



DIVISION OF
CORPORATION FINANCE

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

September 1, 2010

Ms. Adelene Q. Perkins
President and Chief Executive Officer
Infinity Pharmaceuticals, Inc.
780 Memorial Drive,
Cambridge, Massachusetts 02139

**Re: Infinity Pharmaceuticals, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2009
Schedule 14A Filed on April 8, 2010
File No. 000-31141**

Dear Ms. Perkins:

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

Please respond to this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe a comment applies to your facts and circumstances, please tell us why in your response. Please furnish us a letter on EDGAR under the form type label CORRESP that keys your responses to our comments.

After reviewing the information provided, we may raise additional comments and/or request that you amend your filings.

Form 10-K for the Fiscal Year Ended December 31, 2009

Strategic Alliances, page 7

1. Please provide us draft disclosure to be included in your future filings beginning with the Form 10-Q for the quarterly period ended September 30, 2010 regarding your collaboration agreement with Novartis to disclose the duration of the agreement, termination provisions and the range of royalties you will be entitled to receive. An acceptable range of royalties is one of the following: "single-digits," "teens," "twenties," etc.

Critical Accounting Policies and Significant Judgments and Estimates

Research and Development Expense, page 48

2. Please refer to the Division of Corporation Finance “Current Issues and Rulemaking Projects Quarterly Update” under section VIII – Industry Specific Issues – Accounting and Disclosure by Companies Engaged in Research and Development Activities. You can find it at the following website address:
<http://www.sec.gov/divisions/corpfin/cfcrq032001.htm#secviii>. Please provide us draft disclosure to be included in your future filings beginning with the Form 10-Q for the quarterly period ended September 30, 2010 to disclose the following information for each of your major research and development projects:
- The nature, objective, and current status of the project and the extent that its success relies on parties other than you;
 - The costs incurred to date on the project;
 - The nature, timing and estimated costs of the efforts necessary to complete the project;
 - The anticipated completion dates;
 - The risks and uncertainties associated with completing development on schedule, and the consequences to operations, financial position and liquidity if the project is not completed timely; and finally
 - The period in which material net cash inflows from significant projects are expected to commence.

We acknowledge your disclosure that due to the variability in the length of time and scope of activities necessary to develop a drug candidate, uncertainties related to cost estimates and your ability to obtain marketing approval for your drug candidates, accurate and meaningful estimates of the total costs required to bring your product candidates to market are not available. Please provide as much quantitative and qualitative information as possible. For example, disclosing the amount or range of estimated costs and timing to complete the phase in process and each future phase would be informative.

Accrued Expenses, page 48

3. You disclose that your estimates of expenses for clinical research and development may be over or under-accrued. Please provide us draft disclosure to be included in your future filings beginning with the Form 10-Q for the quarterly period ended September 30, 2010 to disclose the change in estimates recorded in each period presented.

Financial Statements

Note 7 – Loan Commitment Asset, page 74

4. You recorded a loan commitment asset and a credit to additional paid-in-capital in connection with the line of credit agreement from Purdue. Please tell us how your accounting complies with GAAP and cite for us the accounting literature that you relied upon in accounting for this transaction.

12. Collaborations, page 76

5. Please tell us how recording the excess amounts received for your common stock over its closing market price in the first and second equity closings as deferred revenues complies with GAAP. In addition, address in your response the applicability of ASC 730-20-25.

Schedule 14A

Risk Considerations in Compensation Program, page 17

6. We note your disclosure that you “have reviewed the compensation policies and practices for all of our citizen-owners and have concluded that any risks arising from our policies and programs are not reasonably likely to have a material adverse effect on our company or business.” Please also provide us with a discussion of the process or analysis undertaken by the Board to reach this conclusion.

Compensation of Executive Officers, page 24

7. We note your disclosure on page 17 of your form 10-K that you have five named executive officers; however, your section on executive compensation only provides information for Steven H. Holtzman, Adelene Q. Perkins and Julian Adams. Please provide us draft disclosure to be included in an amendment to your December 31, 2009 Form 10-K to include Gerald E. Quirk and Jeffrey K. Tong as required by Item 402(a)(3)(iii) of Regulation S-K or explain why they have been omitted.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings to be certain that the filings include the information the Securities Exchange Act of 1934 and all applicable Exchange 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.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;

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- 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.

You may contact Ibolya Ignat, Staff Accountant at (202) 551-3656, or Gus Rodriguez, Branch Chief, at (202) 551-3752 if you have any questions regarding the processing of your response as well as any questions regarding the comments on the financial statements and related matters. You may contact Johnny Gharib, Staff Attorney, at (202) 551-3170 or Daniel Greenspan, Special Counsel, at (202) 551-3623 regarding other comments. In this regard, do not hesitate to contact me, at (202) 551-3679.

Sincerely,

Jim B. Rosenberg
Senior Assistant Chief Accountant