



DIVISION OF
CORPORATION FINANCE

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

March 30, 2012

Via E-Mail

Sean Moran
Director of Finance
InVivo Therapeutics Holdings Corp.
One Broadway, 14th Floor
Cambridge, Massachusetts 02142

**Re: InVivo Therapeutics Holdings Corp.
Post-effective Amendment to Form S-1 on Form S-3
Filed March 15, 2012
File No. 333-171998**

Dear Mr. Moran:

We have limited our review of your registration statement to those issues we have addressed in our comment.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comment applies 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.

Incorporation by Reference, page 14

1. Please file the information required by Part III of your Form 10-K. For guidance, please see the Division of Corporation Finance's Securities Act Forms Compliance and Disclosure Interpretation 123.01 available on the Commission's web site.

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, before we can declare the amended registration statement effective, the company should provide us with a letter, acknowledging that:

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- 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 contact Allicia Lam at (202) 551-3316 or me at (202) 551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

cc (by e-mail): Bradley A. Jacobson, Esq – Greenberg Traurig, LLP