Via Facsimile and U.S. Mail
Mail Stop 6010

September 12, 2006

Mr. Robert G. Andersen
Chief Financial Officer and Vice President of Operations
Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, MA 02139

Re: Form 10-KSB for the Fiscal Year Ended December 31, 2005
Filed March 31, 2006
Form 10-QSB for the Fiscal Quarter Ended June 30, 2006
Filed August 14, 2006
File Number 001-31918

Dear Mr. Andersen:

We have reviewed your August 30, 2006 response to our August 16, 2006 letter and have the following comments. In our comments, we ask you to provide us with information so we may better understand your disclosure.

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 for the Fiscal Year Ended December 31, 2005

Management's Discussion and Analysis of Financial Condition and Results of Operations

Research and Development Expenses, page 30

1. We acknowledge your response to comment 1 and your assertion that IMO-2055 is your "sole major research and development program." However, given that you disclose your project pipeline on page 2 and the fact that you only speak to approximately 31% of your total research and development expense in discussing the direct expenses related to IMO-2055 for the year ended December 31, 2005, we believe that your disclosure could be enhanced for investors. Please provide, in disclosure-type format, quantitative and qualitative information on another basis that reconciles to your total research and development expense for the

financial statement periods presented. Alternative presentations could show a breakdown of internal vs. external costs incurred with respect to IMO-2055 and your other projects and could detail these costs further by some other category. For example, including the costs incurred for preclinical, clinical and non-clinical trials would be informative. Please note that our comment only presents a suggested format that is intended to allow investors to better understand the composition of these expenses. If you do not feel this proposed format is applicable to your business, then please provide us similar disclosure in another format that will allow an investor the desired insights into your research and development costs.

Balance Sheets, page F-3

2. We acknowledge your response to comments 2 and 7. Please tell us whether you are relying on AU Section 560 to support your inclusion of the pro forma balance sheets in both your December 31, 2005 Form 10-K and June 30, 2006 Form 10-Q to reflect your subsequent private placement financing transactions. Depending on the resolution of comment 4 below, the December 31, 2005 pro forma balance sheet may require adjustment to reflect the fair value of the registration rights agreement and/or the warrants as a liability.

Notes to Consolidated Financial Statements

(15) Equity Financings, page F-28

3. We acknowledge your response to comment 4. In your response, you assert that the warrants issued in conjunction with your August 2003 private placement transaction do not have a net settlement feature; however, your disclosure appears to contradict this assertion, as you state that these warrants may be settled by "invoking a cashless exercise feature." Please clarify this discrepancy for us and provide us with the agreement underlying these warrants to support your position. Additionally, please provide us with information that supports your assertion that the 1% penalty related to the registration rights agreement for these warrants is a discount that reasonably reflects the fair value of the restricted (unregistered) shares and why you concluded that the registration rights agreement is not a derivative. Please refer to EITF No. 05-4. Please also tell us whether you ultimately registered the shares underlying these warrants.

Form 10-Q for the Fiscal Quarter Ended June 30, 2006

Notes to Consolidated Financial Statements

(12) Private Financing, page 11

4. We acknowledge your response to comment 6. Please provide us with additional information, in a disclosure-type format, that supports your assertion that the penalty associated with the registration rights agreement for the warrants issued pursuant to your March 2006 private placement transaction represents a discount that reasonably reflects the fair value of the restricted (unregistered) shares and why you concluded that the registration rights agreement is not a derivative. Please refer to EITF No. 05-4.

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Please provide us the information requested within 10 business days of the date of this letter or tell us when you will provide a response prior to the expiration of the 10-day period. Please furnish a letter with your responses that keys your responses to our comments. Detailed letters greatly facilitate our review. You should furnish the letter to us via EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your response to our comments.

You may contact Amy Bruckner, Staff Accountant, at (202) 551-3657 or Mary Mast, Senior Accountant, at (202) 551-3613 if you have questions regarding our comments. In this regard, please do not hesitate to contact me at (202) 551-3679.

Sincerely,

Jim B. Rosenberg
Senior Assistant Chief Accountant