

PROSPECTUS SUPPLEMENT NO. 6

(TO PROSPECTUS DATED JUNE 20, 2018)

**INVIVO THERAPEUTICS HOLDINGS CORP.
388,403 shares of Common Stock and
388,403 Warrants to purchase shares of Common Stock
and
6,242,811 Pre-Funded Warrants to purchase shares of Common Stock and
6,242,811 Warrants to purchase shares of Common Stock**

This prospectus supplement No. 6 supplements and amends the prospectus dated June 20, 2018, as supplemented by prospectus supplement No.1, dated September 28, 2018, prospectus supplement No. 2, dated October 5, 2018, prospectus supplement No. 3, dated November 8, 2018, prospectus supplement No. 4, dated November 13, 2018, and prospectus supplement No.5, dated November 16, 2018, related to the sale or other disposition from time to time of 388,403 shares of common stock, par value \$0.00001 per share (the “Common Stock”), of InVivo Therapeutics Holdings Corp., a Nevada corporation (the “Company,” “we,” “us” or “our”), together with up to 388,403 warrants to purchase shares of Common Stock, and 6,242,811 pre-funded warrants to purchase shares of Common Stock together with 6,242,811 warrants to purchase shares of Common Stock, issued to Ladenburg Thalmann & Co. Inc., the underwriter named in the prospectus, also referred to as LTCO, pursuant to an underwriting agreement dated June 21, 2018 that we entered into with LTCO.

This prospectus supplement should be read in conjunction with the prospectus dated June 20, 2018, which is to be delivered with this prospectus supplement. This prospectus supplement is qualified by reference to the prospectus except to the extent that the information in this prospectus supplement supersedes the information contained in the prospectus. This prospectus supplement is not complete without, and may not be delivered or utilized except in connection with, the prospectus, including any amendments or supplements to it.

Our common stock is quoted on The Nasdaq Capital Market under the symbol “NVIV.” On December 13, 2018, the last reported sale price of our common stock on The Nasdaq Capital Market was \$1.96 per share.

This prospectus supplement incorporates into our prospectus the information contained in our Current Report on Form 8-K filed with the Securities and Exchange Commission on December 14, 2018 and attached hereto.

Investing in our common stock involves risks. See “Risk Factors” beginning on page 10 of the prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the prospectus to which it relates are truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is December 14, 2018.

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

December 10, 2018

Date of Report (Date of earliest event reported)

INVIVO THERAPEUTICS HOLDINGS CORP.

(Exact Name of Registrant as Specified in Charter)

Nevada
(State or Other
Jurisdiction of Incorporation)

001-37350
(Commission File Number)

36-4528166
(IRS Employer
Identification No.)

**One Kendall Square, Suite B14402
Cambridge, Massachusetts 02139**
(Address of Principal Executive Offices) (Zip Code)

(617) 863-5500
(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- ☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- ☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- ☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- ☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

On December 10, 2018, Jeffrey S. Hatfield informed the Board of Directors (the “Board”) of InVivo Therapeutics Holdings Corp. (the “Company”) of his intention to resign from the Board and as a member of the Board’s Audit and Compensation Committees, not due to any conflict or disagreement with the Board or Company. Mr. Hatfield’s resignation will be effective December 31, 2018.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

INVIVO THERAPEUTICS HOLDINGS CORP.

Date: December 14, 2018

By: /s/ RICHARD TOSELLI

Name: Richard Toselli

Title: President and Chief Executive Officer
