



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

June 6, 2011

Frank M. Reynolds
Chief Executive Officer
Invivo Therapeutics Holdings Corp.
One Broadway, 14th Floor
Cambridge, MA 02142

**Re: Invivo Therapeutics Holdings Corp
Amended Registration Statement on Form S-1
Filed May 19, 2011
File No. 333-171998**

Dear Mr. Reynolds:

We have reviewed your registration statement and related filings and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Prospectus Summary, page 1

The Merger and Related Transactions, page 1

1. Please tell us the exemption from registration on which you relied in connection with shares issued in the split off.
2. Contrary to your response to prior comment 4, you do not appear to disclose your net losses in the summary. Please revise or advise.
3. Your revised disclosure in response to prior comment 5 regarding your business does not appear to present your plans to develop your product through to revenue generation. Please provide such disclosure as previously requested.

Business Overview, page 3

4. Since it appears that you have not yet begun any formal submissions to FDA, please revise the first paragraph after the numbered sentences to reflect the information therein as your belief. Make similar revisions throughout where you talk about your regulatory status.
5. Revise significantly to provide approximate timeframes for the completion of the necessary regulatory steps described. Your disclosure should provide a realistic picture of the lag time between this offering and possible revenue generation. Although you do not believe that you can make estimates at this time, your disclosure should nevertheless give some idea of outside timeframes for achievement of regulator milestones.

Offering by Selling Security holders, page 4

6. Please refer to prior comment 9 from our February 28, 2011 letter. We note that you continue to reference the forward-split of your common stock on a 2.02898 for 1 basis effective October 22, 2010. This transaction solely relates to the legal acquirer in the merger transaction, ITHC, and the historical financial statements included in the filing properly refer to the accounting acquirer, Invivo. Accordingly, please revise the filing to remove the reference to the forward-split of your common stock, as it does not reflect a transaction of the accounting acquirer, Invivo.

Dilution, page 21

7. Please refer to prior comment 18 from our February 28, 2011 letter. We see that you have revised the Dilution table to include a detailed explanation of the dilution upon the exercise of the investor and bridge warrants. However, we see that in adjustment (f), you utilize a stockholders' equity as adjusted after the exercise of the warrants of \$27,494,688. Please reconcile this amount with the \$26,204,669 reflected in the capitalization table for stockholders' equity as adjusted.

Clinical Regulatory Plan, page 33

8. Please describe the substance and outcome of your pre-IDE meeting with FDA.
9. Refer to prior comment 29 in our February 28, 2011 letter and comment 6 of our May 11, 2011 letter. Please disclose the substance of your response to comment 29 in your April 25, 2011 letter, regarding the current status of your plans to market your products outside the United States, as previously requested.

Intellectual Property, page 34

10. We note your responses to prior comments 31 and 32. As previously indicated in comment 7 in our May 11, 2011, confidential treatment is not generally appropriate for terms that are material to investors; therefore, please describe the material terms of your five year plan and the material payment terms referenced in our prior comments. Refer to section II.B. 2 of Staff Legal Bulletin No. 1A for guidance.

Certain relationships and Related Transactions, page 49

11. Please tell us whether affiliates of the Placement Agent have registered any of their shares acquired in September 2010 in this registration statement. In addition, please provide information on compliance with Rule 144 in connection with the September 2010 transactions.

Note 9. Bridge Notes Payable, page F-15

Note 11. Common Stock, page F-18

12. We note your response to prior comments 9 and 10 and continue to review your response. After reviewing this information, we may raise additional comments.

Exhibits and Financial Statement Schedules, page II-3

Exhibit 5.1

13. Refer to prior comment 55. We note that the opinion continues to state that it is based upon "currently applicable" law at the time the opinion is signed. Please tell us how you intend to provide an opinion that is based upon applicable law at the time of effectiveness of the registration statement.

Form 10-K for the Fiscal Year Ended December 31, 2010

Note 14. Warrants, page 51

14. Please refer to prior comment 11 from our May 11, 2011 letter. We note your response to our comment that reconciled the grant date fair value of the derivative warrant liability with the fair value as of December 31, 2010. In future filings, to the extent there are material transactions that affect the derivative warrant liability account, please provide a reconciliation of the beginning and ending balance which quantifies the impact of the transactions.

15. Please refer to prior comment 12 from our May 11, 2011 letter. We note your response to our comment that you will include the disclosure of the model and significant assumptions used to value the derivative liabilities in future filings. However, we note no such disclosure was included in the Form 10-Q filed May 16, 2011 and the Form S-1 filed May 19, 2011. Accordingly, we reissue this comment. Please revise future filings to specifically name the model utilized to value your derivative liabilities and to quantify the significant assumptions inherent in that model.

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Frank M. Reynolds
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Page 5

You may contact Kevin Kuhar, Staff Accountant, at (202) 551-3662 or Jeffery Jaramillo, Accounting Branch Chief, at (202) 551-3212 if you have questions regarding comments on the financial statements and related matters. Please contact Ruairi Regan, Staff Attorney, at (202) 551-3269 or me at (202) 551-3528 with any other questions.

Sincerely,

Amanda Ravitz
Assistant Director

cc (by facsimile): Thomas B. Rosedale, Esq.