

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

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)

**121 Seaport Boulevard
Boston, Massachusetts 02210
(475) 230-2596**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Ludwig N. Hantson, Ph.D.
Chief Executive Officer
Alexion Pharmaceuticals, Inc.
121 Seaport Boulevard
Boston, Massachusetts 02210
(475) 230-2596**

(Name and address, including zip code, and telephone number, including area code, of agent for service of process for registrant)

With copies to:

**Ellen Chiniara, Esq.
Executive Vice President, General Counsel
Alexion Pharmaceuticals, Inc.
121 Seaport Boulevard
Boston, Massachusetts 02210
(475) 230-2596**

**Patrick O'Brien
Zachary Blume
Ropes & Gray LLP
800 Boylston Street
Boston, Massachusetts 02199
(617) 951-7000**

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 plans, 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, other than securities offered only in connection with the dividend or interest reinvestment plans, check the following box. x

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. o

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. o

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

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

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be Registered(1)	Proposed maximum offering price per unit(2)	Proposed maximum aggregate offering price(2)	Amount of registration fee(1)(2)
Common stock, \$0.0001 par value per share	8,485,736	\$119.06	\$1,010,311,728.16	\$125,784.00

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended, or the Securities Act, the Registrant is registering an indeterminate number of shares of common stock as may be issued from time to time as a result of stock splits and stock dividends.

(2) The average of the high and low prices of our common stock on August 10, 2018, as reported on the Nasdaq Global Select Market was \$119.06 per share. A registration fee of \$140,976 was previously paid in connection with the registration of 6,476,002 shares of common stock registered by the Registrant under the registration statement on Form S-3 (No. 333-206345) filed on August 13, 2015, as supplemented by the prospectus supplement dated August 13, 2015, or the Prior Registration Statement, but that remain unsold. Such registration fee previously paid with respect to such unsold shares of common stock is transferred and carried forward for application with the offerings under this registration statement pursuant to Rule 457(p) under the Securities Act and such fee paid in connection with the Prior Registration Statement is offset against the fees due under this registration statement for such unsold shares. As a result, the offering of such unsold shares of common stock under the Prior Registration Statement will be deemed terminated as of the date of effectiveness of this registration statement. A registration fee of \$29,791 has

been paid with respect to the 2,009,734 shares registered hereunder that were not registered on the Prior Registration Statement.



ALEXION PHARMACEUTICALS, INC.

Common Stock

This prospectus registers for resale, from time to time, up to 8,485,736 shares of our common stock, par value \$0.0001 per share by the selling stockholders named herein.

The selling stockholders may, in one or more offerings, offer and sell the shares of common stock directly or through agents or broker-dealers on terms to be determined at the time of sale, as described in more detail in this prospectus. In connection with any offering of shares we may provide a prospectus supplement and attach it to this prospectus, which may add, update or change information contained in this prospectus. We will not receive proceeds from any sale of shares of common stock by the selling stockholders.

This prospectus describes the general manner in which the shares of our common stock may be offered and sold by the selling stockholders. The identity of, and specific information required with respect to, the selling stockholders, and the specific manner in which shares of common stock may be offered and sold will be described in a supplement to this prospectus.

Our common stock is listed on The Nasdaq Global Select Market under the symbol "ALXN." On August 13, 2018, the last reported sales price per share of our common stock was \$118.37.

The selling stockholders are entities affiliated with Felix J. Baker, a member of our board of directors.

Investing in these securities involves substantial risk. Please see "Risk Factors" on page 2 of this prospectus and any risk factors described in any applicable prospectus supplement and in the documents we incorporate by reference to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is August 14, 2018

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ABOUT THIS PROSPECTUS

This prospectus is part of a “shelf” registration statement on Form S-3 that we have filed with the Securities and Exchange Commission, or the SEC, as a “well-known seasoned issuer” as defined under Rule 405 under the Securities Act of 1933, as amended, or the Securities Act, using a “shelf” registration process. Under this shelf registration statement, the selling stockholders may offer and sell the shares of our common stock, from time to time, in one or more offerings, in any manner described below under the heading “Plan of Distribution.” This prospectus provides you with a general description of our common stock. Each time the selling stockholders sell shares of common stock under this shelf registration, we will provide a prospectus supplement that will contain specific information about the terms of that offering, including the specific amounts and prices of the shares of common stock offered and information about the selling stockholders. A prospectus supplement may also add, update or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in a prospectus supplement. Before making your investment decision, you should read both this prospectus and any prospectus supplement, including all documents incorporated herein or therein by reference, together with additional information described under “Where you can find more information” and “Incorporation by reference.”

We have not authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus, in any accompanying prospectus supplement or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The selling stockholders are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus or incorporated by reference herein is accurate only as of the date on the front of this prospectus or the respective dates of filing of the incorporated documents. Our business, financial condition, results of operations and prospects may have changed since that date.

Unless otherwise indicated or unless the context requires otherwise, all references in this prospectus to “Alexion,” “we,” “us” and “our” refer to Alexion Pharmaceuticals, Inc.

RISK FACTORS

For a discussion of the factors you should carefully consider before deciding to purchase any shares, please review “Part II, Item 1A—Risk Factors” in our most recent Quarterly Report on Form 10-Q, which is incorporated by reference in this prospectus, as that disclosure has been updated by subsequent periodic reports, as well as the “Risk Factors” section in any applicable prospectus supplement.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and any information incorporated by reference into this prospectus or prospectus supplement may contain “forward-looking” statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. You can identify these forward-looking statements by the fact they use words such as “could,” “expect,” “anticipate,” “estimate,” “target,” “may,” “project,” “guidance,” “intend,” “plan,” “believe,” “will,” “potential,” “opportunity,” “future” and other words and terms of similar meaning and expression in connection with any discussion of future operating or financial performance. You can also identify forward-looking statements by the fact that they do not relate strictly to historical or current facts. These statements are likely to relate to, among other things, our business strategy, our research and development, our product development efforts, our ability to commercialize our product candidates, the activities of our licensees, our prospects for initiating partnerships or collaborations, the timing of the introduction of products, the effect of new accounting pronouncements, uncertainty regarding our future operating results and our profitability, anticipated sources of funds as well as our plans, objectives, expectations and intentions. Such forward-looking statements are based on current expectations and involve inherent risks and uncertainties, including factors that could delay, divert or change any of them, and could cause actual outcomes to differ materially from current expectations.

Although we believe we have been prudent in our plans and assumptions, no assurance can be given that any goal or plan set forth in forward-looking statements can be achieved and readers are cautioned not to place undue reliance on such statements, which speak only as of the date made. We undertake no obligation to release publicly any revisions to forward-looking statements as a result of new information, future events or otherwise, except as required by law.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any materials that we file with the SEC at its Public Reference Room, 100 F Street, N.E., Washington, D.C. 20549. You may call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. Our SEC filings are also available to the public from the SEC's website at <http://www.sec.gov>.

INCORPORATION BY REFERENCE

The SEC's rules allow us to "incorporate by reference" the information we have filed with the SEC, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is a part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information included and/or incorporated by reference in this prospectus. We incorporate by reference into this prospectus the information or documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than, in each case, any document or portion of a document that is deemed not to be filed) after the initial filing of the registration statement that contains this prospectus and prior to the termination of the offerings to which this prospectus relates:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, filed with the SEC on February 8, 2018;
- our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2018, filed with the SEC on April 26, 2018, and June 30, 2018, filed with the SEC on July 26, 2018;
- our Current Reports on Form 8-K filed with the SEC on January 22, 2018, February 5, 2018, April 11, 2018, May 11, 2018, June 13, 2018 and June 29, 2018;
- our definitive Proxy Statement on Schedule 14A for our 2018 Annual Meeting of Shareholders which was filed with the SEC on March 28, 2018 (but only the information set forth therein that is incorporated by reference into Part III of our Annual Report on Form 10-K for the year ended December 31, 2017); and
- our Registration Statement on Form 8-A filed with the SEC on February 12, 1996.

You may obtain documents incorporated by reference into this prospectus at no cost by requesting them in writing or telephoning us at the following:

Investor Relations
Alexion Pharmaceuticals, Inc.
121 Seaport Boulevard
Boston, MA 02210
(475) 230-2596

These filings are also made available, free of charge, on our website at <http://www.alexion.com>. The information contained in, and that can be accessed through, our website is not incorporated into and does not form a part of this prospectus.

This prospectus constitutes a part of a registration statement on Form S-3, referred to herein, including all amendments and exhibits, as the Registration Statement, which we have filed with the SEC under the Securities Act. This prospectus does not contain all of the information contained in the Registration Statement. We refer you to the Registration Statement and related exhibits for further information regarding us and our securities. Statements contained in this prospectus or in a document incorporated or deemed to be incorporated by reference herein concerning the provisions of any document filed as an exhibit to the Registration Statement are not necessarily complete and, in each instance, reference is made to the copy of such document filed as an exhibit to the Registration Statement or otherwise filed with the SEC. Each such statement is qualified in its entirety by such reference.

ALEXION PHARMACEUTICALS, INC.

We are a global biopharmaceutical company focused on serving patients and families affected by rare diseases through the innovation, development and commercialization of life-changing therapies.

We are the global leader in complement inhibition and have developed and commercialized the first and only approved complement inhibitor to treat patients with paroxysmal nocturnal hemoglobinuria (PNH), atypical hemolytic uremic syndrome (aHUS) and anti-acetylcholine receptor (AChR) antibody-positive generalized myasthenia gravis (gMG). In addition, we have two highly innovative enzyme replacement therapies for patients with life-threatening and ultra-rare metabolic disorders, hypophosphatasia (HPP) and lysosomal acid lipase deficiency (LAL-D).

As the leader in complement biology for over 20 years, we focus our research efforts on novel molecules and targets in the complement cascade, and our development efforts on the core therapeutic areas of hematology, nephrology, neurology and metabolic disorders. We were incorporated in 1992 under the laws of the State of Delaware.

USE OF PROCEEDS

The net proceeds from the sale of shares of common stock covered by this prospectus will be received by the selling stockholders or their transferees. We will not receive any of the proceeds from the sale or other disposition of the shares covered hereby.

SELLING STOCKHOLDERS

We are party to a Registration Rights Agreement, or the Registration Rights Agreement, dated July 8, 2015 with Baker Brothers Life Sciences, L.P., or Life Sciences, and 667, L.P., or 667, and together with Life Sciences, the Funds. The Registration Rights Agreement requires that, among other things, upon a demand by the Funds, we file a registration statement, including a final prospectus, covering the resale of the Registrable Securities (as defined therein) of the Funds. This prospectus is being filed pursuant to the Registration Rights Agreement following a demand by the Funds.

The following table sets forth information with respect to the beneficial ownership of our common stock as of August 14, 2018 for the selling stockholders.

The number of shares beneficially owned by each selling stockholder is determined pursuant to Rule 13d-3 promulgated by the SEC under the Exchange Act. The information does not necessarily indicate beneficial ownership for any other purpose. Under those rules, the number of shares of common stock deemed outstanding includes shares issuable upon exercise of stock options held by the respective person or group that may be exercised within 60 days of August 14, 2018. For purposes of calculating each person's or group's percentage ownership, shares of common stock issuable pursuant to stock options exercisable within 60 days after August 14, 2018 are reflected in the table below and included as outstanding and beneficially owned for that person or group but are not treated as outstanding for the purpose of computing the percentage ownership of any other person or group.

Except as otherwise indicated, to our knowledge, the persons named in the table below have sole voting and investment power with respect to all shares of common stock shown as beneficially owned by them, subject to community property laws, where applicable.

Name	Common Stock Owned Prior to the Sale of Shares Registered Pursuant to this Prospectus	Common Stock Registered for Resale Pursuant to this Prospectus	Common Stock Owned After Giving Effect to the Sale of the Shares Registered Pursuant to this Prospectus (1)
Baker Bros. Advisors LP (2)	8,485,736	8,485,736	0

- (1) Assumes each selling stockholder has sold all the shares of common stock shown as being registered for resale by each selling stockholder pursuant to this prospectus and any applicable prospectus supplement.
- (2) Baker Bros. Advisors LP, or BBA, may be deemed to have the power to vote or direct the vote of and the power to dispose or direct the disposition of the shares of common stock registered for resale pursuant to this prospectus and thus may be deemed the beneficial owner of such shares of common stock, which include shares of common stock held by the following: (i) Life Sciences (7,575,748 shares of common stock), and (ii) 667 (909,988 shares of common stock). Felix J. Baker and Julian C. Baker are the principals of Baker Bros. Advisors (GP) LLC, the sole general partner of BBA and, as such, may be deemed to have voting and dispositive power with respect to the shares of common stock held by the Funds. Felix J. Baker has served as one of our directors since June 2015.

DESCRIPTION OF CAPITAL STOCK

As of the date of this prospectus, our certificate of incorporation authorizes us to issue 290,000,000 shares of common stock, par value \$0.0001 per share, and 5,000,000 shares of preferred stock, par value \$0.0001 per share.

The following summary describes the material terms of our capital stock. The description of capital stock is qualified by reference to our certificate of incorporation, as amended, and our bylaws, both of which are incorporated into this prospectus by reference to the SEC filings to which they are exhibits.

Common Stock

Voting. Common stockholders are entitled to one vote per share for the election of directors and on all other matters that require stockholder approval. There is no cumulative voting.

Dividends and Other Distributions. Subject to any preferences that may apply to any shares of preferred stock outstanding at the time, holders of our common stock are entitled to share in an equal amount per share any dividends declared by our board of directors on the common stock and paid out of legally available assets.

Distribution on Dissolution. Subject to any preferential rights of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the assets remaining after payment of liabilities and the liquidation preferences of any outstanding preferred stock.

Other Rights. Our common stock does not carry any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock, or any redemption rights.

Anti-Takeover Provisions

Delaware Law. We are subject to Section 203 of the Delaware General Corporation Law. This statute regulating corporate takeovers prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for three years following the date that the stockholder became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (a) shares owned by persons who are directors and also officers, and (b) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the date of the transaction, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66²/₃% of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is any person who, together with such person's affiliates and associates (i) owns 15% or more of a corporation's voting securities or (ii) is an affiliate or associate of a corporation and was the owner of 15% or more of the corporation's voting securities at any time within the three year period immediately preceding a business combination of the corporation governed by Section 203. We expect the existence of this provision to have an anti-takeover effect with respect to transactions that our board of directors does not approve in advance. We also anticipate that Section 203 may discourage takeover attempts that might result in a premium over the market price for the shares of common stock held by our stockholders.

Bylaw and Certificate of Incorporation Provisions. Our bylaws provide that special meetings of our stockholders may be called only by the Chairman of the board of directors, the President, the Secretary, or a majority of the board of directors, or, subject to the satisfaction of certain requirements included therein, upon the written request of stockholders who together own of record 25% of the outstanding stock of all classes entitled to vote at such meeting. Our bylaws also specify that the

authorized number of directors may be changed only by resolution of the board of directors. Our certificate of incorporation does not include a provision for cumulative voting for directors. Under cumulative voting, a minority stockholder holding a sufficient percentage of a class of shares may be able to ensure the election of one or more directors. These and other provisions contained in our certificate of incorporation and bylaws could delay or discourage transactions involving an actual or potential change in control of us or our management, including transactions in which stockholders might otherwise receive a premium for their shares over then current prices. These provisions could also limit the ability of stockholders to remove current management or approve transactions that stockholders may deem to be in their best interests and could adversely affect the price of our common stock.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Listing

Our common stock is listed on The NASDAQ Global Select Market under the symbol “ALXN.”

PLAN OF DISTRIBUTION

We are registering the shares of common stock on behalf of the selling stockholders. The selling stockholders will act independently of us in making decisions with respect to the timing, manner and size of each sale. The selling stockholders may, from time to time, sell any or all of their shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed or negotiated prices. The selling stockholders may use any one or more of the following methods when selling shares:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- riskless principal transactions;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- an underwritten public offering;
- through the distribution of the common stock by any selling stockholder to its partners, members or stockholders;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling stockholders may also sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus and the applicable prospectus supplement.

Broker-dealers engaged by the selling stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling stockholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved. Any profits on the resale of shares of common stock by a broker-dealer acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. Discounts, concessions, commissions and similar selling expenses, if any, attributable to the sale of shares will be borne by a selling stockholder. The selling stockholders may agree to indemnify any agent, dealer or broker-dealer that participates in transactions involving sales of the shares if liabilities are imposed on that person under the Securities Act.

The selling stockholders have advised us that they have not entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of their shares of common stock, nor is there an underwriter or coordinating broker acting in connection with a proposed sale of shares of common stock by any selling stockholder. If we are notified by any selling stockholder that any material arrangement has been

entered into with a broker-dealer for the sale of shares of common stock, if required, we will file an amendment to this prospectus. If the selling stockholders use this prospectus and the applicable prospectus supplement for any sale of the shares of common stock, they will be subject to the prospectus delivery requirements of the Securities Act.

The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees or other successors in interest will be the selling beneficial owners for purposes of this prospectus and any applicable prospectus supplement and may sell the shares of common stock from time to time under this prospectus and the applicable prospectus supplement after we have filed an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the transferee or other successors in interest as selling stockholders under this prospectus.

The selling stockholders and any broker-dealers or agents that are involved in selling the shares of common stock may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares of common stock purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act.

The selling stockholders and any other person participating in a distribution will be subject to the Exchange Act. The Exchange Act rules include, without limitation, Regulation M, which may limit the timing of purchases and sales of shares of our common stock by the selling stockholders and any such other person. In addition, Regulation M of the Exchange Act may restrict sales activity by a person engaged in the distribution of the shares for a period of up to five business days prior to the commencement of such distribution. This may affect the marketability of the shares of our common stock and the ability of any person or entity to engage in market-making activities with respect to shares of our common stock. We have informed the selling stockholders that the anti-manipulative provisions of Regulation M may apply to their sales in the market.

We are required to pay certain fees and expenses incident to the registration of the shares on behalf of the selling stockholders. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including certain liabilities under the Securities Act.

LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, our counsel, Ropes & Gray LLP, Boston Massachusetts, will pass upon the validity of the shares of common stock offered by this prospectus.

EXPERTS

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2017 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth all fees and expenses payable by the registrant in connection with the issuance and distribution of the securities being registered hereby (other than any underwriting discounts and commissions). All amounts are estimated.

SEC registration fee	\$125,784
Printing and engraving fees	*
Legal fees and expenses	*
Accounting fees and expenses	*
Stock exchange listing fees	*
Miscellaneous	*
Total	<hr/> <hr/>

* These fees are calculated based on the number of issuances and the amount of securities offered and accordingly cannot be estimated at this time.

Item 15. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law, or 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 our certificate of incorporation, as amended provides that we shall indemnify each person who is or was a director, officer, employee or agent of us (including the heirs, executors, administrators or estate of such person) or is or was serving at our request 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 our amended certificate of incorporation 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 stockholders 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 us 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 us. Section NINTH of our amended certificate of incorporation provides that our directors shall not be personally liable to us or our 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 us or our 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.

We have also entered into indemnification agreements with our directors and officers. In general, these agreements provide that we will indemnify the director or officer to the fullest extent permitted by law for claims arising in his or her capacity as a director or officer of the Company or in connection with his or her service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or officer makes a claim for indemnification.

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

Item 16. Exhibits.

Exhibit No.	Description
1.1†	Form of Underwriting Agreement.
4.1	Certificate of Incorporation, as amended (incorporated by reference to our Registration Statement on Form S-3 (File No. 333-128085), filed on September 2, 2005).
4.2	Certificate of Amendment of the Certificate of Incorporation (incorporated by reference to our Annual Report on Form 10-K for the year ended December 31, 2011, filed on February 17, 2012 (File No. 000-27756)).
4.3	Bylaws, as amended (incorporated by reference to our Quarterly Report on Form 8-K, filed on January 14, 2016 (File No. 000-27756)).
4.4	Specimen Common Stock Certificate (incorporated herein by reference to our Registration Statement on Form S-1 (File No. 333-00202)).
4.5	Registration Rights Agreement, dated July 8, 2015, between Alexion Pharmaceuticals, Inc. and the investors signatory thereto (incorporated herein by reference to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2015, filed on July 31, 2015 (File No. 000-27756)).
5.1*	Opinion of Ropes & Gray LLP.
23.1*	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm to Alexion Pharmaceuticals, Inc.
23.2*	Consent of Ropes & Gray LLP (included in Exhibit 5.1).
24.1*	Powers of Attorney (included on the signature page to this Registration Statement).

*Filed herewith.

†To be filed, if necessary, subsequent to the effectiveness of this Registration Statement by an amendment to this Registration Statement or incorporated by reference pursuant to a Current Report on Form 8-K in connection with an offering of securities.

Item 17. Undertakings

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.
- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
 - (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the

underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

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

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 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934, as amended) that is incorporated by reference in this 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.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in such 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, Alexion Pharmaceuticals, Inc. certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Boston, Commonwealth of Massachusetts, on August 14, 2018.

ALEXION PHARMACEUTICALS, INC.

By: /s/ Ludwig N. Hantson, Ph.D.

Name: Ludwig N. Hantson, Ph.D.

Title: Chief Executive Officer

SIGNATURES AND POWERS OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned officers and directors of Alexion Pharmaceuticals, Inc., a Delaware corporation, hereby severally constitute Ludwig N. Hantson, Ph.D. and Paul Clancy, and each of them singly, our true and lawful attorney with full power to them, and each of them singly, to sign for us and in our names in the capacities indicated below, the Registration Statement filed herewith and any and all amendments to said Registration Statement, and generally to do all such things in our names and in our capacities as officers and directors to enable Alexion Pharmaceuticals, Inc. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys, or any of them, to said Registration Statement and any and all amendments thereto.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the date indicated.

Signature	Title	Date
<u>/s/ Ludwig N. Hantson, Ph.D.</u> Ludwig N. Hantson, Ph.D.	Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	August 14, 2018
<u>/s/ Paul J. Clancy</u> Paul J. Clancy	Executive Vice President and Chief Financial Officer <i>(Principal Financial Officer)</i>	August 14, 2018
<u>/s/ Daniel A. Bazarko</u> Daniel A. Bazarko	Senior Vice President and Chief Accounting Officer <i>(Principal Accounting Officer)</i>	August 14, 2018
<u>/s/ David R. Brennan</u> David R. Brennan	Chairman of the Board of Directors	August 14, 2018
<u>/s/ Felix J. Baker</u> Felix J. Baker	Director	August 14, 2018
<u>/s/ Christopher J. Coughlin</u> Christopher J. Coughlin	Director	August 14, 2018
<u>/s/ Deborah Dunsire, M.D.</u> Deborah Dunsire, M.D.	Director	August 14, 2018
<u>/s/ Paul A. Friedman, M.D.</u> Paul A. Friedman, M.D.	Director	August 14, 2018
<u>/s/ John T. Mollen</u> John T. Mollen	Director	August 14, 2018
<u>/s/ Francois Nader, M.D.</u> Francois Nader, M.D.	Director	August 14, 2018
<u>/s/ Judith A. Reinsdorf, J.D.</u> Judith A. Reinsdorf, J.D.	Director	August 14, 2018
<u>/s/ Andreas Rummelt, Ph.D.</u> Andreas Rummelt, Ph.D.	Director	August 14, 2018



ROPES & GRAY LLP
PRUDENTIAL TOWER
800 BOYLSTON STREET
BOSTON, MA 02199-3600
WWW.ROPESGRAY.COM

August 14, 2018

Alexion Pharmaceuticals, Inc.
121 Seaport Blvd.
Boston, MA 02210

Re: Registration Statement on Form S-3 filed on August 14, 2018

Ladies and Gentlemen:

This opinion is furnished to you in connection with the above-referenced registration statement (the "Registration Statement"), including the prospectus dated August 14, 2018 filed therewith (the "Prospectus"), filed with the Securities and Exchange Commission (the "Commission") by Alexion Pharmaceuticals, Inc., a Delaware corporation (the "Company"), pursuant to Rule 424 promulgated under the Securities Act of 1933, as amended (the "Act"). The Prospectus registers for resale up to 8,485,736 shares (the "Shares") of the Company's common stock, par value \$0.0001 per share, by certain stockholders of the Company as described in the Prospectus, which Shares are covered by the Registration Statement.

We have acted as counsel for the Company in connection with the registration of the Shares. For purposes of this opinion, we have examined and relied upon such documents, records, certificates and other instruments as we have deemed appropriate in order to enable us to render the opinions set forth herein.

The opinions expressed below are limited to the Delaware General Corporation Law.

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized, validly issued, and are fully paid and non-assessable.

We hereby consent to your filing this opinion as an exhibit to the Registration Statement and to the use of our name therein and in the related prospectus under the caption "Legal Matters." In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Ropes & Gray LLP

Ropes & Gray LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of Alexion Pharmaceuticals, Inc. of our report dated February 8, 2018 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in Alexion Pharmaceuticals, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2017. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP
Hartford, Connecticut
August 14, 2018