

Via Facsimile and U.S. Mail

September 22, 2010

David Aviezer, Ph.D.
President and Chief Executive Officer
Protalix Biotherapeutics, Inc.
2 Snunit St., Science Park
POB 455, Carmiel 20100, Israel

**Re: Protalix Biotherapeutics, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2009
Filed February 26, 2010
File No. 001-33357**

Dear Dr. Aviezer:

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

Please respond to this letter within ten business days by amending your filing, by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filing and the information you provide in response to these comments, we may have additional comments.

Item 1. Business

Other Drug Candidates in Our Pipeline, page 14

1. Please provide us with draft disclosure for an amendment to your annual report that provides additional information about your agreement with Yissum Research and Development Company and the Boyce Thompson Institute, Inc., which includes the term of the agreement, its termination provisions, the aggregate potential milestone payments, the amount of the license maintenance fee, and an indication of the royalty percentage, e.g. "single-digits," "teens," "twenties," etc.

2. Please explain each party's obligations with respect to the collaborative research program in the laboratory of Professor Hermona Soreq.

Strategic Collaborations, page 16

3. With respect to your agreement with Weizmann Institute of Science, please provide us with draft disclosure for an amendment to your annual report that includes the term and termination provisions, the aggregate potential milestone payments, the amount of the research budget amount, and an indication of the range of royalty payments to be made, e.g. "single-digits," "teens," "twenties," etc.

Intellectual Property, page 17

4. Please indicate not only that your patents relate to your ProCellEx protein expression system but also the individual products they relate to. Additionally, disclose when the patents expire.
5. Please indicate the product or products that are dependent on the jointly held patent and the licensed patent rights and identify the joint holder and licensees. If the licensing agreements have not been filed, please provide your analysis supporting your determination that you are not required to file them as exhibits.
6. Please provide us with draft disclosure for an amendment to your annual report that provides additional information about your agreement with Icon Genetics AG, such as the term of the agreement, its termination provisions, the aggregate potential milestone payments you are required to make and an indication of the royalty range, e.g. "single-digits," "teens," "twenties," etc. Additionally, indicate which product candidates are dependent on this agreement and provide an analysis supporting your determination that you are not required to file the agreement as an exhibit.

Item 10. Directors, Executive Officers and Corporate Governance, page 62

General

7. Please provide us with draft disclosure for an amendment to your annual report that states for each incumbent director and director nominee the particular experience, qualifications, attributes or skills that led your Board of Directors to conclude that these individuals should serve as your directors. We refer you to Item 401(e) of Regulation S-K.

Item 11. Executive Compensation

Compensation Discussion and Analysis, page 65

8. We note your statement that the Compensation Committee evaluates individual executive performance with a goal of setting compensation levels the committee believes are comparable with executives in other companies of similar size and stage of development operating in your industry. From this disclosure, it appears that you engage in benchmarking activities. Please provide draft disclosure identifying the peer companies that you use for benchmarking purposes.
9. Please provide us with draft disclosure for an amendment to your annual report that includes the following:
 - The individual and corporate performance objectives applicable to each named executive officer and used to determine their annual bonuses and how each objective was weighted, if applicable. To the extent that any of the performance objectives were quantitative, your disclosure should also be quantitative;
 - The threshold, target, and maximum levels of achievement of each performance measure, if applicable;
 - The intended relationship between the level of achievement of corporate and individual performance objectives and the amount of bonus to be awarded;
 - The evaluation by the Committee of the level of achievement by each named executive officer of the corporate and individual performance objectives applicable to them; and
 - Any other factors that were considered by the Committee that modified the actual cash bonuses awarded.
10. Your Summary Compensation Table includes a dollar value for option awards you granted to your named executive officers in fiscal year 2009 but your Grants of Plan-Based Awards table displays no awards made in the last fiscal year and your narrative disclosure concerning options on page 66 omits any mention of option grants made last year. Please reconcile this discrepancy in your disclosure.
11. We note that you have not included any disclosure in response to Item 402(s) of Regulation S-K. Please advise us of the basis for your conclusion that disclosure is not necessary and describe the process you undertook to reach that conclusion.

Item 15. Exhibits and Financial Statement Schedules

General

12. You state in your list of exhibits that Exhibits 10.6, 10.7, and 10.8, which are incorporated by reference to your current report on Form 8-K filed on September 20, 2007, have been granted confidential treatment under Rule 24b-2 of the Exchange Act. A search of our records does not reflect an application for confidential treatment with respect to these exhibits being received from you. Please provide us with a copy of the confidential treatment application you submitted after these agreements were filed.

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 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;
- 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.

Please contact Scot Foley at (202) 551-3383, Suzanne Hayes, Branch Chief, at (202) 551-3675 or me at (202) 551-3715 with any questions.

Sincerely,

Jeffrey Riedler
Assistant Director