

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

AMENDMENT NO. 2
TO
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ALEXION PHARMACEUTICALS, INC.
(Exact Name of Registrant as Specified in Its Charter)

DELAWARE
(State or Other Jurisdiction of
Incorporation or Organization)

13-3648318
(I.R.S. Employer
Identification Number)

25 SCIENCE PARK
NEW HAVEN, CT 06511
(203) 776-1790
(Address, Including Zip Code, and Telephone Number, Including
Area Code, of Registrant's Principal Executive Offices)

LEONARD BELL, M.D.
ALEXION PHARMACEUTICALS, INC.
25 SCIENCE PARK
NEW HAVEN, CT 06511
(203) 776-1790
(Name, Address, Including Zip Code, and Telephone Number,
Including Area Code, of Agent for Service)

Copies of all communications, including all communications sent to the agent for
service, should be sent to:

MERRILL M. KRAINES, ESQ.
LAWRENCE A. SPECTOR, ESQ.
FULBRIGHT & JAWORSKI L.L.P.
666 FIFTH AVENUE
NEW YORK, NEW YORK 10103
(212) 318-3000

DAVID R. KING, ESQ.
MICHAEL J. SHIM, ESQ.
MORGAN, LEWIS & BOCKIUS LLP
1701 MARKET STREET
PHILADELPHIA, PENNSYLVANIA 19103
(215) 963-5000

APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC: From time to
time 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 plan, please 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, as amended, 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 delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. /X/

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.

PART II

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

The following table sets forth Alexion Pharmaceuticals, Inc. (the "Company") estimates (other than the SEC registration fee, NASD filing fee and Nasdaq listing fee) of the expenses in connection with the issuance and distribution of the shares of common stock being registered.

SEC registration fee.....	\$ 12,643.00
NASD filing fee.....	\$ 4,291.46
Nasdaq listing fee.....	\$ 17,500.00
Legal fees and expenses.....	\$190,000.00
Accounting fees and expenses.....	\$ 75,000.00
Printing expenses.....	\$150,000.00
Miscellaneous expenses.....	\$ 25,565.54

Total:.....	\$475,000.00
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ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145 of the Delaware General Corporation Law (the "DGCL") empowers a Delaware corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation) by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. A corporation may, in advance of the final disposition of any civil, criminal, administrative or investigative action, suit or proceeding, pay the expenses (including attorneys' fees) incurred by any officer, director, employee or agent in defending such action, provided that the director or officer undertakes to repay such amount if it shall ultimately be determined that he is not entitled to be indemnified by the corporation. A corporation may indemnify such person against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful.

A Delaware corporation may indemnify officers and directors in an action by or in the right of the corporation to procure a judgment in its favor under the same conditions, except that no indemnification is permitted without judicial approval if the officer or director is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him against the expenses (including attorneys' fees) which he actually and reasonably incurred in connection therewith. The indemnification provided is not deemed to be exclusive of any other rights to which an officer or director may be entitled under any corporation's by-law, agreement, vote or otherwise.

In accordance with Section 145 of the DGCL, Section EIGHTH of the Company's Certificate of Incorporation, as amended (the "Certificate") provides that the Company shall indemnify each person who is or was a director, officer, employee or agent of the Company (including the heirs, executors, administrators or estate of such person) or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, to the fullest extent permitted. The indemnification provided by the Certificate shall not be

deemed exclusive of any other rights to which any of those seeking indemnification or advancement of expenses may be entitled under any by-law, agreement, vote of shareholders or disinterested directors or otherwise, both as to action in his official capacity and as to action in another capacity while holding such office, and shall continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person. Expenses (including attorneys' fees) incurred in defending a civil, criminal, administrative or investigative action, suit or proceeding shall be paid by the Company in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of the indemnified person to repay such amount if it shall ultimately be determined that he is not entitled to be indemnified by the Company. Section NINTH of the Certificate provides that a director of the Company shall not be personally liable to the Company or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the Company or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL, or (iv) for any transaction from which the director derived an improper personal benefit.

ITEM 16. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

(a) Exhibits.

1.1 Form of Purchase Agreement.

5.1 Opinion of Fulbright & Jaworski L.L.P. regarding legality.

23.1 Consent of Fulbright & Jaworski L.L.P. (included in Exhibit 5.1).

23.2 Consent of Arthur Andersen LLP, Independent Auditors.

24.1 Power of Attorney (included on signature page).*

* Previously filed.

(b) Financial Statement Schedules.

None.

ITEM 17. UNDERTAKINGS.

(a) The undersigned Registrant hereby undertakes:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus 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.

- (b) The undersigned registrant hereby undertakes to deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report, to security holders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X is not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information.
- (c) 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 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.
- (d) 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 provisions described under Item 15 above, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the 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 Act 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 HAS DULY CAUSED THIS AMENDMENT NO. 2 TO THE REGISTRATION STATEMENT TO BE SIGNED ON ITS BEHALF BY THE UNDERSIGNED, THEREUNTO DULY AUTHORIZED, IN THE CITY OF NEW HAVEN AND STATE OF CONNECTICUT ON THE 19TH DAY OF NOVEMBER, 1999.

ALEXION PHARMACEUTICALS, INC.

By: /s/ LEONARD BELL

 Leonard Bell, M.D.
 PRESIDENT, CHIEF EXECUTIVE OFFICER,
 SECRETARY AND TREASURER

Pursuant to the requirements of the Securities Act of 1933, as amended, this Amendment No. 2 to this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

<p>/s/ LEONARD BELL ----- Leonard Bell, M.D.</p>	<p>President, Chief Executive Officer, Secretary, Treasurer and Director (principal executive officer)</p>	<p>November 19, 1999</p>
<p>/s/ DAVID W. KEISER ----- David W. Keiser</p>	<p>Executive Vice President and Chief Operating Officer (principal financial officer)</p>	<p>November 19, 1999</p>
<p>* ----- Barry P. Luke</p>	<p>Vice President of Finance and Administration (principal accounting officer)</p>	<p>November 19, 1999</p>
<p>* ----- John H. Fried, Ph.D.</p>	<p>Chairman of the Board of Directors</p>	<p>November 19, 1999</p>
<p>* ----- Jerry T. Jackson</p>	<p>Director</p>	<p>November 19, 1999</p>
<p>* ----- Joseph A. Madri, Ph.D., M.D.</p>	<p>Director</p>	<p>November 19, 1999</p>

* ----- Leonard Marks, Jr., Ph.D.	Director	November 19, 1999
* ----- Max Link, Ph.D.	Director	November 19, 1999
* ----- Eileen M. More	Director	November 19, 1999
* ----- R. Douglas Norby	Director	November 19, 1999
* ----- Alvin S. Parven	Director	November 19, 1999

*By:

/s/ LEONARD BELL

Leonard Bell, M.D.
AS ATTORNEY-IN-FACT

EXHIBIT INDEX

EXHIBIT
NUMBER

EXHIBIT

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23.2	Consent of Arthur Andersen LLP, Independent Auditors.
24.1	Power of Attorney (included in signature page).*

* Previously filed.

ALEXION PHARMACEUTICALS, INC.
COMMON STOCK, PAR VALUE \$0.0001 PER SHARE
PURCHASE AGREEMENT

_____, 199____

U.S. BANCORP PIPER JAFFRAY
HAMBRECHT & QUIST LLC
As Representatives of the several
Underwriters named in Schedule I hereto
c/o U.S. Bancorp Piper Jaffray
Piper Jaffray Tower
222 South Ninth Street
Minneapolis, Minnesota 55402

Ladies and Gentlemen:

Alexion Pharmaceuticals, Inc., a Delaware corporation (the "Company"), proposes to sell to the several Underwriters named in Schedule I hereto (the "Underwriters") an aggregate of 2,500,000 shares (the "Firm Shares") of Common Stock, \$0.0001 par value per share (the "Common Stock"), of the Company. The Firm Shares consist of 2,500,000 authorized but unissued shares of Common Stock to be issued and sold by the Company. The Company has also granted to the several Underwriters an option to purchase up to 375,000 additional shares of Common Stock on the terms and for the purposes set forth in Section 3 hereof (the "Option Shares"). The Firm Shares and any Option Shares purchased pursuant to this Purchase Agreement are herein collectively called the "Securities."

The Company hereby confirms its agreement with respect to the sale of the Securities to the several Underwriters, for whom you are acting as Representatives (the "Representatives").

1. REGISTRATION STATEMENT AND PROSPECTUS. A registration statement on Form S-3 (File No. 333-89343) with respect to the Securities, including a preliminary form of prospectus, has been prepared by the Company in conformity with the requirements of the Securities Act of 1933, as amended (the "Act"), and the rules and regulations ("Rules and Regulations") of the Securities and Exchange Commission (the "Commission") thereunder and has been filed with the Commission; one or more amendments to such registration statement have also been so prepared and have been, or will be, so filed; and, if the Company has elected to rely upon Rule 462(b) of the Rules and Regulations to increase the size of the offering registered under the Act, the Company will prepare and file with the Commission a registration statement with respect to such increase pursuant to Rule 462(b). Copies of such registration statement(s) and amendments and each related preliminary prospectus have been delivered to you.

If the Company has elected not to rely upon Rule 430A of the Rules and Regulations, the Company has prepared and will promptly file an amendment to the registration statement and an amended prospectus (including a term sheet meeting the requirements of Rule 434 of the Rules and Regulations). If the Company has elected to rely upon Rule 430A of the Rules and Regulations, it will prepare and file

a prospectus (or a term sheet meeting the requirements of Rule 434) pursuant to Rule 424(b) that discloses the information previously omitted from the prospectus in reliance upon Rule 430A. Such registration statement as amended at the time it is or was declared effective by the Commission, and, in the event of any amendment thereto after the effective date and prior to the First Closing Date (as hereinafter defined), such registration statement as so amended (but only from and after the effectiveness of such amendment), including a registration statement (if any) filed pursuant to Rule 462(b) of the Rules and Regulations increasing the size of the offering registered under the Act and information (if any) deemed to be part of the registration statement at the time of effectiveness pursuant to Rules 430A(b) and 434(d) of the Rules and Regulations, is hereinafter called the "Registration Statement." The prospectus included in the Registration Statement at the time it is or was declared effective by the Commission is hereinafter called the "Prospectus," except that if any prospectus (including any term sheet meeting the requirements of Rule 434 of the Rules and Regulations provided by the Company for use with a prospectus subject to completion within the meaning of Rule 434 in order to meet the requirements of Section 10(a) of the Rules and Regulations) filed by the Company with the Commission pursuant to Rule 424(b) (and Rule 434, if applicable) of the Rules and Regulations or any other such prospectus provided to the Underwriters by the Company for use in connection with the offering of the Securities (whether or not required to be filed by the Company with the Commission pursuant to Rule 424(b) of the Rules and Regulations) differs from the prospectus on file at the time the Registration Statement is or was declared effective by the Commission, the term "Prospectus" shall refer to such differing prospectus (including any term sheet within the meaning of Rule 434 of the Rules and Regulations) from and after the time such prospectus is filed with the Commission or transmitted to the Commission for filing pursuant to such Rule 424(b) (and Rule 434, if applicable) or from and after the time it is first provided to the Underwriters by the Company for such use. The term "Preliminary Prospectus" as used herein means any preliminary prospectus included in the Registration Statement prior to the time it becomes or became effective under the Act and any prospectus subject to completion as described in Rule 430A or 434 of the Rules and Regulations.

2. REPRESENTATIONS AND WARRANTIES OF THE COMPANY.

(a) The Company represents and warrants to, and agrees with, the several Underwriters as follows:

(i) No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission and each Preliminary Prospectus, at the time of filing thereof, did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; except that the foregoing shall not apply to statements in or omissions from any Preliminary Prospectus in reliance upon, and in conformity with, written information furnished to the Company by you, or by any Underwriter through you, specifically for use in the preparation thereof.

(ii) As of the time the Registration Statement (or any post-effective amendment thereto, including a registration statement (if any) filed pursuant to Rule 462(b) of the Rules and Regulations increasing the size of the offering registered under the Act) is or was declared effective by the Commission, upon the filing or first delivery to the Underwriters of the Prospectus (or any supplement to the Prospectus (including any term sheet meeting the requirements of Rule 434 of the Rules and Regulations)) and at the First Closing Date and Second Closing Date (as hereinafter defined), (A) the Registration Statement and Prospectus (in each case, as so amended and/or supplemented) conformed or will conform in all material

respects to the requirements of the Act and the Rules and Regulations, (B) the Registration Statement (as so amended) did not or will not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and (C) the Prospectus (as so supplemented) did not or will not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances in which they are or were made, not misleading; except that the foregoing shall not apply to statements in or omissions from any such document in reliance upon, and in conformity with, written information furnished to the Company by you, or by any Underwriter through you, specifically for use in the preparation thereof. If the Registration Statement has been declared effective by the Commission, no stop order suspending the effectiveness of the Registration Statement has been issued, and no proceeding for that purpose has been initiated or, to the Company's knowledge, threatened by the Commission.

(iii) The financial statements of the Company, together with the notes thereto, set forth in the Registration Statement and Prospectus comply in all material respects with the requirements of the Act and fairly present the financial condition of the Company as of the dates indicated and the results of operations and changes in cash flows for the periods therein specified in conformity with generally accepted accounting principles consistently applied throughout the periods involved (except as otherwise stated therein); and the supporting schedules included in the Registration Statement present fairly the information required to be stated therein. No other financial statements or schedules are required to be included in the Registration Statement or Prospectus. Arthur Andersen LLP, which has expressed its opinion with respect to the audited consolidated financial statements filed as a part of the Registration Statement and included in the Registration Statement and Prospectus, are independent public accountants as required by the Act and the Rules and Regulations.

(iv) Each of the Company and its subsidiaries has been duly organized and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation. Each of the Company and its subsidiaries has full corporate power and authority to own its properties and conduct its business as currently being carried on and as described in the Registration Statement and Prospectus, and is duly qualified to do business as a foreign corporation in good standing in each jurisdiction in which it owns or leases real property or in which the conduct of its business makes such qualification necessary and in which the failure to so qualify would have a material adverse effect upon its business, condition (financial or otherwise) or properties, taken as a whole.

(v) Except as contemplated in the Prospectus, subsequent to the respective dates as of which information is given in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries has incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock; and there has not been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise of outstanding options or warrants), or any material change in the short-term or long-term debt, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock, of the Company or any of its subsidiaries, or any material adverse change, or any development involving a prospective material adverse change, in the general affairs, condition (financial or otherwise), business, key personnel, property, net worth or results of operations of the Company and its subsidiaries, taken as a whole.

(vi) Except as set forth in the Prospectus, there is not pending or, to the knowledge of the Company, threatened or contemplated, any action, suit or proceeding to which the Company or any of its subsidiaries is a party before or by any court or governmental agency, authority or body, or any arbitrator, which might result in any material adverse change in the condition (financial or otherwise), business, net worth or results of operations of the Company and its subsidiaries, taken as a whole.

(vii) There are no contracts or documents of the Company or any of its subsidiaries that are required to be filed as exhibits to the Registration Statement by the Act or by the Rules and Regulations that have not been so filed.

(viii) This Agreement has been duly authorized, executed and delivered by the Company, and constitutes a valid, legal and binding obligation of the Company, enforceable in accordance with its terms, except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting the rights of creditors generally and subject to general principles of equity. The execution, delivery and performance of this Agreement by the Company and the consummation by the Company of the transactions herein contemplated will not result in a breach or violation of any of the terms and provisions of, or constitute a default under, any statute, any agreement or instrument to which the Company is a party or by which it is bound or to which any of its property is subject, the Company's charter or by-laws, or any order, rule, regulation or decree of any court or governmental agency or body having jurisdiction over the Company or any of its properties; no consent, approval, authorization or order of, or filing with, any court or governmental agency or body is required for the execution, delivery and performance of this Agreement by the Company or for the consummation by the Company of the transactions contemplated hereby, including the issuance or sale of the Securities by the Company, except such as may be required under the Act or state securities or blue sky laws; or in connection with the review and of the offering with the National Association of Securities Dealers (the "NASD") and the Company has full power and authority to enter into this Agreement and to authorize, issue and sell the Securities as contemplated by this Agreement.

(ix) All of the issued and outstanding shares of capital stock of the Company, including the outstanding shares of Common Stock, are duly authorized and validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state securities laws, were not issued in violation of or subject to any preemptive rights or other rights to subscribe for or purchase securities, and the holders thereof are not subject to personal liability by reason of being such holders; the Securities which may be sold hereunder by the Company have been duly authorized and, when issued, delivered and paid for in accordance with the terms hereof, will have been validly issued and will be fully paid and nonassessable, and the holders thereof will not be subject to personal liability by reason of being such holders; and the capital stock of the Company, including the Common Stock, conforms to the description thereof in the Registration Statement and Prospectus. There are no preemptive rights or other rights to subscribe for or to purchase, or any restriction upon the voting or transfer of, any shares of Common Stock pursuant to the Company's charter, by-laws or any agreement or other instrument to which the Company is a party or by which the Company is bound. Except as otherwise stated in the Registration Statement and Prospectus, neither the filing of the Registration Statement nor the offering or sale of the Securities as contemplated by this Agreement gives rise to any rights for or relating to

the registration of any shares of Common Stock or other securities of the Company, which have not been waived. All of the issued and outstanding shares of capital stock of each of the Company's subsidiaries have been duly and validly authorized and issued and are fully paid and nonassessable, and, except as otherwise described in the Registration Statement and Prospectus and except for any directors' qualifying shares, the Company owns of record and beneficially, free and clear of any security interests, claims, liens, proxies, equities or other encumbrances, all of the issued and outstanding shares of such stock. Except as described in the Registration Statement and the Prospectus, there are no options, warrants, agreements, contracts or other rights in existence to purchase or acquire from the Company or any subsidiary of the Company any shares of the capital stock of the Company or any subsidiary of the Company. The Company has an authorized and outstanding capitalization as set forth in the Registration Statement and the Prospectus.

(x) The Company and each of its subsidiaries holds, and is operating in compliance in all material respects with, all franchises, grants, authorizations, licenses, permits, easements, consents, certificates and orders of any governmental or self-regulatory body required for the conduct of its business (including those required by the U.S. Food and Drug Administration, the U.S. Nuclear Regulatory Commission and any federal, state or foreign agencies or bodies engaged in the regulation of pharmaceuticals or biohazardous substances) and all such franchises, grants, authorizations, licenses, permits, easements, consents, certifications and orders are valid and in full force and effect; and the Company and each of its subsidiaries is in compliance in all material respects with all applicable federal, state, local and foreign laws, regulations, orders and decrees; the Company has not received any notice of proceedings relating to the revocation or modification of any such franchises, grants, authorizations, licenses, permits, easements, consents, certifications and orders, which singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, could result in a material adverse effect on the Company.

(xi) The Company and its subsidiaries have good and marketable title to all property described in the Registration Statement and Prospectus as being owned by them, in each case free and clear of all liens, claims, security interests or other encumbrances except such as are described in the Registration Statement and the Prospectus; the property held under lease by the Company and its subsidiaries is held by them under valid, subsisting and enforceable leases with only such exceptions with respect to any particular lease as do not interfere in any material respect with the conduct of the business of the Company or its subsidiaries.

(xii) The Company and each of its subsidiaries owns or possesses or has licenses to use all patents, patent applications, trademarks, service marks, tradenames, trademark registrations, service mark registrations, copyrights, licenses, inventions, trade secrets and (such patents referred to herein as the "Patents" and all of such intellectual property referred to collectively as the "Intellectual Property") rights necessary for the conduct of the business of the Company and its subsidiaries as currently carried on and as described in the Registration Statement and Prospectus; except as stated in the Registration Statement and Prospectus, to the Company's knowledge, no name which the Company or any of its subsidiaries uses and no other aspect of the business of the Company or any of its subsidiaries as conducted on the date hereof involves or gives rise to any infringement of, or license or similar fees for, any patents, patent applications, trademarks, service marks, tradenames, trademark registrations, service mark registrations, copyrights, licenses, inventions, trade secrets or other similar rights of others material to the business of the Company and neither the Company nor any of its subsidiaries has

received any notice alleging any such infringement or fee. The Company has duly and properly filed or caused to be filed with the U.S. Patent and Trademark Office (the "PTO") and applicable foreign and international patent authorities all patent applications described in the Registration Statement and the Prospectus (the "Patent Applications"); in connection with the filing of the Patent Applications, the Company conducted reasonable investigations of the published literature and patent references relating to the inventions claimed in such applications; to the best of the Company's knowledge, it has complied with the PTO's duty of candor and disclosure for the Patent Applications and has made no misrepresentation in the Patent Applications; the Company is not aware of any facts material to a determination of patentability regarding the Patent Applications not called to the attention of the PTO which would preclude the grant of a patent for the Patent Applications; and the Company has no knowledge of any facts which would preclude it from having clear title to the Patent Applications.

(xiii) Neither the Company nor any of its subsidiaries is in violation of its respective charter or by-laws or in breach of or otherwise in default in the performance of any material obligation, agreement or condition contained in any bond, debenture, note, indenture, loan agreement or any other material contract, lease or other instrument to which it is subject or by which any of them may be bound, or to which any of the material property or assets of the Company or any of its subsidiaries is subject.

(xiv) The Company and its subsidiaries have filed all federal, state, local and foreign income and franchise tax returns required to be filed and are not in default in the payment of any taxes which were payable pursuant to said returns or any assessments with respect thereto, other than any which the Company or any of its subsidiaries is contesting in good faith or which could result in a material adverse effect on the financial condition of the Company.

(xv) The Company has not distributed and will not distribute any prospectus or other offering material in connection with the offering and sale of the Securities other than any Preliminary Prospectus or the Prospectus or other materials permitted by the Act to be distributed by the Company.

(xvi) All necessary filings shall have been made and all filing fees shall have been paid to effect the listing of the Securities on the Nasdaq National Market.

(xvii) Other than Columbus Farming Corporation ("CFC") and Biotechnology Research and Development Corporation, the Company owns no capital stock or other equity or ownership or proprietary interest in any corporation, partnership, association, trust or other entity.

(xviii) The Company maintains a system of internal accounting controls sufficient to provide reasonable assurances that (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(xix) Other than as contemplated by this Agreement, the Company has not incurred any liability for any finder's or broker's fee or agent's commission in connection with

the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby.

(xx) Arthur Andersen LLP are, and during the periods covering their report included in the Registration Statement and Prospectus were independent accountants with respect to the Company as required by the Securities Act. The audited financial statements of the Company (together with the related notes thereto) included in and incorporated by reference in the Registration Statement present fairly in all material respects the financial position and results of operations of the Company at the respective dates and for the respective periods to which they apply, subject to normal year-end adjustments. Such financial statements (together with the related notes thereto) have been prepared in accordance with generally accepted accounting principles consistently applied throughout the periods involved.

(xxi) The Company has reviewed its operations to evaluate the extent to which the business or operations of the Company will be affected materially by a significant risk that computer hardware or software applications used by the Company will not, in the case of dates or time period occurring after December 31, 1999, function at least as effectively as in the case of dates or time periods prior to January 1, 2000 (the "Y2K Problem"); as a result of such review (a) the Company has no reason to believe, and does not believe, that there are any issues related to the Company's preparedness to address the Y2K Problem that are of a character required to be described or referred to in the Registration Statement or Prospectus which have not been accurately described in the Registration Statement or Prospectus and (b) the Company reasonably believes that the suppliers, vendors, customers or other material third parties used or served by the Company are addressing or will address the Y2K Problem in a timely manner, except to the extent that a failure to address the Y2K Problem by any supplier, vendor, customer or material third party would not have a material adverse effect on the Company.

(xxii) Neither the Company nor any of its affiliates is presently doing business with the government of Cuba or with any person or affiliate located in Cuba.

(b) Any certificate signed by any officer of the Company and delivered to you or to counsel for the Underwriters shall be deemed a representation and warranty by the Company to each Underwriter as to the matters covered thereby.

3. PURCHASE, SALE AND DELIVERY OF SECURITIES.

(a) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell 2,500,000 Firm Shares to the several Underwriters, and each Underwriter agrees, severally and not jointly, to purchase from the Company the Firm Shares. The purchase price for each Firm Share shall be \$ per share. The obligation of each Underwriter to the Company shall be to purchase from the Company that number of Firm Shares (to be adjusted by the Representatives to avoid fractional shares) which represents the same proportion of the number of Firm Shares to be sold by the Company pursuant to this Agreement as the number of Firm Shares set forth opposite the name of such Underwriter in Schedule I hereto represents to the total number of Firm Shares to be purchased by all Underwriters pursuant to this Agreement. In making this Agreement, each Underwriter is contracting severally and not jointly; except as provided in paragraph (c) of this Section 3 and in Section 8 hereof, the agreement of each Underwriter is to purchase only the respective number of Firm Shares specified in Schedule I.

The Firm Shares will be delivered by the Company to you for the accounts of the several Underwriters against payment of the purchase price therefor by same day funds payable to the order of the Company, as appropriate, at the offices of U.S. Bancorp Piper Jaffray, Piper Jaffray Tower, 222 South Ninth Street, Minneapolis, Minnesota, or such other location as may be mutually acceptable, at 9:00 a.m. Central time on the third (or if the Securities are priced, as contemplated by Rule 15c6-1(c) under the Exchange Act, after 4:30 p.m. Eastern time, the fourth) full business day following the date hereof, or at such other time and date as you and the Company determine pursuant to Rule 15c6-1(a) under the Exchange Act, such time and date of delivery being herein referred to as the "First Closing Date." If the Representatives so elect, delivery of the Firm Shares may be made by credit through full fast transfer to the accounts at The Depository Trust Company designated by the Representatives. Certificates representing the Firm Shares, in definitive form and in such denominations and registered in such names as you may request upon at least two business days' prior notice to the Company, will be made available for checking and packaging not later than 10:30 a.m., Central time, on the business day next preceding the First Closing Date at the offices of U.S. Bancorp Piper Jaffray, Piper Jaffray Tower, 222 South Ninth Street, Minneapolis, Minnesota, or such other location as may be mutually acceptable.

(b) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company, with respect to 375,000 Option Shares hereby grants to the several Underwriters an option to purchase all or any portion of the Option Shares at the same purchase price as the Firm Shares, for use solely in covering any over-allotments made by the Underwriters in the sale and distribution of the Firm Shares. The option granted hereunder may be exercised at any time (but not more than once) within 30 days after the effective date of this Agreement upon notice (confirmed in writing) by the Representatives to the Company and to the Attorneys-in-Fact setting forth the aggregate number of Option Shares as to which the several Underwriters are exercising the option, the names and denominations in which the certificates for the Option Shares are to be registered and the date and time, as determined by you, when the Option Shares are to be delivered, such time and date being herein referred to as the "Second Closing" and "Second Closing Date", respectively; provided, however, that the Second Closing Date shall not be earlier than the First Closing Date nor earlier than the second business day after the date on which the option shall have been exercised. The number of Option Shares to be purchased by each Underwriter shall be the same percentage of the total number of Option Shares to be purchased by the several Underwriters as the number of Firm Shares to be purchased by such Underwriter is of the total number of Firm Shares to be purchased by the several Underwriters, as adjusted by the Representatives in such manner as the Representatives deem advisable to avoid fractional shares. No Option Shares shall be sold and delivered unless the Firm Shares previously have been, or simultaneously are, sold and delivered.

The Option Shares will be delivered by the Company to you for the accounts of the several Underwriters against payment of the purchase price therefor by same day funds payable to the order of the Company, at the offices of U.S. Bancorp Piper Jaffray, Piper Jaffray Tower, 222 South Ninth Street, Minneapolis, Minnesota, or such other location as may be mutually acceptable at 9:00 a.m., Central time, on the Second Closing Date. If the Representatives so elect, delivery of the Option Shares may be made by credit through full fast transfer to the accounts at The Depository Trust Company designated by the Representatives. Certificates representing the Option Shares in definitive form and in such denominations and registered in such names as you have set forth in your notice of option exercise, will be made available for checking and packaging not later than 10:30 a.m., Central time, on the business day next preceding the Second Closing Date at the office of U.S. Bancorp Piper Jaffray, Piper Jaffray Tower, 222 South Ninth Street, Minneapolis, Minnesota, or such other location as may be mutually acceptable.

(c) It is understood that you, individually and not as Representatives of the several

Underwriters, may (but shall not be obligated to) make payment to the Company, on behalf of any Underwriter for the Securities to be purchased by such Underwriter. Any such payment by you shall not relieve any such Underwriter of any of its obligations hereunder. Nothing herein contained shall constitute any of the Underwriters an unincorporated association or partner with the Company.

4. COVENANTS.

(a) The Company covenants and agrees with the several Underwriters as follows:

(i) If the Registration Statement has not already been declared effective by the Commission, the Company will use its best efforts to cause the Registration Statement and any post-effective amendments thereto to become effective as promptly as possible; the Company will notify you promptly of the time when the Registration Statement or any post-effective amendment to the Registration Statement has become effective or any supplement to the Prospectus (including any term sheet within the meaning of Rule 434 of the Rules and Regulations) has been filed and of any request by the Commission for any amendment or supplement to the Registration Statement or Prospectus or additional information; if the Company has elected to rely on Rule 430A of the Rules and Regulations, the Company will prepare and file a Prospectus (or term sheet within the meaning of Rule 434 of the Rules and Regulations) containing the information omitted therefrom pursuant to Rule 430A of the Rules and Regulations with the Commission within the time period required by, and otherwise in accordance with the provisions of, Rules 424(b), 430A and 434, if applicable, of the Rules and Regulations; if the Company has elected to rely upon Rule 462(b) of the Rules and Regulations to increase the size of the offering registered under the Act, the Company will prepare and file a registration statement with respect to such increase with the Commission within the time period required by, and otherwise in accordance with the provisions of, Rule 462(b); the Company will prepare and file with the Commission, promptly upon your request, any amendments or supplements to the Registration Statement or Prospectus (including any term sheet within the meaning of Rule 434 of the Rules and Regulations) that, in your opinion, may be necessary or advisable in connection with the distribution of the Securities by the Underwriters; and the Company will not file any amendment or supplement to the Registration Statement or Prospectus (including any term sheet within the meaning of Rule 434 of the Rules and Regulations) to which you shall reasonably object by notice to the Company after having been furnished a copy a reasonable time prior to the filing.

(ii) The Company will advise you, promptly after it shall receive notice or obtain knowledge thereof, of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement, of the suspension of the qualification of the Securities for offering or sale in any jurisdiction, or of the initiation or threatening of any proceeding for any such purpose; and the Company will promptly use its best efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued.

(iii) Within the time during which a prospectus (including any term sheet within the meaning of Rule 434 of the Rules and Regulations) relating to the Securities is required to be delivered under the Act, the Company will comply as far as it is able with all requirements imposed upon it by the Act, as now and hereafter amended, and by the Rules and Regulations, as from time to time in force, so far as necessary to permit the continuance of sales of or dealings in the Securities as contemplated by the provisions hereof and the Prospectus. If during such period any event occurs as a result of which the Prospectus would include an untrue

statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend the Registration Statement or supplement the Prospectus to comply with the Act, the Company will promptly notify you and will amend the Registration Statement or supplement the Prospectus (at the expense of the Company) so as to correct such statement or omission or effect such compliance.

(iv) The Company will use its best efforts to qualify the Securities for sale under the securities laws of such jurisdictions as you reasonably designate and to continue such qualifications in effect so long as required for the distribution of the Securities, except that the Company shall not be required in connection therewith to qualify as a foreign corporation or to execute a general consent to service of process in any state.

(v) The Company will furnish to the Underwriters copies of the Registration Statement (one of which will be signed and will include all exhibits), each Preliminary Prospectus, the Prospectus, and all amendments and supplements (including any term sheet within the meaning of Rule 434 of the Rules and Regulations) to such documents, in each case as soon as available and in such quantities as you may from time to time reasonably request.

(vi) During a period of two years commencing with the date hereof, the Company will furnish to the Representatives, and to each Underwriter who may so request in writing, copies of all periodic and special reports furnished to the stockholders of the Company and all information, documents and reports filed with the Commission, the National Association of Securities Dealers, Inc., or any securities exchange.

(vii) The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement (which need not be audited) covering a 12-month period beginning after the effective date of the Registration Statement that shall satisfy the provisions of Section 11(a) of the Act and Rule 158 of the Rules and Regulations.

(viii) The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is prevented from becoming effective under the provisions of Section 9(a) hereof or is terminated, will pay or cause to be paid, upon receipt of a reasonably detailed accounting, (A) all expenses (including transfer taxes allocated to the respective transferees) incurred in connection with the delivery to the Underwriters of the Securities, (B) all expenses and fees (including, without limitation, fees and expenses of the Company's accountants and counsel but, except as otherwise provided below, not including fees of the Underwriters' counsel) in connection with the preparation, printing, filing, delivery, and shipping of the Registration Statement (including the financial statements therein and all amendments, schedules, and exhibits thereto), the Securities, each Preliminary Prospectus, the Prospectus, and any amendment thereof or supplement thereto, and the printing, delivery, and shipping of this Agreement and other underwriting documents, including Blue Sky Memoranda, (C) all filing fees and fees and disbursements of the Underwriters' counsel incurred in connection with the qualification of the Securities for offering and sale by the Underwriters or by dealers under the securities or blue sky laws of the states and other jurisdictions which you shall designate in accordance with Section 4(d) hereof, (D) the fees and expenses of any transfer agent or registrar, (E) the filing fees incident to any required review by the National Association of Securities Dealers, Inc. of the terms of the sale of the Securities, (F) listing fees, if any, and (G) all other

costs and expenses incident to the performance of its obligations hereunder that are not otherwise specifically provided for herein. If the sale of the Securities provided for herein is not consummated by reason of action by the Company pursuant to Section 9(a) hereof which prevents this Agreement from becoming effective, or by reason of any failure, refusal or inability on the part of the Company to perform any agreement on its part to be performed, or because any other condition of the Underwriters' obligations hereunder required to be fulfilled by the Company is not fulfilled, upon receipt of a reasonably detailed accounting, the Company will reimburse the several Underwriters for all out-of-pocket disbursements (including fees and disbursements of counsel) incurred by the Underwriters in connection with their investigation, preparing to market and marketing the Securities or in contemplation of performing their obligations hereunder. The Company shall not in any event be liable to any of the Underwriters for loss of anticipated profits from the transactions covered by this Agreement.

(ix) The Company will apply the net proceeds from the sale of the Securities to be sold by it hereunder for the purposes set forth in the Prospectus and will file such reports with the Commission with respect to the sale of the Securities and the application of the proceeds therefrom as may be required in accordance with Rule 463 of the Rules and Regulations.

(x) The Company will not, without your prior written consent, offer for sale, sell, contract to sell, grant any option for the sale of or otherwise issue or dispose of any Common Stock or any securities convertible into or exchangeable for, or any options or rights to purchase or acquire, Common Stock, except to the Underwriters pursuant to this Agreement, for a period of 90 days after the commencement of the public offering of the Securities by the Underwriters.

(xi) The Company either has caused to be delivered to you or will cause to be delivered to you prior to the effective date of the Registration Statement a letter from each of the Company's directors and officers and holders of 5% or greater of the Company's Common Stock prior to the offering stating that such person agrees that he or she will not, without your prior written consent, offer for sale, sell, contract to sell or otherwise dispose of any shares of Common Stock or rights to purchase Common Stock for a period of 90 days after commencement of the public offering of the Securities by the Underwriters.

(xii) The Company has not taken and will not take, directly or indirectly, any action designed to or which might reasonably be expected to cause or result in, or which has constituted, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities, and has not effected any sales of Common Stock which are required to be disclosed in response to Item 701 of Regulations S-K under the Act which have not been so disclosed in the Registration Statement other than those described under the Company's Exchange Act filings.

(xiii) Except as contemplated by this Agreement, the Company will not incur any liability for any finder's or broker's fee or agent's commission in connection with the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby.

(xiv) The Company will inform the Florida Department of Banking and Finance at any time prior to the consummation of the distribution of the Securities by the Underwriters if it commences engaging in business with the government of Cuba or with any person or affiliate located in Cuba. Such information will be provided within 90 days after the commencement thereof or after a change occurs with respect to previously reported information.

5. CONDITIONS OF UNDERWRITERS' OBLIGATIONS. The obligations of the several Underwriters hereunder are subject to the accuracy, as of the date hereof and at each of the First Closing Date and the Second Closing Date (as if made at such Closing Date), of and compliance with all representations, warranties and agreements of the Company contained herein, to the performance by the Company of its obligations hereunder and to the following additional conditions:

(a) The Registration Statement shall have become effective not later than 5:00 p.m., Central time, on the date of this Agreement, or such later time and date as you, as Representatives of the several Underwriters, shall approve and all filings required by Rules 424, 430A and 434 of the Rules and Regulations shall have been timely made; no stop order suspending the effectiveness of the Registration Statement or any amendment thereof shall have been issued; no proceedings for the issuance of such an order shall have been initiated or threatened; and any request of the Commission for additional information (to be included in the Registration Statement or the Prospectus or otherwise) shall have been complied with to your satisfaction.

(b) No Underwriter shall have advised the Company that the Registration Statement or the Prospectus, or any amendment thereof or supplement thereto (including any term sheet within the meaning of Rule 434 of the Rules and Regulations), contains an untrue statement of fact which, in your opinion, is material, or omits to state a fact which, in your opinion, is material and is required to be stated therein or necessary to make the statements therein not misleading.

(c) Except as contemplated in the Prospectus, subsequent to the respective dates as of which information is given in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries shall have incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock; and there shall not have been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise of outstanding options or warrants), or any material change in the short-term or long-term debt of the Company, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock of the Company or any of its subsidiaries, or any material adverse change or any development involving a prospective material adverse change (whether or not arising in the ordinary course of business), in the general affairs, condition (financial or otherwise), business, key personnel, property, net worth or results of operations of the Company and its subsidiaries, taken as a whole, that, in your judgment, makes it impractical or inadvisable to offer or deliver the Securities on the terms and in the manner contemplated in the Prospectus.

(d) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, the opinion of Fulbright & Jaworski L.L.P., counsel for the Company, dated such Closing Date and addressed to you, to the effect that:

(i) Each of the Company and CFC has been duly organized and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation. Each of the Company and CFC has full corporate power and authority to own its properties and conduct its business as currently being carried on and as described in the Registration Statement and Prospectus, and the Company is duly qualified to do business as a foreign corporation and is in good standing in Connecticut.

(ii) The capital stock of the Company conforms as to legal matters to the

description thereof contained in the Prospectus under the caption "Description of Capital Stock." All of the issued and outstanding shares of the capital stock of the Company have been duly authorized and validly issued and are fully paid and nonassessable, and the holders thereof are not subject to personal liability by reason of being such holders. The Securities to be issued and sold by the Company hereunder have been duly authorized and, when issued, delivered and paid for in accordance with the terms of this Agreement, will have been validly issued and will be fully paid and nonassessable, and the holders thereof will not be subject to personal liability by reason of being such holders. Except as otherwise stated in the Registration Statement and Prospectus, there are no preemptive rights or other rights to subscribe for or to purchase, or any restriction upon the voting or transfer of, any shares of Common Stock pursuant to the Company's charter, by-laws or any agreement or other instrument known to such counsel to which the Company is a party or by which the Company is bound. To the best of such counsel's knowledge, neither the filing of the Registration Statement nor the offering or sale of the Securities as contemplated by this Agreement gives rise to any rights for or relating to the registration of any shares of Common Stock or other securities of the Company, except those rights which have been waived.

(iii) All of the issued and outstanding shares of capital stock of CFC have been duly and validly authorized and issued and are fully paid and nonassessable, and, to the best of such counsel's knowledge, the Company owns of record and beneficially, free and clear of any security interests, claims, liens, proxies, equities or other encumbrances, all of the issued and outstanding shares of such stock. To the best of such counsel's knowledge, except as described in the Registration Statement and Prospectus, there are no options, warrants, agreements, contracts or other rights in existence to purchase or acquire from the Company or CFC any shares of the capital stock of the Company or CFC.

(iv) The Registration Statement has become effective under the Act and, to the best of such counsel's knowledge, no stop order suspending the effectiveness of the Registration Statement has been issued and no proceeding for that purpose has been instituted or, to the knowledge of such counsel, threatened by the Commission.

(v) The descriptions in the Registration Statement and Prospectus of statutes, legal and governmental proceedings, contracts and other documents fairly present in all material respects the information required to be shown; and such counsel does not know of any statutes or legal or governmental proceedings required to be described in the Prospectus that are not described as required, or of any contracts or documents of a character required to be described in the Registration Statement or Prospectus or included as exhibits to the Registration Statement that are not described or included as required.

(vi) The Company has full corporate power and authority to enter into this Agreement, and this Agreement has been duly authorized, executed and delivered by the Company and constitutes a valid, legal and binding obligation of the Company enforceable in accordance with its terms (except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting the rights of creditors generally and subject to general principles of equity); the execution, delivery and performance of this Agreement by the Company and the consummation by the Company of the transactions herein contemplated will not result in a breach or violation of any of the terms and provisions of, or constitute a default under, any statute, rule or regulation, any agreement or instrument known to such counsel to which the

Company is a party or by which it is bound or to which any of its property is subject, the Company's charter or by-laws, or any order or decree known to such counsel of any court or governmental agency or body having jurisdiction over the Company or any of its respective properties; and no consent, approval, authorization or order of, or filing with, any court or governmental agency or body is required for the execution, delivery and performance of this Agreement by the Company or for the consummation by the Company of the transactions contemplated hereby, including the issuance or sale of the Securities by the Company, except such as may be required under the Act or state securities laws or in connection with the review and clearance of the offering with the NASD.

(vii) To the best of such counsel's knowledge, the Company and each of its subsidiaries holds, and is operating in compliance in all material respects with, all franchises, grants, authorizations, licenses, permits, easements, consents, certificates and orders of any governmental or self-regulatory body required for the conduct of its business and all such franchises, grants, authorizations, licenses, permits, easements, consents, certifications and orders are valid and in full force and effect.

(viii) To the best of such counsel's knowledge, neither the Company nor any of its subsidiaries is in violation of its respective charter or material provisions of by laws. To the best of such counsel's knowledge, neither the Company nor any of its subsidiaries is in breach of or otherwise in default in the performance of any material obligation, agreement or condition contained in any bond, debenture, note, indenture, loan agreement or any other material contract, lease or other instrument to which it is subject or by which any for them may be bound, or to which any of the material property or assets of the Company or any of its subsidiaries is subject.

(ix) The Registration Statement and the Prospectus, and any amendment thereof or supplement thereto (including any term sheet within the meaning of Rule 434 of the Rules and Regulations), comply as to form in all material respects with the requirements of the Act and the Rules and Regulations.

In addition, such counsel shall state that in the course of the preparation of the Registration Statement and the Prospectus, such counsel has participated in conferences with officers and other representatives of the Company, representatives of the independent accountants of the Company, representatives of the Underwriters and representatives of counsel for the Underwriters, at which the contents of the Registration Statement and the Prospectus and related matters were discussed and at which such counsel inquired of the representatives of the Company as to the materiality of the facts disclosed to such counsel and, although such counsel does not pass upon, and does not assume any responsibility for, the accuracy, completeness or fairness of any statement contained in the Registration Statement or the Prospectus and such counsel has made no independent check or verification thereof, based in part upon the foregoing, (relying as to materiality to a large extent upon the officers and representatives of the Company), no facts have come to such counsel's attention that have led such counsel to believe that the Registration Statement (except as to the financial statements and notes thereto and other financial and statistical data included therein as to which such counsel need not express any opinion or belief,) as of the date of effectiveness contained an untrue statement of material fact or omitted to state any material fact required to be stated therein or necessary in order to make the statements therein not misleading or that the Prospectus (except as to the financial statements and the notes thereto and other financial data included therein or excluded therefrom as to which such counsel need not express any opinion or belief), as of its date or as of the date of such opinion, contained or contains an untrue statement of material fact or omitted or omits to state a material fact necessary in order to make the

statements therein, in light of the circumstances under which they were made, not misleading. Notwithstanding anything herein to the contrary, it is understood and agreed that other counsel to the Company are rendering opinions with respect to (i) the sections of the Prospectus entitled "Risk Factors - Risks Related to Our Business - If we are unable to protect our proprietary technology, we may be unable to compete effectively." and "Business - Patents and Proprietary Rights" and (ii) the sections of the Prospectus entitled "Risk Factors - Risks Related to Our Business - If we fail to obtain regulatory approval of our product candidates, or if regulatory approval is delayed for any reason, we will be unable to commercialize and sell our products as we expect," and "Business--Government Regulation," and no opinions are expressed herein with respect to such sections or matters.

In rendering any such opinion, such counsel may state that such counsel (i) expresses no opinion as to the laws of any jurisdiction other than the laws of the State of New York, the Delaware General Corporation Law and the federal laws of the United States, (ii) has assumed, without independent verification, that the laws of the State of Minnesota are identical in all respects to the laws of the State of New York, noting that the laws of the State of Minnesota are likely to differ from the laws of the State of New York with respect to the matters covered by such counsel's opinion, that even if such laws were the same as the laws of the State of New York, judicial interpretations thereto in Minnesota may differ from judicial interpretations by New York courts and that such differences may be material, and (iii) expresses no opinions concerning the Federal Food, Drug, and Cosmetic Act or related rules and regulations or any intellectual property laws, statutes, rules or other regulation.

In rendering such opinion such counsel may rely (i) as to matters of law other than New York, Delaware and federal law, upon the opinion or opinions of local counsel provided that the extent of such reliance is specified in such opinion and that such counsel shall state that although such counsel is not admitted to practice law in such jurisdiction, it has no reason to believe that they and you are not entitled to rely on such opinion and (ii) as to matters of fact, to the extent such counsel deems reasonable upon certificates of public officials and officers of the Company and its subsidiaries provided that the extent of such reliance is specified in such opinion.

(e) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, the opinion of Mark Farber, Esquire, special patent counsel for the Company, dated such Closing Date and addressed to you, to the effect that:

(i) such counsel represents the Company in certain matters relating to intellectual property, including patents, and is familiar with the technology used by the Company in its business and the manner of its use and has read the portions of the Registration Statement and the Prospectus entitled "BUSINESS--Patents and Proprietary Rights" and "RISK FACTORS--Risks Related to Our Business--If we are unable to protect our proprietary technology, we may not be able to compete effectively" (collectively, the "Patent Language");

(ii) the Patent Language contains accurate descriptions of the Company's Patents, Patent Applications and patents licensed to the Company and the statements in the Patent Language therein insofar as such statements constitute summaries of the legal matters, documents or proceedings referred to therein, fairly present the information called for with respect to such legal matters, documents and proceedings and fairly summarize the matters referred to therein;

(iii) such counsel has reviewed the Company's Patent Applications filed in the United States and outside the United States and in the opinion of such counsel, the Company's Patent Applications have been properly prepared and filed on behalf of the Company, and are being diligently pursued by the Company; the inventions described in the Company's Patent Applications are assigned or licensed to the Company; to such counsel's knowledge, no other entity or individual has any right or claim in any Company inventions or Company's Patent Applications made solely by the Company, or any patent to be issued therefrom, and in such counsel's opinion each of the Company's Patent Applications discloses patentable subject matter; to such counsel's knowledge, there are no legal or governmental proceedings pending (other than those related to the Patent Applications) relating to the Company, the claimed inventions of the Company's Patents or the Company's Intellectual Property, and to such counsel's knowledge, no such material proceedings are threatened or contemplated by governmental authorities or others;

(iv) such counsel has no knowledge of any facts which would preclude the Company from having valid license rights or clear title to the Company's Patents, and based on representations by the Company that no interests have been conveyed to third parties which have not been recorded in the PTO, the Company has clear record title to the Company's Patents free and clear of any liens or encumbrances that have been recorded with the PTO;

(v) to the best of such counsel's knowledge, the Company has complied with the PTO duty of candor and disclosure for each of the Company's patents, and such counsel has no knowledge that the Company lacks or will be unable to obtain any rights or licenses to use all Intellectual Property necessary for the conduct of its business as now proposed to be conducted by the Company as described in the Prospectus,

(vi) Except as disclosed in the Prospectus, such counsel has no knowledge of any facts material to a determination of patentability regarding the Company's Patent Applications not called to the attention of the PTO, and is unaware of any facts not called to the attention of the PTO which would preclude the grant of a patent for the Company's Patent Applications;

(vii) Except as disclosed in the Prospectus, such counsel is not aware of any basis for a finding of unenforceability or invalidity of any Company Intellectual Property, and (except as disclosed in the Prospectus) to the best of such counsel's knowledge, the Company has not received any notice of infringement of or conflict with rights or claims of others with respect to any Intellectual Property owned or used by the Company;

(viii) based on a review of the third party rights made known to counsel and discussion with Company scientific personnel, (except as disclosed in the Prospectus) such counsel has no knowledge of any patent rights of others which are or would be infringed by specific products or processes referred to in the Prospectus, which infringement, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, would result in any material adverse effect on the condition, financial or otherwise, or in the earnings, business or operations of the Company; and

(ix) such counsel (A) has no reason to believe that the Patent Language contained in the Registration Statement and the Prospectus included therein at the time the Registration Statement became effective contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading and (B) has no reason to believe that the Patent Language contained in the Prospectus contains any untrue statement of a material fact or omits to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

(f) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, the opinion of _____, special regulatory counsel for the Company, dated such Closing Date and addressed to you, to the effect that:

(i) such counsel represents the Company in certain matters relating to the United States Federal Food, Drug and Cosmetic Act (the "FFDC Act") and related governmental regulatory matters;

(ii) such counsel is familiar with the products under development and clinical testing by the Company and has read the portions of the Registration Statement and Prospectus entitled "BUSINESS--Government Regulation" and "RISK FACTORS-If we fail to obtain regulatory approval of our product candidates, or if regulatory approval is delayed for any reason, we will be unable to commercialize and sell our products" (collectively the "Regulatory Language"), and in such counsel's opinion, insofar as the Regulatory Language constitutes a description of the FFDC Act and FDA regulations or other requirements, the Regulatory Language is accurate and complete in all material respects and fairly presents such matters; and

(iii) such counsel (A) has no reason to believe that the Regulatory Language contained in the Registration Statement and the Prospectus included therein at the time the Registration Statement became effective contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading and (B) has no reason to believe that the Regulatory Language contained in the Prospectus contains any untrue statement of a material fact or omits to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

(g) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, such opinion or opinions from Morgan, Lewis & Bockius LLP, counsel for the several Underwriters, dated such Closing Date and addressed to you, with respect to the formation of the Company, the validity of the Securities, the Registration Statement, the Prospectus and other related matters as you reasonably may request, and such counsel shall have received such papers and information as they request to enable them to pass upon such matters.

(h) On each Closing Date you, as Representatives of the several Underwriters, shall have received a letter of Arthur Andersen LLP, dated such Closing Date and addressed to you, confirming that they are independent public accountants within the meaning of the Act and are in compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X of the Commission, and stating, as of the date of such letter (or, with respect to matters involving changes or developments since the respective dates as of which specified financial information is given in the Prospectus, as of a date not more than five days prior to the date of such letter), the conclusions and findings of said firm with respect to the financial information and other matters covered by its letter delivered to you concurrently with the execution of this Agreement, and the effect of the letter so to be delivered on such Closing Date shall be to confirm the conclusions and findings set forth in such prior letter.

(i) On each Closing Date, there shall have been furnished to you, as Representatives of the Underwriters, a certificate, dated such Closing Date and addressed to you, signed by the chief executive officer and by the chief financial officer of the Company, to the effect that:

(i) The representations and warranties of the Company in this Agreement are true and correct, in all material respects, as if made at and as of such Closing Date, and the Company has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied at or prior to such Closing Date;

(ii) No stop order or other order suspending the effectiveness of the Registration Statement or any amendment thereof or the qualification of the Securities for offering or sale has been issued, and no proceeding for that purpose has been instituted or, to the best of their knowledge, is contemplated by the Commission or any state or regulatory body; and

(iii) The signers of said certificate have carefully examined the Registration Statement and the Prospectus, and any amendments thereof or supplements thereto (including any term sheet within the meaning of Rule 434 of the Rules and Regulations), and (A) such documents contain all statements and information required to be included therein, the Registration Statement, or any amendment thereof, does not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading, and the Prospectus, as amended or supplemented, does not include any untrue statement of material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, (B) since the effective date of the Registration Statement, there has occurred no event required to be set forth in an amended or supplemented prospectus which has not been so set forth, (C) subsequent to the respective dates as of which information is given in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries has incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, not in the ordinary course of business, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock, and except as disclosed in the Prospectus, there has not been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise of outstanding options or warrants), or any material change in the short-term or long-term debt, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock, of the Company, or any of its subsidiaries, or any material adverse change or any development involving a prospective material adverse change (whether or not arising in the ordinary course of business), in the general affairs, condition (financial or otherwise), business, key personnel, property, net worth or results of operations of the Company and its subsidiaries, taken as a whole, and (D) except as stated in the Registration Statement and the Prospectus, there is not pending, or, to the knowledge of the Company, threatened or contemplated, any action, suit or proceeding to which the Company or any of its subsidiaries is a party before or by any court or governmental agency, authority or body, or any arbitrator, which might result in any material adverse change in the condition (financial or otherwise), business or results of operations of the Company and its subsidiaries, taken as a whole.

(j) The Company shall have furnished to you and counsel for the Underwriters such additional documents, certificates and evidence as you or they may have reasonably requested.

(k) All necessary filings shall have been made as required and all filing fees shall have been paid to effect the listing of the Securities on the Nasdaq National Market.

All such opinions, certificates, letters and other documents will be in compliance with the provisions hereof only if they are satisfactory in form and substance to you and counsel for the

Underwriters. The Company will furnish you with such conformed copies of such opinions, certificates, letters and other documents as you shall reasonably request.

6. INDEMNIFICATION AND CONTRIBUTION.

(a) The Company, agrees to indemnify and hold harmless each Underwriter against any losses, claims, damages or liabilities, joint or several, to which such Underwriter may become subject, under the Act or otherwise (including in settlement of any litigation if such settlement is effected with the written consent of the Company) insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, including the information deemed to be a part of the Registration Statement at the time of effectiveness pursuant to Rules 430A and 434(d) of the Rules and Regulations, if applicable, any Preliminary Prospectus, the Prospectus, or any amendment or supplement thereto (including any term sheet within the meaning of Rule 434 of the Rules and Regulations), or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse each Underwriter for any legal or other expenses reasonably incurred by it in connection with investigating or defending against such loss, claim, damage, liability or action; provided, however, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage, liability or action arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, any Preliminary Prospectus, the Prospectus, or any such amendment or supplement, in reliance upon and in conformity with written information furnished to the Company by you, or by any Underwriter through you, specifically for use in the preparation thereof.

In addition to their other obligations under this Section 6(a), the Company agrees that, as an interim measure during the pendency of any claim, action, investigation, inquiry or other proceeding arising out of or based upon any statement or omission, or any alleged statement or omission, described in this Section 6(a), they will reimburse each Underwriter on a monthly basis for all reasonable legal fees or other expenses incurred in connection with investigating or defending any such claim, action, investigation, inquiry or other proceeding, notwithstanding the absence of a judicial determination as to the propriety and enforceability of the Company's obligation to reimburse the Underwriters for such expenses and the possibility that such payments might later be held to have been improper by a court of competent jurisdiction. To the extent that any such interim reimbursement payment is so held to have been improper, the Underwriter that received such payment shall promptly return it to the party or parties that made such payment, together with interest, compounded daily, determined on the basis of the prime rate (or other commercial lending rate for borrowers of the highest credit standing) announced from time to time by _____ (the "Prime Rate"). Any such interim reimbursement payments which are not made to an Underwriter within 30 days of a request for reimbursement shall bear interest at the Prime Rate from the date of such request. This indemnity agreement shall be in addition to any liabilities which the Company may otherwise have.

(b) Each Underwriter will indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of such Underwriter), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, any Preliminary Prospectus, the Prospectus, or any amendment or supplement thereto (including any term sheet within the meaning of Rule 434 of the Rules and Regulations), or arise out of or are based upon the omission or alleged omission to state therein a material

fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, any Preliminary Prospectus, the Prospectus, or any such amendment or supplement, in reliance upon and in conformity with written information furnished to the Company by you, or by such Underwriter through you, specifically for use in the preparation thereof, and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending against any such loss, claim, damage, liability or action.

(c) Promptly after receipt by an indemnified party under subsection (a) or (b) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the omission so to notify the indemnifying party shall not relieve the indemnifying party from any liability that it may have to any indemnified party. In case any such action shall be brought against any indemnified party, and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate in, and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of the indemnifying party's election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof other than reasonable costs of investigation; provided, however, that if, in the sole judgment of the Representatives, it is advisable for the Underwriters to be represented as a group by separate counsel, the Representatives shall have the right to employ a single counsel to represent the Representatives and all Underwriters who may be subject to liability arising from any claim in respect of which indemnity may be sought by the Underwriters under subsection (a) of this Section 6, in which event the reasonable fees and expenses of such separate counsel shall be borne by the indemnifying party or parties and reimbursed to the Underwriters as incurred (in accordance with the provisions of the second paragraph in subsection (a) above). An indemnifying party shall not be obligated under any settlement agreement relating to any action under this Section 6 to which it has not agreed in writing.

(d) If the indemnification provided for in this Section 6 is unavailable or insufficient to hold harmless an indemnified party under subsection (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the losses, claims, damages or liabilities referred to in subsection (a) or (b) above, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Securities or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or the Underwriters and the parties' relevant intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Company and the Underwriters agree that it would not

be just and equitable if contributions pursuant to this subsection (d) were to be determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to in the first sentence of this subsection (d). The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending against any action or claim which is the subject of this subsection (d). Notwithstanding the provisions of this subsection (d), no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Securities underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (d) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the Company under this Section 6 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each person, if any, who controls any Underwriter within the meaning of the Act; and the obligations of the Underwriters under this Section 6 shall be in addition to any liability that the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each director of the Company (including any person who, with his consent, is named in the Registration Statement as about to become a director of the Company), to each officer of the Company who has signed the Registration Statement and to each person, if any, who controls the Company within the meaning of the Act.

7. REPRESENTATIONS AND AGREEMENTS TO SURVIVE DELIVERY. All representations, warranties, and agreements of the Company herein or in certificates delivered pursuant hereto, and the agreements of the several Underwriters and the Company contained in Section 6 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of any Underwriter or any controlling person thereof, or the Company or any of its officers, directors, or controlling persons, and shall survive delivery of, and payment for, the Securities to and by the Underwriters hereunder.

8. SUBSTITUTION OF UNDERWRITERS.

(a) If any Underwriter or Underwriters shall fail to take up and pay for the amount of Firm Shares agreed by such Underwriter or Underwriters to be purchased hereunder, upon tender of such Firm Shares in accordance with the terms hereof, and the amount of Firm Shares not purchased does not aggregate more than 10% of the total amount of Firm Shares set forth in Schedule I hereto, the remaining Underwriters shall be obligated to take up and pay for (in proportion to their respective underwriting obligations hereunder as set forth in Schedule II hereto except as may otherwise be determined by you) the Firm Shares that the withdrawing or defaulting Underwriters agreed but failed to purchase.

(b) If any Underwriter or Underwriters shall fail to take up and pay for the amount of Firm Shares agreed by such Underwriter or Underwriters to be purchased hereunder, upon tender of such Firm Shares in accordance with the terms hereof, and the amount of Firm Shares not purchased aggregates more than 10% of the total amount of Firm Shares set forth in Schedule I hereto, and arrangements satisfactory to you for the purchase of such Firm Shares by other persons are not made within 36 hours thereafter, this Agreement shall terminate. In the event of any such termination the

Company shall not be under any liability to any Underwriter (except to the extent provided in Section 4(a)(viii) and Section 6 hereof) nor shall any Underwriter (other than an Underwriter who shall have failed, otherwise than for some reason permitted under this Agreement, to purchase the amount of Firm Shares agreed by such Underwriter to be purchased hereunder) be under any liability to the Company (except to the extent provided in Section 6 hereof).

If Firm Shares to which a default relates are to be purchased by the non-defaulting Underwriters or by any other party or parties, the Representatives or the Company shall have the right to postpone the First Closing Date for not more than seven business days in order that the necessary changes in the Registration Statement, Prospectus and any other documents, as well as any other arrangements, may be effected. As used herein, the term "Underwriter" includes any person substituted for an Underwriter under this Section 8.

9. EFFECTIVE DATE OF THIS AGREEMENT AND TERMINATION.

(a) This Agreement shall become effective at 10:00 a.m., Eastern time, on the effective date of the Registration Statement, or at such earlier time after the effective time of the Registration Statement as you in your discretion shall first release the Securities for sale to the public; provided, that if the Registration Statement is effective at the time this Agreement is executed, this Agreement shall become effective at such time as you in your discretion shall first release the Securities for sale to the public. For the purpose of this Section, the Securities shall be deemed to have been released for sale to the public upon release by you of the publication of a newspaper advertisement relating thereto or upon release by you of telexes offering the Securities for sale to securities dealers, whichever shall first occur. By giving notice as hereinafter specified before the time this Agreement becomes effective, you, as Representatives of the several Underwriters, or the Company may prevent this Agreement from becoming effective without liability of any party to any other party, except that the provisions of Section 4(a)(viii) and Section 6 hereof shall at all times be effective.

(b) You, as Representatives of the several Underwriters, shall have the right to terminate this Agreement by giving notice as hereinafter specified at any time at or prior to the First Closing Date, and the option referred to in Section 3(b), if exercised, may be cancelled at any time prior to the Second Closing Date, if (i) the Company shall have failed, refused or been unable, at or prior to such Closing Date, to perform any agreement on its part to be performed hereunder, (ii) any other condition of the Underwriters' obligations hereunder is not fulfilled, (iii) trading on the New York Stock Exchange or the American Stock Exchange shall have been wholly suspended, (iv) minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required, on the New York Stock Exchange or the American Stock Exchange, by such Exchange or by order of the Commission or any other governmental authority having jurisdiction, (v) a banking moratorium shall have been declared by Federal, New York or **[other applicable states] authorities, or (vi) there has occurred any material adverse change in the financial markets in the United States or an outbreak of major hostilities (or an escalation thereof) in which the United States is involved, a declaration of war by Congress, any other substantial national or international calamity or any other event or occurrence of a similar character shall have occurred since the execution of this Agreement that, in your judgment, makes it impractical or inadvisable to proceed with the completion of the sale of and payment for the Securities. Any such termination shall be without liability of any party to any other party except that the provisions of Section 4(a)(viii) and Section 6 hereof shall at all times be effective.

(c) If you elect to prevent this Agreement from becoming effective or to terminate this Agreement as provided in this Section, the Company shall be notified promptly by you by telephone or telegram, confirmed by letter. If the Company elects to prevent this Agreement from becoming effective, you shall be notified by the Company by telephone or telegram, confirmed by letter.

DEFAULT BY THE COMPANY. If the Company shall fail at the First Closing Date to sell and deliver the number of Securities which it is obligated to sell hereunder, then this Agreement shall terminate without any liability on the part of any non-defaulting party.

No action taken pursuant to this Section shall relieve the Company from liability, if any, in respect of such default.

10. INFORMATION FURNISHED BY UNDERWRITERS. The statements set forth in the second to last paragraph of the cover page and under the caption "Underwriting" in any Preliminary Prospectus and in the Prospectus constitute the written information furnished by or on behalf of the Underwriters referred to in Section 2 and Section 6 hereof.

11. NOTICES. Except as otherwise provided herein, all communications hereunder shall be in writing or by telegraph and, if to the Underwriters, shall be mailed, telegraphed or delivered to the Representatives c/o U.S. Bancorp Piper Jaffray, Piper Jaffray Tower, 222 South Ninth Street, Minneapolis, Minnesota 55402, except that notices given to an Underwriter pursuant to Section 6 hereof shall be sent to such Underwriter at the address stated in the Underwriters' Questionnaire furnished by such Underwriter in connection with this offering; if to the Company, shall be mailed, telegraphed or delivered to it at 25 Science Park, New Haven, CT 06511 Attention: Leonard Bell; or to such other address as the person to be notified may have requested in writing. All notices given by telegram shall be promptly confirmed by letter. Any party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose.

12. PERSONS ENTITLED TO BENEFIT OF AGREEMENT. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns and the controlling persons, officers and directors referred to in Section 6. Nothing in this Agreement is intended or shall be construed to give to any other person, firm or corporation any legal or equitable remedy or claim under or in respect of this Agreement or any provision herein contained. The term "successors and assigns" as herein used shall not include any purchaser, as such purchaser, of any of the Securities from any of the several Underwriters.

13. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the State of Minnesota.

[Signature Page Follows]

Please sign and return to the Company the enclosed duplicates of this letter whereupon this letter will become a binding agreement between the Company and the several Underwriters in accordance with its terms.

Very truly yours,

ALEXION PHARMACEUTICALS, INC.

By _____
Leonard Bell, M.D.
President and Chief Executive Officer

Confirmed as of the date first above mentioned, on behalf of themselves and the other several Underwriters named in Schedule I hereto.

U.S. Bancorp Piper Jaffray

By
Managing Director

Hambrecht & Quist LLC

By
Managing Director

SCHEDULE I

UNDERWRITER

NUMBER OF FIRM SHARES (1)

Total.

=====

(1) The Underwriters may purchase up to an additional 375,000 Option Shares, to the extent the option described in Section 3(b) of the Agreement is exercised, in the proportions and in the manner described in the Agreement.

TELEPHONE: 212/318-3000
FACSIMILE: 212/752-0969

FULBRIGHT & JAWORSKI, L.L.P.
A REGISTERED LIMITED LIABILITY
PARTNERSHIP
666 FIFTH AVENUE
NEW YORK, NEW YORK 10103

HOUSTON
WASHINGTON, D.C.
AUSTIN
SAN ANTONIO
DALLAS
NEW YORK
LOS ANGELES
LONDON
HONG KONG

November 19, 1999

Alexion Pharmaceuticals, Inc.
25 Science Park, Suite 360
New Haven, Connecticut, 06511

Ladies and Gentlemen:

In connection with Amendment No. 2 to the Registration Statement on Form S-3 (the "Registration Statement") filed by Alexion Pharmaceuticals, Inc., a Delaware corporation (the "Company"), under the Securities Act of 1933, as amended (the "Act"), relating to the public offering by the Company of up to 2,500,000 shares (the "Shares") of the Company's common stock, par value \$.0001 per share ("Common Stock"), (including up to 375,000 shares of Common Stock which will be purchased by the underwriters if the underwriters exercise the option granted to them by the Company to cover over-allotments), we, as counsel for the Company, have examined such corporate records, other documents and questions of law as we have considered necessary or appropriate for the purposes of this opinion. Our opinion set forth below is limited to the General Corporation Law of the State of Delaware.

We assume that appropriate action will be taken, prior to the offer and sale of the Shares, to register and qualify the Shares for sale under all applicable state securities or "blue sky" laws.

In our examination of the foregoing documents, we have assumed the genuineness of all signatures and the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified or photostatic copies, and the authenticity of the originals of such latter documents.

Based on and subject to the foregoing, we advise you that in our opinion, the Shares to be sold by the Company have been duly and validly authorized and, when issued and sold in the manner contemplated by the Purchase Agreement, a form of which has been filed as an exhibit to the Registration Statement (the "Purchase Agreement"), and upon receipt by the Company of payment therefor as provided in the Purchase Agreement, will be duly and validly authorized, legally issued, fully paid and non-assessable.

November 19, 1999

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We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and the reference to this firm under the caption "Legal Matters" in the prospectus contained therein. This consent is not to be construed as an admission that we are a party whose consent is required to be filed with the Registration Statement under the provisions of the Act or the rules and regulations of the Securities and Exchange Commission promulgated thereunder. The opinion expressed herein is solely for your benefit, and may be relied upon only by you.

Very truly yours,
/s/ Fulbright & Jaworski L.L.P.