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

Form S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Protalix BioTherapeutics, Inc.

(Exact name of Registrant as specified in its charter)

Florida
*(State or other jurisdiction of
incorporation or organization)*

65-0643773
*(I.R.S. Employer
Identification No.)*

**2 Snunit Street
Science Park
POB 455
Carmiel, Israel 20100
+972-4-988-9488**
*(Address, including zip code, and telephone number,
including area code, of registrant's principal executive offices)*

**CT Corporation System
111 Eighth Avenue
New York, NY 10011
(212) 894-8400**
*(Name, address, including zip code, and telephone number,
including area code, of agent for service)*

Copy to:
**James R. Tanenbaum, Esq.
Morrison & Foerster LLP
1290 Avenue of the Americas
New York, NY 10104
(212) 468-8000**

Approximate date of commencement of proposed sale to the public: From time to time on or after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer,” and “smaller reporting company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer
(Do not check if a smaller reporting company)

Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price Per Share	Amount of Registration Fee(1)	
			Proposed Maximum Aggregate Offering Price	
Common stock, par value \$0.001 per share	(2)	(3)	\$150,000,000	\$17,415

- (1) Calculated pursuant to Rule 457(o) of the Securities Act of 1933, as amended, based on the maximum aggregate offering price.
- (2) There are being registered hereunder such indeterminate number of shares of common stock as shall have an aggregate initial offering price not to exceed \$150,000,000. In addition, pursuant to Rule 416 under the Securities Act of 1933, as amended, the shares being registered hereunder include such indeterminate number of shares of common stock as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (3) The proposed maximum aggregate offering price per share of common stock will be determined from time to time by the registrant in connection with the issuance by the registrant of the common stock registered hereunder.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. These securities may not be sold nor may offers to buy these securities be accepted prior to the time the registration statement filed with the securities and exchange commission becomes effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED JANUARY 10, 2011

PROSPECTUS

\$150,000,000
PROTALIX
Biotherapeutics
Common Stock

We may, from time to time, offer to sell shares of our common stock. The aggregate public offering price of the securities that we may offer through this prospectus will be up to \$150,000,000.

We will provide the specific terms of the securities offered by us in supplements to this prospectus, which we will deliver together with the prospectus at the time of sale. This prospectus may not be used to sell securities unless accompanied by a prospectus supplement. Please read this prospectus and the applicable prospectus supplement carefully before you invest in any of our securities.

We may, from time to time, offer and sell these securities directly or through one or more underwriters, agents or dealers, through underwriting syndicates managed or co-managed by one or more underwriters, or directly to purchasers, on or off the NYSE Amex at prevailing market prices or at privately negotiated prices, on a continuous or delayed basis.

Our common stock is listed on the NYSE Amex under the symbol "PLX" and on the Tel Aviv Stock Exchange under the symbol "PLX." On January 6, 2011, the last reported sale price of our common stock was \$10.46 per share on the NYSE Amex and NIS 36.75 per share on the Tel Aviv Stock Exchange.

Investing in our securities involves risks. Risks associated with an investment in our securities will be described in the applicable prospectus supplement and certain of our filings with the Securities and Exchange Commission, as described under the caption "Risk Factors" on page 4.

None of the Securities and Exchange Commission, the Israeli Securities Authority or any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2011

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No dealer, salesman or other person has been authorized to give any information or to make any representations in connection with the offer made by this prospectus or any prospectus supplement other than those contained in, or incorporated by reference in, this prospectus or any prospectus supplement, and if given or made, such information or representations must not be relied upon as having been authorized by us or any underwriter, agent or dealer. We or an authorized underwriter, agent or dealer may also furnish you with a free writing prospectus relating to the applicable securities. This prospectus, any prospectus supplement or any free writing prospectus does not constitute an offer to sell or a solicitation of any offer to buy any securities in any jurisdiction to any person to whom it is unlawful to make an offer or solicitation in such jurisdiction. The delivery of this prospectus, any prospectus supplement or any free writing prospectus at any time does not imply that the information contained herein or therein is correct as of any time subsequent to their respective dates.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

The statements set forth and incorporated by reference in this prospectus, which are not historical, constitute “forward looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including statements regarding the expectations, beliefs, intentions or strategies for the future. When used in this prospectus, or in any document incorporated by reference in this prospectus, the terms “anticipate,” “believe,” “estimate,” “expect” and “intend” and words or phrases of similar import, as they relate to us, or our subsidiaries or our management, are intended to identify forward-looking statements. We intend that all forward-looking statements be subject to the safe-harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are subject to many risks and uncertainties that could cause our actual results to differ materially from any future results expressed or implied by the forward-looking statements.

Examples of the risks and uncertainties include, but are not limited to, the following:

- the inherent risks and uncertainties in developing drug platforms and products of the type we are developing;
- delays in our preparation and filing of applications for regulatory approval;
- delays in the approval or the potential rejection of any applications we file with the U.S. Food and Drug Administration, or the FDA, or other regulatory authorities, including the New Drug Application (NDA) we have filed with the FDA and the Marketing Authorization Application (MAA) we have submitted to the European Medicines Agency, or the EMEA, for taliglucerase alfa;
- any lack of progress of our research and development (including the results of clinical trials we are conducting);
- obtaining on a timely basis sufficient patient enrollment in our clinical trials;
- the impact of development of competing therapies and/or technologies by other companies;
- our ability to obtain additional financing required to fund our research programs;
- the risk that we will not be able to develop a successful sales and marketing organization in a timely manner, if at all;
- our ability to establish and maintain strategic license, collaboration and distribution arrangements and to manage our relationship with Pfizer Inc., Teva Ltd. or with any other collaborator, distributor or partner;
- potential product liability risks, and risks of securing adequate levels of product liability and clinical trial insurance coverage;
- the availability of reimbursement to patients from health care payors for any of our product candidates, if approved;
- the possibility of infringing a third party’s patents or other intellectual property rights;
- the uncertainty of obtaining patents covering our products and processes and in successfully enforcing our intellectual property rights against third parties; and
- the possible disruption of our operations due to terrorist activities and armed conflict, including as a result of the disruption of the operations of regulatory authorities, our subsidiaries, our manufacturing facilities and our customers, suppliers, distributors, collaborative partners, licensees and clinical trial sites.

In addition, companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in advanced or late-stage clinical trials, even after obtaining promising earlier trial results or preliminary findings for such clinical trials. Even if favorable testing data is generated in clinical trials of a drug product, the FDA might not accept or approve an NDA, and the EMEA may not accept an MAA, filed or

submitted by a pharmaceutical or biotechnology company for the drug product. These and other risks and uncertainties are detailed in our Annual Report on Form 10-K for the year ended December 31, 2009, Section 1A, under the heading “Risk Factors,” and described from time to time in our future reports to be filed with the Securities and Exchange Commission, or SEC.

Any or all of our forward-looking statements are only predictions and reflect our views as of the date they are made with respect to future events and financial performance and we undertake no obligation to update or revise, nor do we have a policy of updating or revising, any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events, except as may be required under applicable law.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the SEC using a “shelf” registration process. Under this shelf registration process, we may sell shares of common stock in one or more offerings, up to a total dollar amount of \$150,000,000.

This prospectus provides you with a general description of the securities we may offer under this prospectus. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus.

The SEC allows us to “incorporate by reference” certain information that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will update automatically, supplement and/or supersede this information. Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or in any other document which also is or is deemed to be incorporated by reference in this prospectus modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus. You should read the detailed information regarding our company, our common stock and our financial statements and the notes to those statements appearing elsewhere in this prospectus or incorporated herein by reference.

You should read both this prospectus and the applicable prospectus supplement together with additional information from the sources described under the caption “Where You Can Find More Information” in this prospectus. You should not assume that the information in this prospectus, the prospectus supplements, any free writing prospectus or any document incorporated by reference is accurate as of any date subsequent to their respective dates.

You should rely only on the information provided or incorporated by reference in this prospectus, any free writing prospectus and any prospectus supplement, as applicable. We have not authorized anyone to provide you with different information.

References in this prospectus to “our company,” “we,” “our,” and “us” refer to Protalix BioTherapeutics, Inc.

OUR BUSINESS

We are a biopharmaceutical company focused on the development and commercialization of recombinant therapeutic proteins based on our proprietary ProCellEx™ protein expression system, or ProCellEx. Using our ProCellEx system, we are developing a pipeline of proprietary, biosimilar or “generic” versions of recombinant therapeutic proteins based on our plant cell-based expression technology that target large, established pharmaceutical markets and that rely upon known biological mechanisms of action. Our initial commercial focus has been on complex therapeutic proteins, including proteins for the treatment of genetic disorders, such as Gaucher disease and Fabry disease. We believe our ProCellEx protein expression system will enable us to

develop proprietary recombinant proteins that are therapeutically equivalent or superior to existing recombinant proteins currently marketed for the same indications. Because we are primarily targeting biologically equivalent versions of highly active, well-tolerated and commercially successful therapeutic proteins, we believe our development process is associated with relatively less risk compared to other biopharmaceutical development processes for completely novel therapeutic proteins.

Our lead product development candidate is taliglucerase alfa for the treatment of Gaucher disease, which we are developing using our ProCellEx protein expression system. Gaucher disease is a rare and serious lysosomal storage disorder with severe and debilitating symptoms. Taliglucerase alfa is our proprietary recombinant form of glucocerebrosidase (GCD), an enzyme naturally found in human cells that is mutated or deficient in patients with Gaucher disease. In July 2007, we reached an agreement with the U.S. Food and Drug Administration, or the FDA, on the final design of our pivotal phase III clinical trial of taliglucerase alfa, through the FDA's special protocol assessment (SPA) process. The phase III clinical trial was completed in September 2009 and, on October 15, 2009, we announced positive top-line results from the trial. On December 9, 2009, we filed our New Drug Application (NDA) for taliglucerase alfa for the treatment of Gaucher disease, and in January 2010 the FDA requested additional data regarding the Chemistry, Manufacturing and Controls (CMC) section of the NDA. We provided the requested data in April 2010 and in July 2010 we received notification from the FDA that it had accepted the filing of the NDA and assigned a PDUFA date of February 25, 2011 to taliglucerase alfa. In addition, in November 2010 we submitted a Marketing Authorization Application to the European Medicines Agency, or EMEA, for taliglucerase alfa for the treatment of Gaucher disease.

In March 2010, the Israeli Ministry of Health completed a successful audit of our manufacturing facilities in Carmiel, Israel. The audit was performed as part of the Ministry of Health's evaluation of our manufacturing process for taliglucerase alfa.

In addition to our recently completed phase III clinical trial of taliglucerase alfa, during the third quarter of 2008, we initiated a double-blind, follow-on extension study as part of the trial. We also initiated a home care treatment program for patients enrolled in the extension study and in December 2008, we initiated a nine-month, worldwide, multi-center, open-label, switch-over clinical study evaluating the safety and efficacy of switching Gaucher patients currently treated under the current standard of care to treatment with taliglucerase alfa. The current standard of care for Gaucher patients is enzyme replacement therapy with Cerezyme™ which is produced by Genzyme Corporation and, until the recent approval of VPRIV™ by Shire plc in February 2010, the only approved enzyme replacement therapy for Gaucher disease. Enzyme replacement therapy is a medical treatment in which recombinant enzymes are injected into patients in whom the enzyme is lacking or dysfunctional. The switch-over study is not a prerequisite for approval of taliglucerase alfa by the FDA. In December 2009 we filed a proposed pediatric investigation plan to the Pediatric Committee of the EMEA which was approved during the second quarter of 2010. In November 2010, we announced positive preliminary data from the first 15 patients that completed the switch-over clinical study of taliglucerase alfa.

On November 30, 2009, Protalix Ltd. and Pfizer Inc., or Pfizer, entered into an exclusive license and supply agreement pursuant to which Pfizer was granted an exclusive, worldwide license to develop and commercialize taliglucerase alfa. Under the terms and conditions of the Pfizer agreement, Protalix Ltd. retained the right to commercialize taliglucerase alfa in Israel. In connection with the execution of the Pfizer agreement, Pfizer made an upfront payment to Protalix Ltd. of \$60.0 million in connection with the execution of the agreement and subsequently paid Protalix Ltd. an additional \$5.0 million upon our filing of a proposed pediatric investigation plan to the Pediatric Committee of the EMEA. Protalix Ltd. is also eligible to receive potential milestone payments totaling \$50.0 million for the successful achievement of other developmental milestones and to payments equal to 40% of the net profits earned on Pfizer's sales of taliglucerase alfa, if any. Pfizer and Protalix Ltd. have agreed to a specific allocation of the responsibilities for the continued development efforts for taliglucerase alfa.

In July 2009, following a request by the FDA, we submitted a treatment protocol to the FDA in order to address an expected shortage of the current enzyme replacement therapy approved for Gaucher disease. The treatment protocol was approved by the FDA in August 2009. In September 2009, the FDA's Office of Orphan

Product Development granted taliglucerase alfa Orphan Drug Status. In January 2010, the Committee for Orphan Medicinal Products (COMP) of the EMEA, after reviewing all relevant clinical data, recommended that the European Commission grant orphan drug designation to taliglucerase alfa for the treatment of Gaucher disease. The Orphan Drug designation in the United States for taliglucerase alfa for the treatment of Gaucher disease provides special status to taliglucerase alfa provided that it meets certain criteria. As a result of the orphan designation, we are qualified for the tax credit and marketing incentives of the Orphan Drug Act of 1983. A marketing application for a prescription drug product that has been designated as a drug for a rare disease or condition is not subject to a prescription drug user fee unless the application includes an indication for other than a rare disease or condition.

On July 13, 2010, we announced that the French regulatory authority had granted an Autorisation Temporaire d'Utilisation (ATU), or Temporary Authorization for Use, for taliglucerase alfa for the treatment of Gaucher disease. An ATU is the regulatory mechanism used by the French Health Products and Safety Agency to make non-approved drugs available to patients in France when a genuine public health need exists. This ATU allows patients with Gaucher disease in France to receive treatment with taliglucerase alfa before marketing authorization for the product is granted in the European Union. Payment for taliglucerase alfa has been secured through government allocations to hospitals.

On August 10, 2010, Pfizer entered into a \$30 million short-term supply agreement with the Ministry of Health of Brazil pursuant to which we and Pfizer will provide taliglucerase alfa to Gaucher disease patients in such country.

In addition to taliglucerase alfa, we are developing an innovative product pipeline using our ProCellEx protein expression system. Our product pipeline currently includes, among other candidates, therapeutic protein candidates for the treatment of Fabry disease, a rare, genetic lysosomal disorder in humans, an acetylcholinesterase enzyme-based therapy for biodefense, antiTNF, a plant cell expressed recombinant fusion protein made from the soluble form of the human TNF receptor (TNFR) which is being developed as a treatment of certain immune diseases such as rheumatoid arthritis, juvenile idiopathic arthritis and others, and additional undisclosed therapeutic proteins and intoxication treatments, all of which are currently being evaluated in animal studies. In March 2010, we initiated a phase I clinical trial of PRX-105, our plant cell expressed pegylated recombinant acetylcholinesterase product candidate for biodefense indications, which we completed in June 2010. We are currently preparing for further efficacy trials in larger animals.

Except for the license we have granted to Pfizer, we hold the worldwide commercialization rights to our proprietary development candidates and we intend to establish an internal, commercial infrastructure and targeted sales force to market taliglucerase alfa in Israel and our other products, if approved, in North America, the European Union and in other significant markets, including Israel. In addition, we are continuously evaluating potential strategic marketing partnerships.

Our common stock is listed on the NYSE Amex and, since September 6, 2010, on the Tel Aviv Stock Exchange, both under the symbol "PLX."

ProCellEx™ is our trademark. Each of the other trademarks, trade names or service marks appearing in this prospectus belongs to its respective holder.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the specific risks sets forth under the caption "Risk Factors" in the applicable prospectus supplement and under the captions "Risk Factors" in any of our filings with the SEC, including our Annual Report on Form 10-K for the year ended December 31, 2009 before making an investment decision. For additional information, please see the sources described under the caption "Where You Can Find More Information."

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds of the securities we offer hereby. Unless the applicable prospectus supplement states otherwise, the net proceeds from the securities we sell will be added to our general corporate funds and may be used for research and development expenses, clinical trials, establishing an internal sales force, acquisitions of new technologies or businesses, and general corporate and administrative purposes. Until the net proceeds have been used, they will be invested in short-term bank deposits or marketable securities. If we elect at the time of the issuance of the securities to make different or more specific uses of proceeds other than as described in this prospectus, the change in use of proceeds will be described in the applicable prospectus supplement.

DILUTION

We will set forth in a prospectus supplement the following information regarding any material dilution of the equity interests of investors purchasing securities in an offering under this prospectus:

- the net tangible book value per share of our equity securities before and after the offering;
- the amount of the increase in such net tangible book value per share attributable to the cash payments made by purchasers in the offering; and
- the amount of the immediate dilution from the public offering price which will be absorbed by such purchasers.

SECURITIES WE MAY OFFER

Types of Securities

We may offer, from time to time, shares of common stock through this prospectus.

We will describe in a prospectus supplement, which we will deliver with this prospectus at the time of sale, the terms of the particular securities that we may offer in the future.

The aggregate initial offering price of all securities sold will not exceed \$150,000,000. When we sell securities, we will determine the amounts of securities we will sell and the prices and other terms on which we will sell them. We may sell securities to or through underwriters, through agents or dealers or directly to purchasers.

Additional Information

We will describe in a prospectus supplement, which we will deliver with this prospectus, the terms of the securities which we may offer in the future. In each prospectus supplement we will include the following information:

- the amount of securities which we propose to sell;
- the initial public offering price of the securities;
- the names of the underwriters, agents or dealers, if any, through or to which we will sell the securities;
- the compensation, if any, of those underwriters, agents or dealers;
- if applicable, information about any securities exchange or automated quotation system on which the securities will be listed or traded;
- material U.S. federal income tax considerations applicable to the securities;
- any material risk factors associated with the securities;
- payment of dividends, if any;

- voting or other rights, if any; and
- any other material information about the offer and sale of the securities.

In addition, the prospectus supplement may add, update or change the information contained in this prospectus.

DESCRIPTION OF COMMON STOCK

We are a Florida corporation. The rights of our stockholders are governed by the Florida Business Corporation Act, or the FBCA, our amended and restated articles of incorporation and our amended and restated bylaws. The following summary of the material terms, rights and preferences of our capital stock is not complete. You should read our amended and restated articles of incorporation, which we refer to as our charter, and our bylaws, for more complete information before you purchase any of our securities. You should read these documents, copies of which are available from us upon request at the address set forth under the caption "Where You Can Find More Information," in order to more fully understand the terms of our common stock.

General. Our charter provides that we may issue up to 150,000,000 shares of common stock, par value \$0.001 per share, and 100,000,000 shares of preferred stock, par value \$0.0001 per share, all of which preferred stock are undesignated. As of January 4, 2011, 81,269,472 shares of our common stock were issued and outstanding and no shares of preferred stock were issued and outstanding.

Holders of common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Accordingly, holders of a majority of the shares of common stock entitled to vote in any election of directors may elect all of the directors standing for election. Holders of common stock are entitled to receive dividends when, as and if declared by our board of directors out of funds legally available therefor.

In the event of our liquidation, dissolution or winding up, after payment of all of our debts and liabilities, the holders of our common stock are entitled to share ratably in all remaining assets available for distribution after the payment of debts and liabilities and after provision has been made for each class of stock, if any, having preferences over our common stock. Holders of our common stock, as such, have no preemptive or other rights and there are no redemption provisions applicable to our common stock. All of our outstanding shares of common stock are fully paid and nonassessable. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future. In accordance with the rules of the Tel Aviv Stock Exchange, other than stock options under our 2006 Stock Option Plan, we may not issue any securities of any class or series different than the common stock that is listed on the Tel Aviv Stock Exchange for the 12-month period immediately succeeding our initial listing, which occurred on September 6, 2010. Subsequent to such 12-month period, the rules of the Tel Aviv Stock Exchange allow us to issue securities with preferential rights relating to dividends, but such other securities may not include voting rights.

Dividend Policy. We have never declared or paid any cash dividends on our capital stock. We currently intend to retain any future earnings to finance the growth and development of our business and therefore do not anticipate paying any cash dividends in the foreseeable future. Any future determination to pay cash dividends will be at the discretion of our board of directors and will depend upon our financial condition, operating results, capital requirements, covenants in our debt instruments (if any), and such other factors as our board of directors deems relevant.

Transfer Agent and Registrar. The transfer agent and registrar of our common stock is American Stock Transfer & Trust Company.

Options

As of January 4, 2011, options to purchase 7,785,671 shares of our common stock at a weighted average exercise price equal to \$3.72 per share were outstanding.

Florida Anti-Takeover Law Governance and Certain Charter Provisions

We have elected not to be subject to the provisions of Sections 607.0901 and 607.0902 of the FBCA. Section 607.0902 of the FBCA prohibits the voting of shares in a publicly-held Florida corporation that are acquired in a “control share acquisition” unless the holders of a majority of the corporation’s voting shares (exclusive of shares held by officers of the corporation, inside directors or the acquiring party) approve the granting of voting rights as to the shares acquired in the control share acquisition or unless the acquisition is approved by the corporation’s Board of Directors. A “control share acquisition” is defined as an acquisition that immediately thereafter entitles the acquiring party to vote in the election of directors within each of the following ranges of voting power: (i) one-fifth or more but less than one-third of all voting power; (ii) one-third or more but less than a majority of all voting power; and (iii) more than a majority of all voting power.

Sections 607.0901 of the FBCA contains an “affiliated transaction” provision that prohibits a publicly-held Florida corporation from engaging in a broad range of business combinations or other extraordinary corporate transactions with an “interested shareholder” unless, among others: (i) the transaction is approved by a majority of disinterested directors before the person becomes an interested shareholder; (ii) the interested shareholder has owned at least 80% of the corporation’s outstanding voting shares for at least five years; or (iii) the transaction is approved by the holders of two-thirds of the corporation’s voting shares other than those owned by the interested shareholder. An interested shareholder is defined as a person who together with affiliates and associates beneficially owns more than 10% of the corporation’s outstanding voting shares.

NYSE Amex and Tel Aviv Stock Exchange

Our common stock is listed on both the NYSE Amex and the Tel Aviv Stock Exchange under the symbol “PLX.”

PLAN OF DISTRIBUTION

We may sell the securities from time to time pursuant to underwritten public offerings, negotiated transactions, at the market offerings, block trades or a combination of these methods. We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers.

We may distribute securities from time to time in one or more transactions:

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

Unless stated otherwise in the applicable prospectus supplement, the obligations of any underwriter to purchase securities will be subject to certain conditions, and the underwriter will be obligated to purchase all of the applicable securities if any are purchased. If a dealer is used in a sale, we may sell the securities to the dealer as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale.

We or our agents may solicit offers to purchase securities from time to time. Unless stated otherwise in the applicable prospectus supplement, any agent will be acting on a best efforts basis for the period of its appointment.

In connection with the sale of securities, underwriters or agents may receive compensation (in the form of discounts, concessions or commissions) from us or from purchasers of securities for whom they may act as agents. Underwriters may sell securities to or through dealers, and such dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents. Underwriters, dealers and agents that participate in the distribution of securities may be deemed to be underwriters, as that term is defined in the Securities Act, and

any discounts or commissions received by them from us and any profits on the resale of the securities by them may be deemed to be underwriting discounts and commissions under the Securities Act. We will identify any such underwriter or agent, and we will describe any compensation paid to them, in the related prospectus supplement.

Underwriters, dealers and agents may be entitled under agreements with us to indemnification against and contribution toward certain civil liabilities, including liabilities under the Securities Act.

If stated in the applicable prospectus supplement, we will authorize agents and underwriters to solicit offers by certain specified institutions or other persons to purchase securities at the public offering price set forth in the prospectus supplement under delayed delivery contracts providing for payment and delivery on a specified date in the future. Institutions with whom these contracts may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions, and other institutions, but shall in all cases be subject to our approval. These contracts will be subject only to those conditions set forth in the applicable prospectus supplement and the applicable prospectus supplement will set forth the commission payable for solicitation of these contracts. The obligations of any purchaser under any such contract will be subject to the condition that the purchase of the securities shall not be prohibited at the time of delivery under the laws of the jurisdiction to which the purchaser is subject. The underwriters and other agents will not have any responsibility in respect of the validity or performance of these contracts.

The securities may or may not be listed on a national securities exchange or traded in the over-the-counter market, as set forth in the applicable prospectus supplement. No assurance can be given as to the liquidity of the trading market for any of our securities. Any underwriter may make a market in these securities. However, no underwriter will be obligated to do so, and any underwriter may discontinue any market making at any time, without prior notice.

If underwriters or dealers are used in the sale, until the distribution of the securities is completed, SEC rules may limit the ability of any underwriters and selling group members to bid for and purchase the securities. As an exception to these rules, representatives of any underwriters are permitted to engage in certain transactions that stabilize the price of the securities. These transactions may consist of bids or purchases for the purpose of pegging, fixing or maintaining the price of the securities. If the underwriters create a short position in the applicable securities in connection with any offering (in other words, if they sell more securities than are set forth on the cover page of the applicable prospectus supplement) the representatives of the underwriters may reduce that short position by purchasing securities in the open market. The representatives of the underwriters may also elect to reduce any short position by exercising all or part of any over-allotment option we may grant to the underwriters, as described in the prospectus supplement. The representatives of the underwriters may also impose a penalty bid on certain underwriters and selling group members. This means that if the representatives purchase securities in the open market to reduce the underwriters' short position or to stabilize the price of the securities, they may reclaim the amount of the selling concession from the underwriters and selling group members who sold those shares as part of the offering.

In general, purchases of a security for the purpose of stabilization or to reduce a short position could cause the price of the security to be higher than it might be in the absence of those purchases. The imposition of a penalty bid might also have an effect on the price of the securities to the extent that it discourages resales of the securities. The transactions described above may have the effect of causing the price of the securities to be higher than it would otherwise be. If commenced, the representatives of the underwriters may discontinue any of the transactions at any time. In addition, the representatives of any underwriters may determine not to engage in those transactions or that those transactions, once commenced, may be discontinued without notice.

Certain of the underwriters or agents and their associates may engage in transactions with and perform services for us or our affiliates in the ordinary course of their respective businesses.

In no event will the commission or discount received by any Financial Industry Regulatory Authority, or FINRA, member or independent broker-dealer participating in a distribution of securities exceed 8% of the

aggregate principal amount of the offering of securities in which that FINRA member or independent broker-dealer participates.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement on Form S-3 that we filed with the SEC under the Securities Act. You should rely only on the information contained in this prospectus or incorporated by reference in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front cover of this prospectus, regardless of the time of delivery of this prospectus or any sale of securities.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings, including the registration statement and exhibits, are available to the public at the SEC's website at <http://www.sec.gov>. You may also read, without charge, and copy the documents we file, at the SEC's public reference rooms at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You can request copies of these documents by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for further information on the public reference rooms. In addition, since we are also listed on the Tel Aviv Stock Exchange, we submit copies of all our filings with the SEC to the Israeli Securities Authority and the Tel Aviv Stock Exchange. Such copies can be retrieved electronically through the Tel Aviv Stock Exchange's internet messaging system (www.magna.isa.gov.il) and through the MAGNA distribution site of the Israeli Securities Authority (www.magna.isa.gov.il).

We maintain an Internet site at www.protalix.com. Webcasts of presentations we make at certain conferences may also be available on our website from time to time. We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

This prospectus does not contain all of the information included in the registration statement. We have omitted certain parts of the registration statement in accordance with the rules and regulations of the SEC. For further information, we refer you to the registration statement, including its exhibits and schedules, which may be found at the SEC's website at <http://www.sec.gov>. Statements contained in this prospectus and any accompanying prospectus supplement about the provisions or contents of any contract, agreement or any other document referred to are not necessarily complete. Please refer to the actual exhibit for a more complete description of the matters involved.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with the SEC, which means we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus, and certain information that we will later file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below as well as any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act from the date of the initial registration statement and prior to the effectiveness of this registration statement, and any filings made after the date of this prospectus until we sell all of the securities under this prospectus, except that we do not incorporate any document or portion of a document that is "furnished" to the SEC, but not deemed "filed." The following documents filed with the SEC are incorporated by reference in this prospectus:

- our Annual Report on Form 10-K for the year ended December 31, 2009;
- our Quarterly Report on Form 10-Q for the quarters ended March 31, 2010; June 30, 2010; and September 30, 2010;
- our Current Reports on Form 8-K filed with the SEC on January 14, 2010; February 2, 2010; February 5, 2010; February 11, 2010; March 3, 2010; March 9, 2010; March 17, 2010; April 27, 2010; May 18, 2010; June 8, 2010; July 12, 2010; July 13, 2010, August 16, 2010, August 30, 2010;

September 7, 2010; September 13, 2010; October 25, 2010; November 2, 2010; November 10, 2010; and November 29, 2010;

- our definitive Proxy Statement for our Annual Meeting of Shareholders held on November 7, 2010; and
- the description of our common stock included in our Form 8-A filed with the SEC on March 9, 2007.

Copies of these filings are available at no cost on our website, www.protalix.com. In addition, you may request a copy of these filings and any amendments thereto at no cost, by writing or telephoning us. Those copies will not include exhibits to those documents unless the exhibits are specifically incorporated by reference in the documents or unless you specifically request them. You may also request copies of any exhibits to the registration statement at no cost. Please direct your request to:

**Yossi Maimon
2 Snunit Street
Science Park
POB 455
Carmiel, Israel 20100
+972-4-988-9488**

You should rely only on the information in this prospectus, any prospectus supplement, any applicable free writing prospectus and the documents that are incorporated by reference. We have not authorized anyone else to provide you with different information. We are not offering these securities in any state where the offering is prohibited by law. You should not assume that the information in this prospectus, any prospectus supplement, any applicable free writing prospectus or any incorporated document is accurate as of any date other than the date of the document.

LEGAL MATTERS

The validity of the issuance of the shares of common stock offered hereby will be passed upon for us by Morrison & Foerster LLP, New York, New York.

EXPERTS

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2009 have been so incorporated in reliance on the reports of Kesselman & Kesselman, independent registered public accounting firm, a company limited by guarantee registered in England and Wales, given on the authority of said firm as experts in auditing and accounting.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth an estimate of the fees and expenses relating to the offering of the securities being registered hereby, other than underwriting discounts and commissions, all of which shall be borne by the Registrant. All of such fees and expenses, except for the SEC registration fee, are estimated:

SEC registration fee	\$17,415
Transfer agent fees and expenses*	\$ 5,000
Legal fees and expenses*	\$40,000
Printing fees and expenses*	\$10,000
Accounting fees and expenses*	\$10,000
Miscellaneous fees and expenses*	\$10,000
Total	\$92,415

* Estimated.

Item 15. Indemnification of Directors and Officers.

General Corporation Law

We indemnify our directors and officers to the maximum extent permitted by Florida law for the costs and liabilities of acting or failing to act in an official capacity. We also have purchased insurance in the aggregate amount of \$1,000,000 for our directors and officers against all of the costs of such indemnification or against liabilities arising from acts or omissions of the insured person in cases where we may not have power to indemnify the person against such liabilities. Such policy will be in a run-off "tail" coverage phase as of the merger effective date and will covering those individuals who were our officers and directors prior to the merger for a period of six years after such individual resigned his/her position with our company.

In addition, we have entered into indemnification agreements with each of our executive officers and directors, to provide them with the maximum indemnification allowed under our bylaws and applicable Florida law, including indemnification for all judgments and expenses incurred as the result of any lawsuit in which such person is named as a defendant by reason of being our director, officer or employee, to the extent indemnification is permitted by the laws of Florida. We believe that the indemnification agreements will enhance our ability to continue to attract and retain qualified individuals to serve as directors and officers.

Protalix Ltd.'s articles of association allow it to exculpate, indemnify, and insure its office holders to the fullest extent permitted by Israeli law. Accordingly, Protalix Ltd. has entered into indemnification agreements with each of its officers and directors undertaking to indemnify them to the fullest extent permitted by law, including with respect to liabilities resulting from the merger. This indemnification is limited to events determined as foreseeable by the Board of Directors based on the activities of Protalix Ltd., and to an amount determined by the Board of Directors as reasonable under the circumstances.

Protalix Ltd. further purchased and maintains directors and officers liability insurance policy coverage in the aggregate amount of \$3,000,000. In addition, we maintain additional directors and officers liability insurance policy coverage in the aggregate amount of \$20,000,000.

As of the date of hereof, no claims for directors and officers' liability insurance have been filed under this policy and Protalix Ltd. is not aware of any pending or threatened litigation or proceeding involving any of the directors or officers of Protalix Ltd. in which indemnification is sought.

We have undertaken to fulfill and honor in all respects the obligations of Protalix Ltd. pursuant to any indemnification agreements between Protalix Ltd. and its directors in effect prior to December 31, 2006. We further agreed that any provision of Protalix Ltd.'s charter documents in relation to exculpation and

indemnification of officers and directors of Protalix Ltd. will not be amended, repealed, or otherwise modified in any manner that would adversely affect the rights thereunder of individuals who, immediately prior to the closing of the merger, were directors, officers, employees or agents of the Company, unless such modification is required by any applicable law.

Under Israeli law, an Israeli company may not exculpate an office holder from liability for a breach of the duty of loyalty of the office holder. An Israeli company may exculpate an office holder in advance from liability to the company, in whole or in part, for a breach of duty of care (other than in the event that such liability arises out of a prohibited dividend or distribution) but only if a provision authorizing such exculpation is inserted in its articles of association. Protalix Ltd.'s articles of association include such a provision.

An Israeli company may indemnify an office holder in respect of certain liabilities either in advance of an event or following an event provided a provision authorizing such indemnification is inserted in its articles of association. Protalix Ltd.'s articles of association contain such an authorization. An undertaking provided in advance by an Israeli company to indemnify an office holder with respect to a financial liability imposed on or incurred by him or her in favor of another person pursuant to a judgment, settlement or arbitrator's award approved by a court must be limited to events which, in the opinion of the board of directors, can be foreseen based on the company's activities when the undertaking to indemnify is given, and to an amount or according to criteria determined by the board of directors as reasonable under the circumstances, and such undertaking shall detail the abovementioned events and amount or criteria. In addition, a company may indemnify an office holder against the following liabilities incurred for acts performed as an office holder:

- reasonable litigation expenses, including attorneys' fees, incurred by the office holder as a result of an investigation or proceeding instituted against him or her by an authority authorized to conduct such investigation or proceeding, provided that (i) no indictment was filed against such office holder as a result of such investigation or proceeding; and (ii) no financial liability, such as a criminal penalty, was imposed upon him or her as a substitute for the criminal proceeding as a result of such investigation or proceeding or, if such financial liability was imposed, it was imposed with respect to an offense that does not require proof of criminal intent; and
- reasonable litigation expenses, including attorneys' fees, incurred by the office holder or imposed by a court in proceedings instituted against him or her by the company, on its behalf or by a third party or in connection with criminal proceedings in which the office holder was acquitted or as a result of a conviction for a crime that does not require proof of criminal intent.

An Israeli company may insure an office holder against the following liabilities incurred for acts performed as an office holder:

- a breach of duty of loyalty to the company, to the extent that the office holder acted in good faith and had a reasonable basis to believe that the act would not be detrimental to the interests of the company;
- a breach of duty of care to the company or to a third party; and
- a financial liability imposed on the office holder in favor of a third party in respect of an act performed in his or her capacity as an office holder.

An Israeli company may not indemnify or insure an office holder against any of the following:

- a breach of duty of loyalty, except to the extent that the office holder acted in good faith and had a reasonable basis to believe that the act would not be detrimental to the interests of the company;
- a grossly negligent or intentional violation of an office holder's duty of care;
- an act or omission committed with intent to derive illegal personal benefit; or
- a fine levied against the office holder.

Under Israeli law, exculpation, indemnification, and insurance of office holders must be approved by the board of directors of Protalix Ltd. and, in respect of directors of Protalix Ltd., by us as the sole securityholder of Protalix Ltd.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors and officers or persons controlling us pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the Commission, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable.

Item 16. List of Exhibits.

<u>Number</u>	<u>Description</u>
1.1*	Form of Underwriting or Purchase Agreement for Common Stock
5.1	Opinion of Morrison & Foerster LLP as to the validity of the securities registered hereunder
23.1	Consent of Kesselman & Kesselman, Certified Public Accountant (Isr.), a member of PricewaterhouseCoopers International Limited, independent registered public accounting firm
23.2	Consent of Morrison & Foerster LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on the signature page hereto)

* To be filed by amendment or as an exhibit to a current report of our company on Form 8-K and incorporated herein by reference.

Item 17. Undertakings.

(a) The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) If the registrant is relying on Rule 430B:

(A) Each prospectus filed by the Registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is a part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was a part of the registration statement or made in any such document immediately prior to such effective date; or

(ii) If the Registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the Registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities:

The undersigned Registrant undertakes that in a primary offering of securities of the undersigned Registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned Registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of the undersigned Registrant relating to the offering required to be filed pursuant to Rule 424;
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned Registrant or used or referred to by the undersigned Registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned Registrant or its securities provided by or on behalf of the undersigned Registrant; and
- (iv) Any other communication that is an offer in the offering made by the undersigned Registrant to the purchaser.

(b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the respective Registrant of expenses incurred or paid by a director, officer, or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Tel Aviv, State of Israel, on the 10th day of January, 2011.

PROTALIX BIO THERAPEUTICS, INC.

By: /s/ David Aviezer
David Aviezer, Ph.D.
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints, jointly and severally, David Aviezer, Ph.D and Yossi Maimon, and each one of them, his true and lawful attorneys-in-fact and agents, each with full power of substitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act of 1933, as amended, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming that each of said attorneys-in-fact and agents or any of them, or his or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed below by the following persons in the capacities and on the dates indicated:

<u>Signatures</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ David Aviezer</u> David Aviezer, Ph.D.	President and Chief Executive Officer (Principal Executive Officer)	January 10, 2011
<u>/s/ Yossi Maimon</u> Yossi Maimon	Chief Financial Officer, Treasurer and Secretary (Principal Financial and Accounting Officer)	January 10, 2011
<u>/s/ Yoseph Shaaltiel, Ph.D.</u> Yoseph Shaaltiel, Ph.D.	Executive VP, Research and Development and Director	January 10, 2011
<u>/s/ Zeev Bronfeld</u> Zeev Bronfeld	Interim Chairman of the Board of Directors	January 10, 2011
<u>/s/ Alfred Akirov</u> Alfred Akirov	Director	January 10, 2011

<u>Signatures</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ Amos Bar-Shalev</u> Amos Bar-Shalev	Director	January 10, 2011
<u>/s/ Yodfat Harel Gross</u> Yodfat Harel Gross	Director	January 10, 2011
<u>/s/ Roger D. Kornberg</u> Roger D. Kornberg, Ph.D.	Director	January 10, 2011
<u>/s/ Eyal Sheratzky</u> Eyal Sheratzky	Director	January 10, 2011

EXHIBIT INDEX

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23.2	Consent of Morrison & Foerster LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on the signature page hereto)

* To be filed by amendment or as an exhibit to a Current Report of our company on Form 8-K and incorporated herein by reference.

[LETTERHEAD OF MORRISON & FOERSTER LLP]

January 10, 2011
Protalix BioTherapeutics, Inc.
2 Snunit Street, Science Park
POB455
Carmiel, Israel 20100

Re: Protalix BioTherapeutics, Inc. — Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Protalix BioTherapeutics, Inc., a Florida corporation (the "Company"), in connection with the preparation and filing with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), of a registration statement on Form S-3 (the "Registration Statement") relating to the offering from time to time, of shares of the Company's common stock, par value \$0.001 per share (the "Common Stock"), with an aggregate offering price of up to \$150,000,000 (the "Securities"). The Securities being registered under the Registration Statement will be offered by the Company on a continuous or delayed basis pursuant to the provisions of Rule 415 under the Securities Act.

In connection with this opinion, we have examined such corporate records, documents, instruments, certificates of public officials and of the Company and such questions of law as we have deemed necessary for the purpose of rendering the opinions set forth herein.

In such examination, we have assumed the genuineness of all signatures and the authenticity of all items submitted to us as originals and the conformity with originals of all items submitted to us as copies.

Based on the foregoing, and subject to the further assumptions and qualifications set forth below, it is our opinion that when the necessary corporate action on the part of the Company has been taken to authorize the issuance and sale of such shares of Common Stock proposed to be sold by the Company pursuant to the Registration Statement, and when such shares of Common Stock are issued and delivered in accordance with the applicable definitive purchase, underwriting or similar agreement against payment therefor (in excess of par value thereof) for the consideration approved by the Company's Board of Directors (which consideration is not less than the par value of the Common Stock), such shares of Common Stock will be validly issued, fully-paid and non-assessable.

In rendering the opinion expressed above, we have further assumed that: (i) the Registration Statement and any amendments thereto (including post-effective amendments) will have become effective and comply with all applicable laws; (ii) the Registration Statement will be effective and will comply with all applicable laws at the time the Securities are offered or issued as contemplated by the Registration Statement; (iii) the terms of the Securities will conform in all material respects to the description thereof in the Prospectus which is part of the Registration Statement; (iv) the Securities will be sold and delivered to, and paid for by, the purchasers at the price specified in, and in accordance with the terms of, an agreement or agreements duly authorized, executed and delivered by the parties thereto; and (v) certificates, if required, representing the Securities will be duly executed and delivered and, to the extent required by any applicable agreement, duly authenticated and countersigned.

Please note that we are opining only as to the matters expressly set forth herein, that no opinion should be inferred as to any other matter. We are opining herein as to the Florida Business Corporation Act as in effect on the date hereof, which includes the statutory provisions and also all applicable provisions of the Florida Constitution and reported judicial decisions interpreting those laws, and we express no opinion with respect to any other laws, rules or regulations. In rendering the foregoing opinion, we have relied, for matters involving Florida law, solely on the

opinion of Shutts & Bowen LLP, Miami, Florida. This opinion is based upon currently existing laws, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the use of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to us under the caption "Legal Matters" in the prospectus included in the Registration Statement. In giving such consent, we do not hereby admit that we are acting within the category of persons whose consent is required under Section 7 of the Securities Act or the rules or regulations of the Commission thereunder.

Very truly yours,

/s/ Morrison & Foerster LLP

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated February 25, 2010 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in Protalix BioTherapeutics, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2009. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ Kesselman & Kesselman

Kesselman & Kesselman
Certified Public Accountant (Isr.)
A member of PricewaterhouseCoopers
International Limited

Tel Aviv, Israel
January 9, 2011