

August 25, 2009

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Via EDGAR

SECURITIES AND EXCHANGE COMMISSION
Division of Corporation Finance
100 F Street, N.E.
Washington, DC 20549
Attention: Michael Rosenthal, Esq.

Re: Idera Pharmaceuticals, Inc.
Form 10-K for the year ended 12/31/2008
Filed March 11, 2009
File No. 001-31918

Dear Mr. Rosenthal:

On behalf of our client, Idera Pharmaceuticals, Inc. (the "Company"), set forth below are the responses of the Company to the comments of the staff (the "Staff") of the Securities Exchange Commission (the "Commission") set forth in the letter to Sudhir Agrawal, dated July 28, 2009, from Jeffrey P. Riedler, Assistant Director (the "Letter").

We have set forth below in italics each of the Staff's comments set forth in the Letter and have keyed the Company's responses to the heading and numbering of those comments. The responses are based on information provided to us by representatives of the Company. For convenience, capitalized terms in the responses below are used with the meanings ascribed to them in the filing to which they refer.

Form 10-K filed on March 11, 2009**Item 1. Business, page 1****Collaborative Alliances, page 8**

- Please expand your disclosure regarding your agreements with Merck KGaA, Merck & Co., Inc. and Novartis International Pharmaceutical, Ltd. to disclose a range of royalties (i.e. "low single-digit") that the company will receive under these agreements. Similarly, please expand your disclosure on pages 11 and 12 regarding your agreements with Isis Pharmaceuticals, Inc. and University of Massachusetts Medical Center to disclose for each respective agreement all amounts paid to date, a range of royalties and a range of the percent of sublicense income to be paid. We note that you have requested confidential treatment for several of these agreements. While confidential treatment for certain information may have been granted in the past, if the confidential treatment request was granted pursuant to a "no review" process, we have the authority to reconsider its action in the future. Please note that we often grant confidential treatment for individual payments but are not willing to grant confidential treatment for aggregate payments or a range of royalties provided under an agreement.*

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The Company describes the terms of its agreements with Merck KGaA, Merck & Co., Inc. and Novartis International Pharmaceutical, Ltd. annually in its Annual Report on Form 10-K that it files with the Commission. Accordingly, in its Annual Report on Form 10-K for the year ended December 31, 2009, the Company will revise the description of the agreements with Merck KGaA, Merck & Co., Inc. and Novartis International Pharmaceutical, Ltd. to disclose a range of royalties (e.g. "low single-digit," "mid-single digit" or "high single-digit to low double digit") that the Company may receive under these agreements.

The Company also describes the terms of its agreements with Isis Pharmaceuticals, Inc. and University of Massachusetts Medical Center annually in its Annual Report on Form 10-K that it files with the Commission. Accordingly, in its Annual Report on Form 10-K for the year ended December 31, 2009, the Company will revise the description of each agreement to disclose:

- for each respective agreement all amounts paid to date;
- a range of royalties; and
- a range of the percent of sublicense income to be paid.

Antisense Technology, page 11

2. *You disclose that you are party to four collaboration and license agreements involving the use of your antisense technology and specified indications and six royalty-bearing license agreements under which you have acquired rights to antisense related patents, patent applications, and technology. It appears that you have only filed copies of your agreements with Isis Pharmaceuticals, Inc. and University of Massachusetts Medical Center. Please revise to provide a description of the material terms of each agreement, including, but not limited to, all amounts paid to date, the aggregate potential milestone payments under each agreement, a range of royalties (i.e. "low single-digit"), term and termination provisions and other material obligations/rights under the agreements. In addition, please file copies of the agreements. Alternatively, please provide us with a detailed analysis which supports your conclusion that you are not substantially dependent on these agreements pursuant to Item 601(b)(10)(ii)(B) of Regulation S-K.*

The Company respectfully submits that, other than the agreements with Isis Pharmaceuticals, Inc. and University of Massachusetts Medical Center, which are discussed above in response to comment 1, it is not substantially dependent on the three other collaboration and license agreements to which the Company is a party involving the use of its antisense technology (collectively, the "antisense collaboration agreements") and the five other royalty-bearing license agreements under which the Company has acquired rights to antisense-related patents, patent applications, and technology (collectively, the "antisense in-license agreements") pursuant to Item 601(b)(10)(ii)(B) of Regulation S-K. Specifically, these antisense agreements are ordinary course agreements that do not involve patents or other intellectual property upon which the Company's business depends to a material extent and do not involve revenues or expenses that are material to the Company. The total revenue generated under all of the antisense collaborations agreements in 2008 was \$67,333, representing approximately 0.26% of the Company's revenue in 2008. The Company paid aggregate annual maintenance fees of \$35,000 and did not make royalty payments under the antisense in-license agreements in 2008.

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As disclosed in the Company's Annual Report on Form 10-K for the year ended December 31, 2008, the Company was primarily involved in the development of antisense technology prior to 2000. Subsequent to 2000, the Company has been primarily involved in the discovery and development of DNA- and RNA-based drug candidates targeted to Toll-Like Receptors, or TLRs, to treat infectious diseases, autoimmune and inflammatory diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants and only recently began exploring the use of antisense for TLR. Under the antisense collaboration agreements, the Company licensed its antisense patents, patent applications and technology to third parties for certain indications and/or applications. These agreements have not generated meaningful revenues for the Company since the Company changed its focus to TLR technology as indicated above, and the licenses granted do not limit any of the Company's programs or plans. At the same time, with respect to the antisense in-license agreements, the Company has not made any meaningful payments to the licensors and the Company is not reliant on any of this intellectual property for any of its programs or plans.

Although the Company has not been substantially dependent on the antisense collaboration agreements and the antisense in-license agreements for several years, the Company has continued to provide a description of the antisense technology, including the summary of the antisense collaboration agreements and the antisense in-license agreements, in its Annual Report on Form 10-K in order to provide continuity and background for investors who have followed the Company, to provide background for its description of its patents and to provide general disclosure about the non-TLR-based portions of the Company's business. As it has done in prior years, in connection with the preparation of its Annual Reports on Form 10-K for year ending December 31, 2009, the Company will assess whether it is substantially dependent upon any agreements, including any of the antisense collaboration agreements or antisense in-license agreements to which it is a party, will assess the value to investors of continued disclosure about the antisense collaboration agreements or antisense in-license agreements and will make appropriate disclosure and file as exhibits its agreements, if warranted.

Schedule 14A filed on April 30, 2009

Compensation Discussion and Analysis

Overview of Compensation Program and Philosophy, page 15

3. *We note that your company, "uses specific target percentiles from survey data" in setting compensation for the named executive officers. Please disclose the target percentiles set for each of your named executive officers based on the Radford Survey you reviewed. Please also clarify whether you compare each named executive officer's total compensation to the target percentile or specific portions of their compensation.*

As discussed in the Compensation Discussion and Analysis section in its Proxy Statement filed on April 30, 2009 (the "Proxy Statement"), the Company's "compensation committee uses specific target percentiles from survey data as one factor along with the experience, performance levels, potential performance levels of the executive and changes in duties and responsibilities to set compensation" (emphasis added). The Company also noted that "in establishing base salaries for our executive officers, our compensation committee reviews survey data provided by our compensation consultant, considers historic salary levels of the executive and the nature of the individual's responsibilities, compares the executive's base salary with those of our other executives

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and considers the individual's performance." Similarly, in determining cash bonuses, survey data was reviewed along with "success in achieving individual performance goals and [the executive officer's] contribution to the achievement of corporate performance goals" and in determining option awards, the compensation committee considered "the performance of each executive officer during 2008 and data from the Radford Global Life Science Survey."

With the exception of Mr. Arcudi's base salary for 2009, which is discussed below, in setting base salary for 2008 and 2009, and awarding the bonuses to be paid for 2008 and the annual stock options, the compensation committee did not make decisions based on target percentiles for its named executive officers based on the survey data. Rather, in setting base salaries for 2008 and 2009, and awarding the bonuses to be paid for 2008 and the annual stock options, the compensation committee reviewed overall survey data merely to provide context as to whether the Company's salary and bonuses were generally consistent with the survey data or whether the compensation amounts were so low or so high in comparison to the survey data as to be outliers. Ultimately, as stated in the Proxy Statement, "in setting base salaries for 2008, which the compensation committee did in December 2007, the compensation committee reviewed industry survey materials...[after] reviewing such data and taking into consideration the other items [described in the Proxy Statement], the compensation committee determined to increase the 2008 base salary of each executive by approximately 4%, compared to his or her 2007 base salary, which reflected increases in the consumer price index for the New England area." Similarly at the end of 2008, the compensation committee set salaries for 2009, which, except with respect to Mr. Arcudi's salary, reflected increases of approximately 5% for the Company's named executive officers reflecting a cost of living adjustment. In the case of bonuses and stock option awards, the compensation committee made individual decisions on various factors, as noted above, with the survey data used merely to provide the context discussed above. The compensation committee did not, for any executive officer, decide to set a bonus or award a stock option based upon any specific target percentile of the survey data.

In 2008, the compensation committee did not use survey data with respect to overall compensation.

Where the compensation committee did focus on specific target percentiles, the Company disclosed this in the Compensation Discussion and Analysis section in its Proxy Statement. For instance, in the case of Mr. Arcudi, the compensation committee looked to the 50th percentile of base salaries for chief financial officers in the survey data in determining Mr. Arcudi's base salary, but not for determining his overall compensation or other elements of his compensation. As stated in the Proxy Statement,

"At the end of 2008, the compensation committee set salaries for 2009...[The] compensation committee increased Mr. Arcudi's base salary by 13%, based upon its review of his performance as well as its recognition that the compensation agreed upon when Mr. Arcudi was hired in late 2007 had been set at an amount lower than the 50th percentile for chief financial officers based on survey information, and the compensation committee's belief that, given his performance, his compensation should be at the 50th percentile for chief financial officers of comparable companies."

In addition, in prior years, the Company has from time to time used specific targeted percentiles to set overall compensation or specific elements of compensation for its executive officers and in such instances the Company specified the target percentiles in the proxy statement. For example, in its

proxy statement filed on April 30, 2007, the Company disclosed that its “compensation committee generally targets overall compensation for executives towards the 50th percentile of the companies surveyed.” In the event that the Company again uses specific target percentiles for any executive officer, whether for overall compensation or for specific elements of compensation, it will disclose in its proxy statement for the applicable period the target percentiles used for each of its named executive officers.

Elements of Compensation, page 16

4. *Please file a copy of your employment offer letter with Alice Bexon, your Vice President of Clinical Development.*

The Company will file a copy of the employment offer letter with Dr. Bexon with its Form 10-Q for the quarter ending September 30, 2009.

Overview of Compensation Program and Philosophy, page 15

5. *You disclose that your compensation committee considers the achievement of corporate and individual performance goals as one of the factors in determining annual salary increases, annual bonuses, and annual stock option awards granted to your executives. Your Compensation Discussion and Analysis does not disclose these corporate and individual performance goals that are used to determine your named executive officers’ annual salary increases, annual bonuses, and annual stock option awards. Please provide us with draft disclosure for your 2009 proxy statement which provides the following:*

- *The corporate and individual performance goals;*
- *Confirmation that you will discuss the achievement of the corporate and individual performance goals; and*
- *A discussion of how the level of achievement will affect the actual annual salary increases, annual bonuses to be paid and annual stock option awards to be granted.*

In response to this comment, in its 2010 proxy statement and in future years, the Company will elaborate on the corporate and individual performance goals adopted and evaluated by the compensation committee, discuss the achievement of these goals and describe the impact of the achievement of these goals on executive officer compensation.

In this regard, the Company proposes for its 2010 proxy statement to modify the paragraphs under “*Overview of Compensation Program and Philosophy*” from the Compensation Discussion and Analysis in the Proxy Statement relating to the Company’s performance review program to provide more detail regarding the committee’s use of the annual corporate and individual goals in its compensation determinations, to list the corporate goals for 2009 and to provide more clarity with respect to the individual goals but not list them for each executive officer. The Company notes that the individual performance goals for the Company’s executive officers range from 8 to 18 specific goals for each officer, do not include any specific quantitative or financial targets and no single goal is material to the compensation determination. However, the Company expects that it may describe key individual goals achieved or not achieved as part of its description of the impact of each

executive officer's performance on his or her salary, bonus and option award. The proposed language is as follows:

"The compensation committee has implemented an annual performance review program for our executives, under which annual performance goals are determined for our company as a whole and for each executive individually. Annual corporate goals are proposed by management and approved by the compensation committee. These corporate goals target the achievement of specific research, clinical and operational milestones.

Annual individual goals focus on contributions that facilitate the achievement of the corporate goals and are closely aligned with the corporate goals. Individual goals are proposed by each executive and approved by the chief executive officer. Typically, the compensation committee sets the chief executive officer's goals and reviews and discusses with the chief executive officer the goals for all other executive officers. The individual performance goals of each named executive officer consist primarily of the key objectives and goals from our annual business plan that relate to the functional area or business unit for which the named executive officer is responsible. The individual performance goals for the chief executive officer are largely coextensive with the corporate goals.

Generally, at the end of each year, the compensation committee evaluates individual and corporate performance against the goals for the recently completed year. The compensation committee considers the achievement of the corporate and individual performance goals as one of the factors in determining annual salary increases, annual bonuses, and annual stock option awards granted to our executives, although because of their high level of responsibility within the company, the determination of annual bonuses for our executive officers, including our named executive officers, is heavily weighted on our corporate performance. The chief executive officer prepares evaluations of the other executives and recommends annual executive salary increases, annual stock option awards and bonuses, if any, which are then reviewed and approved by the compensation committee. The compensation committee consults with the board of directors prior to approving compensation for executive officers. In the case of the chief executive officer, the compensation committee conducts his individual performance evaluation and determines his compensation changes and awards. For all executives, annual base salary increases are implemented during the first calendar quarter of the year. Any annual stock option awards and bonuses are granted as determined by the compensation committee, typically in the fourth quarter of the applicable year.

The corporate performance goals adopted by the compensation committee for 2009 were:

- **Clinical Development**
 - Presentation of clinical data from two trials of IMO-2055
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- Advancement of clinical development of IMO-2125 through completion of recruitment in Phase 1 trial in HCV non-responder patients and initiation of Phase 1 trial of IMO-2125 and ribavirin in HCV treatment naïve patients
- Filing of IND for IMO-3100
- Facilitate advancement of QAX935 by Novartis in clinical studies
- **Research and Discovery**
 - Creation of novel TLR7 agonists
 - Selection and evaluation of TLR antisense compounds
 - Additional preclinical studies of IMO-3100 and IMO-2125
- **Cash Resources**
 - Demonstration of meaningful business development activities

These corporate performance goals were designed to be challenging goals that the compensation committee believed could be reasonably achieved in 2009.”

The Company also proposes to modify the first paragraphs from the subsections *Base Salary*, *Cash Bonuses* and *Equity Compensation*, respectively, from the Compensation Discussion and Analysis in the Proxy Statement relating to how the level of achievement of goals will affect salary, bonus and options impact of each executive officer’s performance on his or her salary, bonus and option award, as follows:

“Base Salary

In establishing base salaries for our executive officers, our compensation committee reviews survey data provided by our compensation consultant, considers historic salary levels of the executive and the nature of the individual’s responsibilities, compares the executive’s base salary with those of our other executives and considers the individual’s performance. The compensation committee also considers the challenges involved in hiring and retaining managerial personnel and scientific personnel with extensive experience in the chemistry of DNA and RNA and its application to toll-like receptors because of the new nature of this technology, general economic conditions and our financial condition. In assessing the individual’s performance, the compensation committee considers the individual’s achievement of each of his or her individual goals, and his or her role in the achievement of the annual corporate goals, as well as the performance evaluation prepared by our chief executive officer with respect to our other executive officers. In reviewing the achievement of individual goal, in the context of its salary determinations, the compensation committee does not apply any formula but looks to the achievement of

goals merely as a means of informing the committee's decision as to whether the executive's performance was generally consistent with the Company's expectations."

"Cash Bonuses

The compensation committee generally structures cash bonuses by linking them to the achievement of the annual corporate and individual goals. The amount of the bonus paid, if any, varies among the executive officers depending on their success in achieving their individual performance goals and their contribution to the achievement of our annual corporate goals. The compensation committee reviews and assesses corporate goals and individual performance by executive officers and considers the reasons why specific goals have been achieved or have not been achieved. However, except with respect to Dr. Agrawal, our executive officers generally do not have bonus targets and no formula is applied to the analysis of the achievement of corporate goals for individual goals by executive officers. While achievement against the applicable corporate goals is given substantial weight in connection with the determination of annual bonus, consideration is also given to an evaluation of our named executive officers' individual performance based on analysis of achievement of individual performance goals as well as the following subjective criteria: (i) leadership, (ii) management, (iii) judgment and decision making skills, (iv) results orientation and (v) communication."

"Equity Compensation

Our equity award program is the primary vehicle for offering long-term incentives to our executive officers, including our named executive officers. We believe that equity awards provide our executives with a strong link to our long-term performance, create an ownership culture and help to align the interest of our named executive officers and our stockholders. Equity grants are intended as both a reward for contributing to the long-term success of our company and an incentive for future performance. The vesting feature of our equity awards is intended to further our goal of executive retention by providing an incentive to our named executive officers to remain in our employ during the vesting period, which is typically quarterly over four years. In determining the size of equity awards to our executives, our compensation committee considers the achievement of our annual corporate goals, individual performance, including the achievement of individual goals, the applicable executive's previous awards, the recommendations of management and the survey information received from the compensation consultant."

* * *

The Company acknowledges 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
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- 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.

Please do not hesitate to telephone the undersigned at 617-526-6663 if you have any questions regarding this response letter.

Very truly yours,

/s/ Stuart M. Falber
Stuart M. Falber, Esq.

cc: Sudhir Agrawal, D. Phil.
Louis J. Arcudi, III