

Via Facsimile and U.S. Mail
Mail Stop 4720

March 11, 2010

Mr. Thomas R. Staab, II
Treasurer & Chief Financial Officer
Inspire Pharmaceuticals, Inc.
4222 Emperor Boulevard, Suite 200
Durham, NC 27703-8466

**Re: Inspire Pharmaceuticals, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2008
DEF 14A filed March 26, 2009
Response filed February 1, 2010
File No. 1-31577**

Dear Mr. Staab:

We have reviewed your filing and have the following comments. Where the comments request you to revise disclosure, the information you provide should show us what the revised disclosure will look like and identify the annual or quarterly filing, as applicable, in which you intend to first include it. If you do not believe that revised disclosure is necessary, explain the reason in your response. After reviewing the information provided, we may raise additional comments and/or request that you amend your filing.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comment or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K

Patents and Proprietary Rights, page 14

1. Please expand your tabular disclosure to include the number of material U.S. patents you own and the number you in-license as to each product you have identified in the table. You can provide this information in the column that describes the type of patents. Further, to the extent material, please include the same information in the same or similar tabular format for foreign patents you own and in-license. If you determine that some or

all of your foreign patents you own or license are not material, please provide an analysis showing how you determined that those patents are not material.

Schedule 14A

2008 Annual Cash Bonuses, page 30

2. Please also confirm that in your next filing you will discuss the Committee's evaluation and the factors the Committee considered in its evaluation of each named executive officers' leadership position and their contributions to helping your company achieve its corporate goals which was then given a 20% weight in calculating their bonuses.

* * *

Please respond to these comments within 10 business days or tell us when you will provide us with responses. Please furnish a letter that keys your response to our comments and provide the requested information. Detailed letters greatly facilitate our review. Please furnish your letter on EDGAR under the form type label CORRESP.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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.

In connection with responding to our comments, please provide, in your letter, a statement from the company acknowledging 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comment on your filing.

Mr. Thomas R. Staab, II
Inspire Pharmaceuticals, Inc.
March 11, 2010
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Please contact Michael Rosenthal at (202) 551-3674 or me at (202) 551-3715 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director