

**InVivo Therapeutics Holdings Corp.**  
**One Broadway, 14th Floor**  
**Cambridge, MA 02142**

April 20, 2012

**By EDGAR**

Allicia Lam  
Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, D.C. 20549

Re: InVivo Therapeutics Holdings Corp.  
Post-Effective Amendment to Form S-1 on Form S-3  
File No. 333-171998

Dear Ms. Hogue:

Pursuant to Rule 461 under the Securities Act of 1933, the undersigned registrant (the “Registrant”) hereby respectfully requests that the above-referenced Post-Effective Amendment to Form S-1 on Form S-3 be declared effective at 3:00 p.m. (Washington, D.C. time) on Monday, April 23, 2012, or as soon as practicable thereafter. An oral request for acceleration of effectiveness may be made in the future. The Registrant is aware of its obligations under the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended.

In connection with the Registrant’s request for acceleration of effectiveness of the above-referenced Post-Effective Amendment to Form S-1 on Form S-3, the Registrant acknowledges that:

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

If you have any questions regarding this request, please contact the undersigned at (617) 475-1520 or Bradley A. Jacobson of Greenberg Traurig, LLP at (617) 310-6205.

Sincerely,

INVIVO THERAPEUTICS HOLDINGS CORP.

By: /s/ Frank M. Reynolds

Name: Frank M. Reynolds

Title: Chief Executive Officer