

ACCELERON PHARMA INC

FORM S-3ASR

(Automatic shelf registration statement of securities of well-known seasoned issuers)

Filed 09/19/17

Address	128 SIDNEY STREET CAMBRIDGE, MA, 02139
Telephone	617-649-9200
CIK	0001280600
Symbol	XLRN
SIC Code	2836 - Biological Products, (No Diagnostic Substances)
Industry	Biotechnology & Medical Research
Sector	Healthcare
Fiscal Year	12/31

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, DC 20549

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

ACCELERON PHARMA INC.
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	27-0072226 (I.R.S. Employer Identification No.)
--	--

**128 Sidney Street
Cambridge, MA 02139
(617) 649-9200**
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Habib J. Dable
Chief Executive Officer and President
128 Sidney Street
Cambridge, MA 02139
(617) 649-9200
(Name, address, including zip code and telephone number, including area code, of agent for service)

With copies to:

John D. Quisel, Ph.D., Esq.
Senior Vice President,
Corporate Development, General Counsel and Secretary
Acceleron Pharma Inc.
128 Sidney Street
Cambridge, Massachusetts 02139
(617) 649-9200

Marc A. Rubenstein, Esq.
Ropes & Gray LLP
Prudential Tower
800 Boylston St.
Boston, Massachusetts 02199
(617) 951-7000

From time to time after the effectiveness of the registration statement
(Approximate date of commencement of proposed sale to the public)

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 dividend or interest reinvestment plans, check the following box.

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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

Accelerated filer

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

Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered(1)	Amount to Be Registered(2)(3)	Proposed Maximum Offering Price Per Unit(2)(3)	Proposed Maximum Aggregate Offering Price(3)	Amount of Registration Fee(4)
Common Stock, \$0.001 par value per share	—	—	—	—
Preferred Stock, \$0.001 par value per share	—	—	—	—
Warrants	—	—	—	—
Total	—	—	—	—

- (1) Any securities registered hereunder may be sold separately or as units with other securities registered hereunder. The proposed maximum offering price per unit will be determined in connection with the issuance of the securities.
- (2) Omitted pursuant to Form S-3 General Instruction I.E. An indeterminate aggregate amount and offering price of securities of each identified class is being registered as may from time to time be issued at indeterminate prices.
- (3) Pursuant to Rule 457(i) under the Securities Act of 1933, as amended (the "Securities Act"), the securities registered hereunder include such indeterminate number of shares of common stock and preferred stock, and number of warrants as may be issued upon conversion or exchange of any preferred stock or warrants registered hereunder that provide for conversion or exchange, upon exercise of warrants or pursuant to the anti-dilution provisions of any such securities.
- (4) In reliance on Rules 456(b) and 457(r) under the Securities Act, the registrant is deferring payment of the registration fee and will pay the registration fee on a pay-as-you-go basis.

PROSPECTUS

ACCELERON PHARMA INC.

Common Stock

Preferred Stock

Warrants

We may offer and sell from time to time, in one or more series or issuances and on terms determined at the time of the offering, any combination of the securities described in this prospectus.

Specific terms of any offering will be provided in a supplement to this prospectus. Any prospectus supplement may also add, update or change information contained in this prospectus. You should carefully read this prospectus and the applicable prospectus supplement as well as the documents incorporated or deemed to be incorporated by reference in this prospectus before you purchase any of the securities offered hereby.

These securities may be offered and sold in the same offering or in separate offerings, to or through underwriters, dealers or agents or directly to purchasers. The names of any underwriters, dealers or agents involved in the sale of our securities and their compensation will be described in the applicable prospectus supplement.

General Information

Our common stock is traded on the NASDAQ Global Market under the symbol "XLRN". On September 18, 2017, the closing price of our common stock was \$39.38.

Investing in our securities involves risks. See "Risk Factors" on page 3 and in any applicable prospectus supplement and in the documents incorporated by reference in this prospectus for a discussion of the factors you should carefully consider before deciding to purchase these securities.

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

The date of this prospectus is September 19, 2017.

TABLE OF CONTENTS

<u>ABOUT THIS PROSPECTUS</u>	<u>1</u>
<u>OUR BUSINESS</u>	<u>2</u>
<u>RISK FACTORS</u>	<u>3</u>
<u>CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	<u>3</u>
<u>USE OF PROCEEDS</u>	<u>4</u>
<u>RATIO OF COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS TO EARNINGS</u>	<u>5</u>
<u>PLAN OF DISTRIBUTION</u>	<u>5</u>
<u>DESCRIPTION OF CAPITAL STOCK</u>	<u>6</u>
<u>DESCRIPTION OF WARRANTS</u>	<u>10</u>
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	<u>12</u>
<u>INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE</u>	<u>12</u>
<u>LEGAL MATTERS</u>	<u>13</u>
<u>EXPERTS</u>	<u>13</u>

ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement that we filed with the Securities and Exchange Commission (the "SEC") using a "shelf" registration process. Under this shelf registration process, any combination of the securities described in this prospectus may be sold in one or more offerings. Each time securities are sold under this shelf registration, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and the applicable prospectus supplement, including all documents incorporated herein by reference, together with additional information described under "Where You Can Find More Information" below.

We have not authorized any dealer, agent or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and any accompanying prospectus supplement. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or an accompanying prospectus supplement. This prospectus and the accompanying prospectus supplement, if any, do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and any accompanying prospectus supplement constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus and the accompanying prospectus supplement, if any, is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date.

Unless the context otherwise requires, "Accelaron", the "Company", "we", "us", "our" and similar names refer to Accelaron Pharma Inc. and its wholly owned subsidiary.

OUR BUSINESS

Our Company

We are a leading biopharmaceutical company in the discovery and development of TGF-beta therapeutics to treat serious and rare diseases. Our research focuses on key natural regulators of cellular growth and repair, particularly the Transforming Growth Factor-Beta, or TGF-beta, protein superfamily. By combining our discovery and development expertise, including our proprietary knowledge of the TGF-beta superfamily, and our internal protein engineering and manufacturing capabilities, we have generated several innovative therapeutic candidates, all of which encompass novel potential first-in-class mechanisms of action. We have focused and prioritized our research and development activities within three key therapeutic areas, and if successful, these candidates could have the potential to significantly improve clinical outcomes for patients across these areas of high, unmet need.

Our common stock is listed on the NASDAQ Global Market under the symbol "XLRN". Our principal executive offices are located at 128 Sidney Street, Cambridge, Massachusetts 02139, and our telephone number is (617) 649-9200. Our website address is www.acceleronpharma.com. The information found on our website is not part of this prospectus.

RISK FACTORS

Investing in our securities involves risk. Prior to making a decision about investing in our securities, you should carefully consider the specific risk factors discussed under the heading "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2016, on file with the SEC, which is incorporated by reference into this prospectus and any prospectus supplement in its entirety, as the same may be amended, supplemented or superseded from time to time by our filings under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), together with those under the heading "Risk Factors" in any applicable prospectus supplement and all of the other information contained or incorporated by reference in this prospectus or such prospectus supplement. See "Where You Can Find More Information." The risks and uncertainties we describe are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations. If any of these risks were to occur, our business, financial condition or results of operations would likely suffer. In that event, the trading price of our common stock could decline, and you could lose all or part of your investment.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and the other documents we have filed with the SEC that are incorporated herein by reference contain forward-looking statements that involve risks and uncertainties, as well as assumptions that, if they never materialize or prove incorrect, could cause our results to differ materially from those expressed or implied by such forward-looking statements. In some cases, these forward-looking statements can be identified by the use of forward-looking terminology. The statements contained in this prospectus that are not purely historical are "forward-looking statements" within the meaning of Section 27A of the Securities Act. The terms "anticipate", "believe", "contemplate", "continue", "could", "estimate", "expect", "forecast", "goal", "intend", "may", "plan", "potential", "predict", "project", "should", "strategy", "target", "will", "would", "vision", or, in each case, the negative or other variations thereon or other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements in this prospectus, any prospectus supplement and the other documents we have filed with the SEC that are incorporated herein by reference include, among other things, statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things:

- our ongoing and planned preclinical studies and clinical trials;
- clinical trial data and the timing of results of our ongoing clinical trials;
- our plans to develop and commercialize ACE-083 and our other preclinical therapeutic candidates and our and Celgene's plans to develop and commercialize luspatercept and sotatercept;
- the potential benefits of strategic partnership agreements and our ability to enter into selective strategic partnership arrangements;
- the timing of, and our and Celgene's ability to, obtain and maintain regulatory approvals for our therapeutic candidates;
- the rate and degree of market acceptance and clinical utility of any approved therapeutic candidate, particularly in specific patient populations;
- our ability to quickly and efficiently identify and develop therapeutic candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;

- our intellectual property position; and
- our estimates regarding our results of operations, financial condition, liquidity, capital requirements, prospects, growth and strategies.

Given these uncertainties, you should not place undue reliance on these forward-looking statements. You should read this prospectus, any supplements to this prospectus and the documents that we reference in this prospectus with the understanding that our actual future results may be materially different from what we expect. Except as required by law, we do not undertake any obligation to update or revise any forward-looking statements contained in this prospectus or any supplement to this prospectus, whether as a result of new information, future events or otherwise.

USE OF PROCEEDS

Except as otherwise provided in the applicable prospectus supplement, we intend to use the net proceeds from the sale of the securities offered by us by this prospectus for general corporate purposes, including working capital, capital expenditures, research, development and manufacturing expenditures, clinical trial expenditures, general and administrative expenses, or commercial expenditures. We may temporarily invest the net proceeds in short-term, interest-bearing, investment-grade securities, certificates of deposit or government securities until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

Additional information on the use of net proceeds from the sale of securities offered by us by this prospectus may be set forth in the prospectus supplement relating to the specific offering.

RATIO OF COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS TO EARNINGS

The following table sets forth our historical ratios of fixed charges and preferred stock dividends to earnings for the periods indicated. You should read this table in conjunction with the financial statements and notes incorporated by reference in this prospectus.

	Year Ended December 31,					Six Months
	2012	2013	2014	2015	2016	Ended June 30, 2017
Ratio of combined fixed charges and preferred stock dividends to earnings(1)	—	—	—	—	—	—

- (1) Earnings were inadequate to cover fixed charges and preferred dividends for the years ended December 31, 2012, 2013, 2014, 2015 and 2016 by \$59.6 million, \$39.0 million, \$51.3 million, \$63.9 million and \$57.0 million, respectively, and for the six months ended June 30, 2017, by \$55.1 million.

PLAN OF DISTRIBUTION

We may sell securities in any of the ways described below or in any combination:

- to or through underwriters or dealers;
- through one or more agents; or
- directly to purchasers or to a single purchaser.

The distribution of the securities may be effected from time to time in one or more transactions:

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

Each prospectus supplement will describe the method of distribution of the securities and any applicable restrictions.

The prospectus supplement with respect to the securities of a particular series will describe the terms of the offering of the securities, including the following:

- the name or names of any underwriters, dealers or agents and the amounts of securities underwritten or purchased by each of them;
- the public offering price of the securities and the proceeds to us and any discounts, commissions or concessions allowed or reallocated or paid to dealers; and
- any securities exchanges on which the securities may be listed.

Any offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time.

Only the agents or underwriters named in each prospectus supplement are agents or underwriters in connection with the securities being offered thereby.

We may authorize underwriters, dealers or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in each applicable prospectus supplement. Each contract will

[Table of Contents](#)

be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in each applicable prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will be subject only to those conditions set forth in each applicable prospectus supplement, and each prospectus supplement will set forth any commissions we pay for solicitation of these contracts.

Agents, underwriters and other third parties described above may be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution from us with respect to payments that the agents, underwriters or other third parties may be required to make in respect thereof. Agents, underwriters and such other third parties may be customers of, engage in transactions with, or perform services for us in the ordinary course of business.

One or more firms, referred to as "remarketing firms," may also offer or sell the securities, if a prospectus supplement so indicates, in connection with a remarketing arrangement upon their purchase. Remarketing firms will act as principals for their own accounts or as our agents. These remarketing firms will offer or sell the securities in accordance with the terms of the securities. Each prospectus supplement will identify and describe any remarketing firm and the terms of its agreement, if any, with us and will describe the remarketing firm's compensation. Remarketing firms may be deemed to be underwriters in connection with the securities they remarket. Remarketing firms may be entitled under agreements that may be entered into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, and may be customers of, engage in transactions with or perform services for us in the ordinary course of business.

Certain underwriters may use this prospectus and any accompanying prospectus supplement for offers and sales related to market-making transactions in the securities. These underwriters may act as principal or agent in these transactions, and the sales will be made at prices related to prevailing market prices at the time of sale.

The securities may be new issues of securities and may have no established trading market. The securities may or may not be listed on a securities exchange. Underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We can make no assurance as to the liquidity of, or the existence of trading markets for, any of the securities.

Certain persons participating in an offering may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with rules and regulations under the Securities Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a short covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

DESCRIPTION OF CAPITAL STOCK

General

The following description of our capital stock is intended as a summary only and is qualified in its entirety by reference to our restated certificate of incorporation and amended and restated by-laws,

[Table of Contents](#)

which are filed as exhibits to the registration statement of which this prospectus is a part, and to the applicable provisions of the Delaware General Corporation Law. We refer in this section to our restated certificate of incorporation as our certificate of incorporation, and we refer to our amended and restated by-laws as our by-laws.

Our authorized capital stock consists of 175,000,000 shares of our common stock, par value \$0.001 per share, and 25,000,000 shares of our preferred stock, par value \$0.001 per share, all of which preferred stock is undesignated.

As of June 30, 2017, we had issued and outstanding:

- 38,636,505 shares of our common stock;
- options to purchase a total of 3,541,003 shares of our common stock with a weighted-average exercise price of \$28.57 per share; and
- warrants to purchase a total of 63,296 shares of our common stock with a weighted-average exercise price of \$5.94 per share.

As of June 30, 2017, we had 92 stockholders of record.

Common Stock

Dividend Rights. Subject to preferences that may apply to shares of preferred stock outstanding at the time, holders of outstanding shares of common stock will be entitled to receive dividends out of assets legally available at the times and in the amounts as the board of directors may from time to time determine.

Voting Rights. Each outstanding share of common stock will be entitled to one vote on all matters submitted to a vote of stockholders. Holders of shares of our common stock shall have no cumulative voting rights.

Preemptive Rights. Our common stock will not be entitled to preemptive or other similar subscription rights to purchase any of our securities.

Conversion or Redemption Rights. Our common stock will be neither convertible nor redeemable.

Liquidation Rights. Upon our liquidation, the holders of our common stock will be entitled to receive pro rata our assets which are legally available for distribution, after payment of all debts and other liabilities and subject to the prior rights of any holders of preferred stock then outstanding.

Listing. Our common stock is listed on the NASDAQ Global Market under the symbol "XLRN".

Preferred Stock

Our board of directors may, without further action by our stockholders, from time to time, direct the issuance of shares of preferred stock in series and may, at the time of issuance, determine the designations, powers, preferences, privileges, and relative participating, optional or special rights as well as the qualifications, limitations or restrictions thereof, including dividend rights, conversion rights, voting rights, terms of redemption and liquidation preferences, any or all of which may be greater than the rights of the common stock. Satisfaction of any dividend preferences of outstanding shares of preferred stock would reduce the amount of funds available for the payment of dividends on shares of our common stock. Holders of shares of preferred stock may be entitled to receive a preference payment in the event of our liquidation before any payment is made to the holders of shares of our common stock. Under certain circumstances, the issuance of shares of preferred stock may render more difficult or tend to discourage a merger, tender offer or proxy contest, the assumption of control by a holder of a large block of our securities or the removal of incumbent management. Upon the

affirmative vote of a majority of the total number of directors then in office, our board of directors, without stockholder approval, may issue shares of preferred stock with voting and conversion rights which could adversely affect the holders of shares of our common stock and the market value of our common stock. There are no shares of preferred stock outstanding, and we have no present intention to issue any shares of preferred stock.

Registration Rights

We are party to an amended and restated registration rights agreement with certain holders of our common stock.

Under the amended and restated registration rights agreement, holders of registrable shares can demand that we file a registration statement or request that their shares be included on a registration statement that we are otherwise filing, in either case, registering the resale of their shares of common stock. These registration rights are subject to conditions and limitations, including the right, in certain circumstances, of the underwriters of an offering to limit the number of shares included in such registration and our right, in certain circumstances, not to effect a requested S-1 or S-3 registration within 60 days before the Company's estimated date of filing a registration statement or six months following the effective date of a registration statement pertaining to an underwritten public offering of securities for the account of the Company, including this offering.

Demand Registration Rights

The holders of at least a majority of the registrable shares may require us to file a registration statement under the Securities Act at our expense with respect to the resale of their registrable shares, and we are required to use our best efforts to effect the registration.

Piggyback Registration Rights

If we propose to register any of our securities under the Securities Act for our own account or the account of any other holder, the holders of registrable shares are entitled to notice of such registration and to request that we include registrable shares for resale on such registration statement, subject to the right of any underwriter to limit the number of shares included in such registration.

We will pay all registration expenses, other than underwriting discounts and commissions, related to any demand or piggyback registration. The amended and restated registration rights agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify the selling stockholders, in the event of misstatements or omissions in the registration statement attributable to us and they are obligated to indemnify us for misstatements or omissions attributable to them, in each case, except in the event of fraud. The registration rights will not terminate until all registrable shares have been sold or no longer qualify as registrable shares.

Anti-Takeover Effects of Our Certificate of Incorporation and Our By-Laws

Our certificate of incorporation and by-laws contain certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and which may have the effect of delaying, deferring or preventing a future takeover or change in control of the company unless such takeover or change in control is approved by our board of directors.

These provisions include:

Classified Board. Our certificate of incorporation provides that our board of directors be divided into three classes of directors, with the classes as nearly equal in number as possible. As a result, approximately one-third of our board of directors will be elected each year. The classification of directors has the effect of making it more difficult for stockholders to change the composition of our

board. Our certificate of incorporation also provides that, subject to any rights of holders of preferred stock to elect additional directors under specified circumstances, the number of directors is fixed exclusively pursuant to a resolution adopted by our board of directors.

Action by Written Consent; Special Meetings of Stockholders. Our certificate of incorporation provides that, except as otherwise provided for by a resolution of the board of directors providing for the issuance of a series of preferred stock, stockholder action can be taken only at an annual or special meeting of stockholders and cannot be taken by written consent in lieu of a meeting. Our certificate of incorporation and the by-laws also provide that, except as otherwise required by law, and subject to any special rights of the holders of preferred stock, special meetings of the stockholders can only be called pursuant to a resolution adopted by a majority of the board of directors. Except as described above, stockholders are not permitted to call a special meeting or to require the board of directors to call a special meeting.

Removal of Directors. Our certificate of incorporation provides that, subject to any special rights of holders of preferred stock, our directors may be removed only for cause by the affirmative vote of at least 75% of the voting power of our outstanding shares of capital stock, voting together as a single class. This requirement of a supermajority vote to remove directors could enable holders of a minority of our capital stock to prevent a change in the composition of our board.

Advance Notice Procedures. Our by-laws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to the board of directors. Stockholders at an annual meeting will only be able to consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of the board of directors or by a stockholder who was a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has given our Secretary timely written notice, in proper form, of the stockholder's intention to bring that business before the meeting. Although the by-laws do not give the board of directors the power to approve or disapprove stockholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting, the by-laws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of the company.

Supermajority Approval Requirements. The Delaware General Corporation Law generally provides that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless either a corporation's certificate of incorporation or by-laws require a greater percentage. Our certificate of incorporation provides that the affirmative vote of holders of at least 75% of the voting power of the outstanding shares of our capital stock is required to amend, alter, change or repeal our by-laws. This requirement of a supermajority vote to approve amendments to our by-laws could enable holders of a minority of our capital stock to exercise veto power over any such amendments.

Authorized but Unissued Shares. Our authorized but unissued shares of common stock and preferred stock will be available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of a majority of our common stock by means of a proxy contest, tender offer, merger or otherwise.

Exclusive Forum. Our certificate of incorporation provides that, subject to limited exceptions, the state or federal court located within the State of Delaware is the sole and exclusive forum for (1) any

derivative action or proceeding brought on our behalf, (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (3) any action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our by-laws, or (4) any other action asserting a claim against us that is governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions of our certificate of incorporation described above. Although we believe these provisions benefit us by providing increased consistency in the application of Delaware law for the specified types of actions and proceedings, the provisions may have the effect of discouraging lawsuits against our directors and officers. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with one or more actions or proceedings described above, a court could find the choice of forum provisions contained in our certificate of incorporation to be inapplicable or unenforceable.

Section 203 of the Delaware General Corporation Law. We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A "business combination" includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, 15% or more of the corporation's voting stock.

Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions: before the stockholder became interested, the board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder; upon consummation of the transaction which 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 voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or at or after the time the stockholder became interested, the business combination was approved by the board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may "opt out" of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or by-laws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent and registrar's address is 462 South 4th Street, Suite 1600, Louisville, Kentucky 40202.

DESCRIPTION OF WARRANTS

The following description, together with the additional information that we include in any applicable prospectus supplements and in any related free writing prospectuses that we may authorize

to be distributed to purchasers, summarizes the material terms and provisions of the warrants that we may offer under this prospectus. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of warrant agreement that describes the terms of the series of warrants we are offering, and any supplemental agreements, before the issuance of the related series of warrants. The following summaries of material terms and provisions of the warrants are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and any supplemental agreements applicable to a particular series of warrants. We urge purchasers to read the applicable prospectus supplements related to the particular series of warrants that we may offer under this prospectus, as well as any related free writing prospectuses and the complete warrant agreement and any supplemental agreements that contain the terms of the warrants.

General Terms. We may issue warrants to purchase common stock or preferred stock. We may offer warrants separately or together with one or more additional warrants, common stock or preferred stock, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. If we issue warrants as part of a unit, the accompanying prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the expiration date of the warrants.

We will specify in a prospectus supplement the terms of the series of warrants, including, if applicable, the following:

- the specific designation and aggregate number of, and the offering price at which we will issue, the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if a holder may not continuously exercise the warrants throughout that period, the specific date or dates on which such holder may exercise the warrants;
- whether the warrants are to be sold separately or with other securities as parts of units;
- whether the warrants will be issued in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and of any security included in that unit;
- any applicable material U.S. federal income tax consequences;
- the identity of the warrant agent for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the proposed listing, if any, of the warrants or any securities purchasable upon exercise of the warrants on any securities exchange;
- the designation and terms of any equity securities purchasable upon exercise of the warrants;
- if applicable, the designation and terms of the preferred stock or common stock with which the warrants are issued and, the number of warrants issued with each security;
- if applicable, the date from and after which the warrants and common stock and/or preferred stock will be separately transferable;

[Table of Contents](#)

- the number of shares of preferred stock or the number of shares of common stock purchasable upon exercise of a warrant and the price at which those shares may be purchased;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- the antidilution provisions of, and other provisions for changes to or adjustment in the exercise price of, the warrants, if any;
- any redemption or call provisions; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange or exercise of the warrants.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including, in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

The provisions described in this section, as well as those described under "Description of Capital Stock" will apply to each warrant, as applicable, and to any common stock or preferred stock included in each warrant, as applicable.

Enforceability of Rights by Holders of Warrants. Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder or any warrant. A single bank or trust company may act as a warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

WHERE YOU CAN FIND MORE INFORMATION

We file annual and quarterly reports, current reports, proxy statements, and other information with the SEC. We make these documents publicly available, free of charge, on our website at www.acceleronpharma.com as soon as reasonably practicable after filing such documents 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 obtain information on the operation of the Public Reference Room by calling the SEC at (800) 732-0330. Our filings are also available to the public from the website maintained by the SEC at <http://www.sec.gov>.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information in documents that we file later with the SEC will automatically update and supersede information in this prospectus. We incorporate by reference into this prospectus the documents listed below and any future filings made by us with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until we terminate or complete this offering (other than documents or information deemed to have

[Table of Contents](#)

been furnished and not filed in accordance with SEC rules). We hereby incorporate by reference the following documents:

- Our Annual Report on Form 10-K for the year ended December 31, 2016, filed with the SEC on March 1, 2017;
- Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2017 and June 30, 2017, filed with the SEC on May 8, 2017 and August 3, 2017, respectively;
- The information specifically incorporated by reference into our Annual Report on Form 10-K for the fiscal year ended December 31, 2016 from our Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 13, 2017;
- Our Current Reports on Form 8-K filed with the SEC on April 27, 2017, May 2, 2017, May 10, 2017, June 6, 2017, June 15, 2017, June 30, 2017, July 19, 2017 and September 19, 2017; and
- The description of our common stock contained in our Registration Statement on Form 8-A, filed with the SEC on September 13, 2013, including any amendments or reports filed for the purpose of updating such description.

A statement contained in a document incorporated by reference into this prospectus shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus, any future prospectus supplement or in any other subsequently filed document that is also incorporated in this prospectus modifies or replaces such statement. Any statements so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus. You should not assume that the information in this prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.

You may request a copy of these documents, which will be provided to you at no cost, by contacting:

**Acceleron Pharma Inc.
128 Sidney Street
Cambridge, Massachusetts 02139
(617) 649-9200**

Copies of these filings are also available, without charge, through the "Investors/Media" section of our website (www.acceleronpharma.com) as soon as reasonably practicable after they are filed electronically with the SEC. The information contained on our website is not a part of this prospectus.

LEGAL MATTERS

The validity of the issuance of the securities offered hereby will be passed upon for us by Ropes & Gray LLP, Boston, Massachusetts. The validity of any securities will be passed upon for any underwriters or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of Acceleron Pharma Inc. appearing in Acceleron Pharma Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2016, and the effectiveness of Acceleron Pharma Inc.'s internal control over financial reporting as of December 31, 2016 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

PART II**INFORMATION NOT REQUIRED IN PROSPECTUS****Item 14. Other Expenses of Issuance and Distribution.**

The following table sets forth the various expenses, other than any underwriting discounts and commissions, in connection with the sale and distribution of the securities being registered.

Securities and Exchange Commission Registration Fee	\$	*
Printing and engraving expenses		**
Legal fees and expenses		**
Accounting fees and expenses		**
Blue sky fees and expenses		**
Transfer Agent and Registrar fees		**
Trustee's fees and expenses		**
Miscellaneous		**
Total	\$	**

* Omitted because the registration fee is being deferred pursuant to Rule 456(b) and 457(r).

** Estimated fees and other expenses not presently known.

Item 15. Indemnification of Directors and Officers.

Section 145 of the General Corporation Law of the State of Delaware provides as follows:

A corporation shall have power 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 the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person 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 the person's conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which the person 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 reasonable cause to believe that the person's conduct was unlawful.

A corporation shall have power 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 or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and

[Table of Contents](#)

only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

As permitted by the Delaware General Corporation Law, we have included in our restated certificate of incorporation a provision to eliminate the personal liability of our directors for monetary damages for breach of their fiduciary duties as directors, subject to certain exceptions. In addition, our restated certificate of incorporation and by-laws provide that we are required to indemnify our officers and directors under certain circumstances, including those circumstances in which indemnification would otherwise be discretionary, and we are required to advance expenses to our officers and directors as incurred in connection with proceedings against them for which they may be indemnified.

We have entered into indemnification agreements with our directors and officers. These agreements provide broader indemnity rights than those provided under the Delaware General Corporation Law and our restated certificate of incorporation. The indemnification agreements are not intended to deny or otherwise limit third-party or derivative suits against us or our directors or officers, but to the extent a director or officer were entitled to indemnity or contribution under the indemnification agreement, the financial burden of a third-party suit would be borne by us, and we would not benefit from derivative recoveries against the director or officer. Such recoveries would accrue to our benefit but would be offset by our obligations to the director or officer under the indemnification agreement.

We maintain directors' and officers' liability insurance for the benefit of our directors and officers.

Item 16. Exhibits.

<u>Exhibit</u>	<u>Description</u>
1.1	Underwriting Agreement†
4.1	Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.1 of the registrant's current report on Form 8-K filed on September 24, 2013) (File No. 001-36065)
4.2	Amended and Restated By-laws (incorporated herein by reference to Exhibit 3.2 of the registrant's current report on Form 8-K filed on September 24, 2013) (File No. 001-36065)
4.3	Amendment No. 1 to Amended and Restated By-laws (incorporated hereby by reference to Exhibit 3.1 of the registrant's current report on Form 8-K filed on September 12, 2016) (File No. 001-36065)
4.4	Form of Common Stock Certificate (incorporated herein by reference to Exhibit 4.1 to the registrant's registration statement on Form S-1 filed on August 7, 2013) (File No. 333-190417)
4.5	Form of Amended and Restated Registration Rights Agreement (incorporated herein by reference to Exhibit 4.2 to the registrant's registration statement on Form S-1 filed on August 7, 2013) (File No. 333-190417)
4.6	Form of Preferred Stock Certificate †
4.7	Form of Warrant Agreement †
5.1	Opinion of Ropes & Gray LLP*
12.1	Statement Regarding Computation of Ratio of Combined Fixed Charges and Preferred Stock Dividends to Earnings*
23.1	Consent of Ropes & Gray LLP (included in Exhibit 5.1)*

<u>Exhibit</u>	<u>Description</u>
23.2	Consent of Ernst & Young LLP*
24.1	Power of attorney (included on the signature pages 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.

(a) The undersigned registrant hereby undertakes:

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

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

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission 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;

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

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

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is 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 (§230.424 of this chapter);
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
- (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

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

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as 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.

(d) The undersigned registrant hereby undertakes that: (i) 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; and (ii) 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.

<u>Signatures</u>	<u>Title</u>	<u>Dates</u>
<u>/s/ JEAN M. GEORGE</u> Jean M. George	Director	September 19, 2017
<u>/s/ GEORGE GOLUMBESKI, PH.D.</u> George Golumbeski, Ph.D.	Director	September 19, 2017
<u>/s/ TERRENCE C. KEARNEY</u> Terrence C. Kearney	Director	September 19, 2017
<u>/s/ TOM MANIATIS, PH.D.</u> Tom Maniatis, Ph.D.	Director	September 19, 2017
<u>/s/ THOMAS MCCOURT</u> Thomas McCourt	Director	September 19, 2017
<u>/s/ TERRANCE G. MCGUIRE</u> Terrance G. McGuire	Director	September 19, 2017
<u>/s/ RICHARD F. POPS</u> Richard F. Pops	Director	September 19, 2017
<u>/s/ JOSEPH S. ZAKRZEWSKI</u> Joseph S. Zakrzewski	Director	September 19, 2017

September 19, 2017

Accelaron Pharma Inc.
128 Sidney Street
Cambridge, MA 02139

Re: Registration of Securities by Accelaron Pharma Inc.

Ladies and Gentlemen:

We have acted as counsel to Accelaron Pharma Inc., a Delaware corporation (the “Company”), in connection with the registration statement on Form S-3 (the “Registration Statement”) filed on the date hereof by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”), relating to the registration under the Securities Act and the proposed issuance and sale from time to time pursuant to Rule 415 under the Securities Act of:

- (i) shares of the Company’s common stock, \$0.001 par value per share (the “Common Stock”);
- (ii) shares of the Company’s preferred stock, \$0.001 par value per share (the “Preferred Stock”); and
- (iii) warrants representing the right to receive, upon exercise, a number of shares of Common Stock or Preferred Stock (the “Warrants”).

The Common Stock, the Preferred Stock and the Warrants are referred to herein collectively as the “Securities.”

In connection with this opinion letter, we have examined such certificates, documents and records and have made such investigation of fact and such examination of law as we have deemed appropriate in order to enable us to render the opinions set forth herein. In conducting such investigation, we have relied, without independent verification, upon certificates of officers of the Company, public officials and other appropriate persons.

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

Based upon and subject to the foregoing and the assumptions, qualifications and limitations set forth below, we are of the opinion that:

1. When (i) the issuance and sale of any shares of Common Stock have been duly authorized by all necessary corporate action of the Company and (ii) such shares have been issued and delivered against payment of the purchase price therefor (in an amount in excess of the par value thereof) in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, such shares of Common Stock will be validly issued, fully paid and nonassessable. The Common Stock covered in the opinion
-

in this paragraph includes any shares of Common Stock that may be issued upon exercise, conversion or exchange pursuant to the terms of any other Securities.

2. When (i) the terms of any Preferred Stock of a particular series and their issuance and sale have been duly authorized by all necessary corporate action of the Company, (ii) a certificate of designations with respect to such series of Preferred Stock has been duly adopted by the Company and filed with the Secretary of State of the State of Delaware, and (iii) such shares of Preferred Stock have been issued and delivered against payment of the purchase price therefor (in an amount in excess of the par value thereof) in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, such shares of Preferred Stock will be validly issued, fully paid, and nonassessable. The Preferred Stock covered in the opinion in this paragraph includes any shares of Preferred Stock that may be issued upon exercise, conversion or exchange pursuant to the terms of any other Securities.

3. When (i) the terms of any Warrants and their issuance and sale have been duly authorized by all necessary corporate action of the Company and (ii) such Warrants have been duly executed, countersigned and delivered in accordance with the applicable warrant agreement and against payment of the purchase price therefor in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, such Warrants will constitute valid and binding obligations of the Company enforceable against the Company in accordance with their terms.

In rendering the opinions set forth above, we have assumed that (i) the Registration Statement will have become effective under the Securities Act, a prospectus supplement will have been prepared and filed with the Commission describing the Securities offered thereby and such Securities will have been issued and sold in accordance with the terms of such prospectus supplement; (ii) a definitive purchase, underwriting, or similar agreement, and any applicable warrant agreement, pursuant to which such Securities may be issued, will have been duly authorized, executed and delivered by the Company and the other parties thereto, and the specific terms of such Securities will have been duly established in conformity with the applicable agreement and the certificate of incorporation and bylaws of the Company (if applicable); (iii) at the time of the issuance of any Securities, the Company will be a validly existing corporation under the law of its jurisdiction of incorporation; (iv) the number of shares of Common Stock issued pursuant to the Registration Statement, together with the number of shares outstanding or reserved at the time of issuance, will not exceed the respective number of shares authorized by the Company's certificate of incorporation in effect at the time of such issuance; and (v) all the foregoing actions to be taken by the Company will have been taken so as not to violate any applicable law and so as to comply with any requirement or restriction imposed by any court or governmental or regulatory body having jurisdiction over the Company or any of its property.

We hereby consent to the filing of this opinion letter 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 Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Ropes & Gray LLP

Ropes & Gray LLP

STATEMENT REGARDING COMPUTATION OF RATIO OF COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS TO EARNINGS

The following table reflects the computation of the ratio of combined fixed charges and preferred stock dividends to earnings for the periods presented (in thousands):

	<u>Year Ended December 31,</u>					<u>Six Months</u>
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Ended June 30,</u>
						<u>2017</u>
Net Loss	\$ (32,582)	\$ (21,898)	\$ (51,259)	\$ (63,894)	\$ (57,014)	\$ (55,075)
Dividends on preferred stock	(27,061)	(19,870)	—	—	—	—
Ratio of earnings to fixed charges and preferred dividends (1)	—	—	—	—	—	—
Deficiency in earnings required to cover combined fixed charges and preferred stock dividends (2)	(59,643)	(41,768)	(51,259)	(63,894)	(57,014)	(55,075)

- (1) The ratio of earnings to fixed charges and preferred dividends is defined as earnings divided by the combined fixed charges and preferred stock dividends. Fixed charges consists of interest costs (both expensed and capitalized); amortization of debt issuance costs and discount relating to any indebtedness; and an estimate of interest expense within rental expense. Fixed charges are excluded from the table above as all periods presented include a net loss.
- (2) Our earnings were inadequate to cover fixed charges and preferred dividends for the years ended December 31, 2012, 2013, 2014, 2015 and 2016 by \$59.6 million, \$39.0 million, \$51.3 million, \$63.9 million and \$57.0 million, respectively, and for the six months ended June 30, 2017 by \$55.1 million.

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” in this Registration Statement (Form S-3) and related Prospectus of Acceleron Pharma Inc. for the registration of shares of its common stock, preferred stock and warrants, and to the incorporation by reference therein of our reports dated March 1, 2017, with respect to the consolidated financial statements of Acceleron Pharma Inc., and the effectiveness of internal control over financial reporting of Acceleron Pharma Inc., included in its Annual Report (Form 10-K) for the year ended December 31, 2016, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts
September 19, 2017
