggregate denominations equal to the portion of the aggregate principal or face amount of the securities to be represented by global securities. Unless and until it is exchanged in whole for securities in definitive registered form, a global security may not be transferred except as a whole by and among the depositary for the global security, the nominees of the depositary or any successors of the depositary or those nominees.

If not described below, any specific terms of the depositary arrangement with respect to any securities to be represented by a global security will be described in the prospectus supplement relating to those securities. We anticipate that the following provisions will apply to all depositary arrangements.

Ownership of beneficial interests in a global security will be limited to persons, called participants, that have accounts with the depositary or persons that may hold interests through participants. Upon the issuance of a global security, the depositary will credit, on its book-entry registration and transfer system, the participants' accounts with the respective principal or face amounts of the securities beneficially owned by the participants. Any dealers, underwriters or agents participating in the distribution of the securities will designate the accounts to be credited. Ownership of beneficial interests in a global security will be shown on, and the transfer of ownership interests will be effected only through, records maintained by the depositary, with respect to interests of participants, and on the records of participants, with respect to interests of persons holding through participants. The laws of some states may require that some purchasers of securities take physical delivery of these securities in definitive form. These laws may impair your ability to own, transfer or pledge beneficial interests in global securities.

So long as the depositary, or its nominee, is the registered owner of a global security, that depositary or its nominee, as the case may be, will be considered the sole owner or holder of the securities represented by the global security for all purposes under the applicable indenture, deposit agreement, purchase contract, warrant agreement or purchase unit agreement. Except as described below, owners of beneficial interests in a global security will not be entitled to have the securities represented by the global security registered in their names, will not receive or be entitled to receive physical delivery of the securities in definitive form and will not be considered the owners or holders of the securities under the applicable indenture, deposit agreement, purchase contract, purchase unit agreement or warrant agreement. Accordingly, each person owning a beneficial interest in a global security must rely on the procedures of the depositary for that global security and, if that person is not a participant, on the procedures of the participant through which the person owns its interest, to exercise any rights of a holder under the applicable unit agreement or warrant agreement. We understand that under existing industry practices, if we request any action of holders or if an owner of a beneficial interest in a global security desires to give or take any action that a holder is entitled to give or take under the applicable unit agreement or warrant agreement, the depositary for the global security would authorize the participants holding the relevant beneficial interests to give or take that action, and the participants would authorize beneficial owners owning through them to give or take that action or would otherwise act upon the instructions of beneficial owners holding through them.

Any payments to holders with respect to warrants or units represented by a global security registered in the name of a depository or its nominee will be made to the depository or its nominee, as the case may be, as the registered owner of the global security. None of us, or any warrant agent, unit agent or other agent of ours, or any agent of any warrant agent or unit agent will have any responsibility or liability for any aspect of the records relating to payments made on account of beneficial ownership interests in the global security or for maintaining, supervising or reviewing any records relating to those beneficial ownership interests.

We expect that the depository for any of the securities represented by a global security, upon receipt of any payment to holders of principal, premium, interest or other distribution of underlying securities or other property on that registered global security, will immediately credit participants' accounts in amounts proportionate to their respective beneficial interests in that global security as shown on the records of the depository. We also expect that payments by participants to owners of beneficial interests in a global security held through participants will be governed by standing customer instructions and customary practices, as is now the case with the securities held for the accounts of customers or registered in "street name," and will be the responsibility of those participants.

If the depository for any of the securities represented by a global security is at any time unwilling or unable to continue as depository or ceases to be a clearing agency registered under the Exchange Act, and a successor depository registered as a clearing agency under the Exchange Act is not appointed by us within 90 days, we will issue securities in definitive form in exchange for the global security that had been held by the depository. Any securities issued in definitive form in exchange for a global security will be registered in the name or names that the depository gives to the relevant warrant agent, unit agent or other relevant agent of ours or theirs. It is expected that the depository's instructions will be based upon directions received by the depository from participants with respect to ownership of beneficial interests in the global security that had been held by the depository.

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;
- 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 reallowed 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. 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 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 listed on The Nasdaq Capital Market. 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 Nasdaq Capital Market or otherwise and, if commenced, may be discontinued at any time.

EXPERTS

The consolidated financial statements of InVivo Therapeutics Holdings Corp. and its subsidiaries as of December 31, 2018 and 2017 and for each of the years in the two-year period ended December 31, 2018 incorporated in this Prospectus by reference from the InVivo Therapeutics Holdings Corp.'s [Annual Report on Form 10-K for the year ended December 31, 2018](#), 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 InVivo Therapeutics Holdings Corp.'s ability to continue as a going concern), incorporated herein by reference, and have been incorporated in this Prospectus and Registration Statement in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, the validity of the securities in respect of which this prospectus is being delivered will be passed upon by Ballard Spahr LLP, Las Vegas, Nevada, and certain other legal matters will be passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP, Boston, Massachusetts.

154,000 Shares of Common Stock
Pre-Funded Warrants to Purchase up to 369,810 Shares of Common Stock

InVivo Therapeutics Holdings Corp.



Prospectus Supplement

H.C. Wainwright & Co.

October 7, 2022
