

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

September 12, 2013

VIA EDGAR

Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Attn: Mr. Martin James
Senior Assistant Chief Accountant

Re: Invivo Therapeutics Holdings Corp.
Form 10-K for the Fiscal Year Ended December 31, 2012
Filed March 12, 2013
File No. 000-52089

Dear Mr. James:

This letter is submitted on behalf of InVivo Therapeutics Holdings Corp. (the “Company”) in response to the comments of the staff of the Division of Corporation Finance (the “Staff”) of the Securities and Exchange Commission (the “Commission”) with respect to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed on March 12, 2013 (the “Form 10-K”), as set forth in a letter dated August 19, 2013 to Frank M. Reynolds, the Company’s former Chief Executive Officer (the “Comment Letter”).

For reference purposes, the text of the relevant portions of the Comment Letter has been reproduced herein with the response below the numbered comment. For your convenience, we have italicized the reproduced Staff comments from the Comment Letter and we have bolded the headings of our response thereto.

Form 10-K for the Fiscal Year Ended December 31, 2012

Item 8. Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm, page 38

1. We note that Wolf & Company, P.C. did not opine on the company’s financial statements for the period from November 28, 2005 (inception) to December 31, 2012, even though the firm indicated that it had audited the periods in the first paragraph. Please amend your Form 10-K to include an audit report that opines on all of the periods presented in your filing, consistent with Rule 2-02 of Regulation S-X. This comment also relates to your Form 10-K for the year ended December 31, 2011.

Response to Comment No. 1

On September 9, 2013, the Company filed revised audit reports to clarify the wording relating to the opinion on the periods noted in the Staff's comment in Amendment No. 1 to its Annual Report on Form 10-K for the year ended December 31, 2012 and Amendment No. 1 to its Annual Report on Form 10-K for the year ended December 31, 2011.

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In connection with the Company's responses contained in this letter, the Company acknowledges that:

- the Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

If you should have any questions about this letter, please do not hesitate to call the undersigned at (617) 863-5524.

Sincerely,

/s/ Michael J. Astrue

Michael J. Astrue
Interim Chief Executive Officer

cc: Kevin Kuhar, Accountant
Kate Tillan, Assistant Chief Accountant