

INVIVO THERAPEUTICS HOLDINGS CORP.
 Form 424B3
 September 12, 2013

Filed Pursuant to Rule 424(b)(3)

Registration No. 333-171998

Prospectus Supplement to Prospectus dated April 23, 2012

InVivo Therapeutics Holdings Corp.

26,047,200 Shares of Common Stock

This prospectus supplement updates the prospectus dated April 23, 2012 relating to the offer for sale of up to an aggregate of 26,047,200 shares of common stock of InVivo Therapeutics Holdings Corp. by the selling securityholders identified in the prospectus and this prospectus supplement, and any of their pledgees, donees, transferees or other successors in interest.

We are providing this prospectus supplement to update the table in the prospectus under the caption "Selling Securityholders" to reflect the transfer of warrants to purchase shares of common stock by a selling securityholder. The amounts set forth below are based upon information provided to us by the selling securityholder (or his or its representatives), or on our records, and are accurate to the best of our knowledge. Unless we indicate otherwise, the information in this prospectus supplement is as of September 11, 2013.

| Name | Securities Beneficially Owned Prior to the Offering | | Securities Offered Hereby | | Securities Beneficially Owned After this Offering | |
|---------------------------------|---|----------|---------------------------|-------------------------|---|----------|
| | Common Stock (1) | Warrants | Common Stock | Underlying Common Stock | Common Stock | Warrants |
| Daniel W. Hummell & Allaire D. | | | | | | |
| Hummell JTWROS | 50,000 | N/A | 50,000 | N/A | | |
| RBC Capital Markets LLC | | | | | | |
| Custodian FBO Daniel W. Hummell | | | | | | |
| Roth IRA | N/A | 50,000 | N/A | 50,000 | | |

(1) Does not include shares of common stock underlying the warrants.

This prospectus supplement is not complete without the prospectus dated April 23, 2012, as supplemented to date, and we have not authorized anyone to deliver or use this prospectus supplement without the prospectus.

The date of this prospectus supplement is September 11, 2013.