

Writer's Direct Contact
212.468.8163
JTanenbaum@mofocom

March 4, 2009

Mr. Todd E. Hardiman
Associate Chief Accountant
Division of Corporation Finance
United States Securities and Exchange Commission
100 F. Street, N.E.
Washington, D.C. 20549

RE: Protalix BioTherapeutics, Inc.
Annual Report on Form 10-K, filed March 17, 2008
for the Fiscal Year Ended December 31, 2007
File No. 001-33357

Ladies and Gentlemen:

On behalf of our client, Protalix BioTherapeutics, Inc., a Florida corporation (the "Company"), transmitted herewith are responses to the Staff's comments to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2007 (the "2007 Form 10-K"). The comments were delivered by the Staff to the Company and its counsel by way of telephone calls on February 18, 2009 and March 3, 2009.

For ease of reference, we have noted the Staff's comments in bold faced type and the responses in regular type.

1. Please refer to your response to Comment 4. It is still not clear what the remaining 2,325,250 options represent. Please confirm whether any of these are employee options and please tell us the accounting treatment relating to the issuance of those remaining options and subsequent vesting. You state in Note 5(f) on page F-23 and in Note 5(g) on page F-27 of your 10-K that only 2,201,972 options were granted to employees during 2006.

RESPONSE: All of the remaining 2,325,250 options represent options that were issued to nonemployees on December 31, 2006. In accordance with Statement of Financial Accounting Standards No. 123 (revised 2004), "Share-Based Payment," the Company recorded a portion of the expense for the first vesting period of the options during the first three quarters of 2007. All

of the options expired in accordance with the terms of the options in the fourth quarter of 2007, prior to the first vesting date of the options. Accordingly, the compensation expense of such options were reversed for purposes of the fourth quarter of 2007, with no expense for the fiscal year of 2007. The 2,201,972 options discussed in Note 5(f) on page F-23 and in Note 5(g) on page F-27 of the 2007 Form 10-K for the year ended December 31, 2007 are options that were granted to employees in 2006 and are not related to the 2,325,250 options or the 387,542 options included in Exhibit B of our response dated October 16, 2008.

2. Please revise your valuation methodology for the first and third quarters of 2007 with respect to compensation expense of certain option grants to use the trading value of the stock or tell us why no revision is necessary.

RESPONSE: In response to the Staff's comments and after consulting with the Audit Committee of the Company's Board of Directors, the Company has determined that it should amend and restate its financial statements for the year ended December 31, 2007, and each of the fiscal quarters of 2007. The Company intends to use the trading price of the Company's common stock on each quarter end in preparing the restated financial statements.

3. In certain draft language reflecting the proposed restatement provided to the Staff by the Company, the Company stated that it had previously issued 2,605,514 shares of equity instruments to nonemployees whose terms indicated that performance was not complete until the applicable vesting requirements were fulfilled. The Company subsequently provided the Staff with revised language that stated that the number of such equity instruments issued to nonemployees was 2,148,569. The Staff asked that the Company reconcile the two different numbers.

RESPONSE: The Company hereby clarifies that the correct number of equity instruments issued to nonemployees during the first three quarters of 2007, whose terms indicated that performance was not complete until the applicable vesting requirements were fulfilled, was 2,148,569 and that the 2,605,514 number was a typographical error. The Company refers the Staff to Exhibit B of its October 16, 2008 response. Exhibit B presents, in tabular form, an exhaustive list of all non-employee issuances/grants by the Company based on a vesting date during 2007 and 2008. There are three sets of issuances included in Exhibit B: (i) the grant of 1,753,027 options to a related party; (ii) the grant of 387,542 options to a nonemployee; and (iii) the grant of 8,000 shares of restricted common stock to a nonemployee. The three grants represent 2,148,569 shares of common stock, in the aggregate.

4. The Staff requested that the Company explain how it remeasured recorded compensation expenses with respect to certain options granted to nonemployees for the different quarters of 2007.

RESPONSE: To illustrate the Company's remeasurement calculations, the Company presents the options to purchase 387,542 shares of common stock issued to a nonemployee on December 31, 2006 (see Exhibit B of the Company's October 16, 2008 response). None of the shares underlying the options vested during 2007. The first vesting date of the options was March 1, 2008, which was 14 months after the date of grant. On that date, 40% of the shares underlying the options vested. For individual tranches of options for which the applicable vesting/service

period crossed interim periods (such as the options issued to the nonemployee), the Company remeasures the tranches at the end of each period until the final vesting date of the tranche. The calculation of the proportionate compensation expense is as follows:

(i) To calculate the compensation expense for the options at the end of the first quarter of 2007, the Company divided three by 14; the number of months in the quarter over the number of months in the vesting period and multiplied the result by 40%, the portion of the option that was to vest during the vesting period. For purposes of determining the fair value of the options, the Company's management used the closing sale price of the Common Stock on the NYSE Alternext US (then, the American Stock Exchange) on March 31, 2007.

(ii) To calculate the compensation expense for the options at the end of the second quarter of 2007, the Company divided six by 14; the cumulative number of months in the first two quarters of 2007 over the number of months in the vesting period and multiplied the result by 40%, the portion of the option that was to vest during the vesting period. For purposes of the second quarter, the Company based the valuation on the closing sale price of the Company's Common Stock on the last day of the quarter. Since the calculation for the second quarter included an adjustment for the first quarter vesting, the compensation expense for the option for the first quarter of 2007, as measured on March 31, 2007, was remeasured using the reported traded price on June 30, 2007.

(iii) To calculate the compensation expense for the options at the end of the third quarter of 2007, the Company divided nine by 14; the cumulative number of months in the three quarters of 2007 over the number of months in the vesting period and multiplied the result by 40%, the portion of the option that was to vest during the vesting period. The fair value of the options was based on the closing sale price of the Company's Common Stock on September 30, 2007. As a result, the compensation expenses recorded for the first six months of 2007 with respect to the option, as measured on June 30, 2007, were remeasured using the closing sale price as of September 30, 2007.

(iv) To calculate the compensation expense for the option at the end of 2007, the Company divided 12 by 14; the cumulative number of months in the four quarters of 2007 over the number of months in the vesting period and multiplied the result by 40%, the portion of the option that was to vest during the vesting period. The fair value of the options was based on the closing sale price of the Company's Common Stock on December 31, 2007. As a result, the compensation expenses recorded for the first nine months of 2007 with respect to the options, as measured on September 30, 2007, were remeasured using the closing sale price as of December 31, 2007.

The Company notes that in the Quarterly Reports on Form 10-Q filed for the second and third quarter of 2007, the Company did not remeasure the compensation expenses in connection with options held by nonemployees in the manner discussed above. Rather, the Company continued to amortize the expense for each quarter individually based on the fair value of the Company's Common Stock at the end of the second and third quarter. Since the Company is restating its financial statements for such quarters and although the effect of the remeasurements are immaterial, the Company has elected to perform such remeasurements in the amended Quarterly Reports on Form 10-Q it intends to file in connection with the restatement.

5. The Staff requested that the Company explain management's decision that effective internal controls were in place as of the end of the 2007 fiscal year in light of the need to restate the Company's financial statements.

Auditing Standard No. 5, Section 69, provides a list of potential indicators of a material weakness in a company's internal control over financial reporting. One of the listed criteria is the restatement of previously issued financial statements to reflect the correction of a material misstatement. While assessing the effect of the restatement on the Company's internal control over financial reporting and in light of Section 69, the Company's management considered the following factors:

- The misstatement was not a result of a miscalculation of financial figures;
- The misstatement is not a result of a typographical error;
- Management reviewed and discussed the accounting treatment thoroughly and in-depth with the Company's audit committee and Board of Directors;
- Management's decision not to use the closing sale price to calculate the fair value of certain stock-based compensation issued to nonemployees was understood by all aforementioned parties to be non-standard accounting treatment but all such parties agreed that an alternative valuation mechanism was appropriate given the limited market for the Company's Common Stock at that time; and
- The Company disclosed its decision not to rely on the reported traded price to calculate the fair value of certain stock-based compensation issued to nonemployees in each relevant filing with the Securities and Exchange Commission.

In light of the foregoing, the Company believes that the need to restate the financial statements is the result of a difference in professional judgment. It was not caused by a failure of management's internal control over financial reporting and procedures in connection with the preparation of its financial statements. In addition, the need to restate the financial statements was not the result of any design control deficiency or the lack of the operation of any controls that were designed to operate.

Management believes that it has adequate and effective internal controls relating to the completeness and accuracy of stock-based compensation in place. These controls are designed to apply the applicable rules, test for compliance, fraud and other factors.

Management believes that its internal controls that relate to the recording of share-based compensation for nonemployees were effective. The restatement results from the application of professional judgment that the Company made regarding the application of the share based compensation expense. Notwithstanding the need to change certain accounting treatment, the Company's internal decision making process regarding accounting guidance was thorough, and included all relevant controls including discussions with all relevant functionaries within the Company relating to the financial reporting process. These functionaries include the Company's management, consultants, audit committee and the board of directors. The Company elected to

restate its financial statements and change the accounting treatment of its share-based payments following the same internal control and accounting process. Since the Company believes that the restatement was not the result of a failure of any internal control, the Company concluded that it did not need to disclose any changes in its internal controls or financial reporting and concluded that it did not have a material weakness in its internal controls as a result of the restatement.

The Company confirms that its independent registered public accounting firm has completed its review of the amended Quarterly Reports on Form 10-Q/A.

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Please call the undersigned at the telephone number set forth above or Joseph Magnas at 212-336-4170 with any question or comment you may have regarding the responses set forth herein. In addition, please send all written correspondence directly to the undersigned and Joseph Magnas of Morrison & Foerster LLP, 1290 Avenue of the Americas, New York, New York 10104, telecopy 212-468-7900, with copies to David Aviezer, Ph.D., the Company's President and Chief Executive Officer, at 2 Snunit Street, Science Park, P.O.B. 455, Carmiel 20100, Israel, telecopy +972-4-988-9489.

Sincerely,

/s/ James R. Tanenbaum

cc: David Aviezer, Ph.D.
Yossi Maimon