

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

FORM S-3

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

BioCryst Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

62-1413174

(I.R.S. Employer Identification Number)

**4505 Emperor Blvd., Suite 200
Durham, North Carolina 27703
(919) 859-1302**

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

**Jon P. Stonehouse
President and Chief Executive Officer
4505 Emperor Blvd., Suite 200
Durham, North Carolina 27703
(919) 859-1302**

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

With a copy to:

**Brian Lane, Esq.
Robyn Zolman, Esq.
Gibson, Dunn & Crutcher LLP
1050 Connecticut Avenue, NW
Washington, DC 20036
(202) 955-8500**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement, as determined by market conditions.

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, please 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 7(a)(2)(B) of the Securities Act.

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	Amount of Registration Fee
Common Stock, \$0.01 par value(2)	11,710,951 shares	\$ 5.48	\$ 64,176,011	\$ 7,438

(1) Pursuant to Rule 416 under the Securities Act, the securities registered hereunder include such indeterminate number of securities as may be issuable with respect to the securities being registered hereunder as a result of stock splits, stock dividends or similar transactions.

(2) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) under the Securities Act and based upon the average of the high and low prices on the Nasdaq Global Select Market on May 8, 2017.

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

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission becomes effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED MAY 10, 2017

PROSPECTUS



11,710,951 Shares of Common Stock

The selling stockholders identified in this prospectus may sell up to an aggregate of 11,710,951 shares of our common stock. We will not receive any of the proceeds from the sale of the shares of our common stock by the selling stockholders.

Our registration of the shares of our common stock covered by this prospectus does not mean that the selling stockholders will offer or sell any of the shares of our common stock. The selling stockholders identified in this prospectus may sell the shares of our common stock covered by this prospectus in a number of different ways and at varying prices. For additional information on the possible methods of sale that may be used by the selling stockholders, you should refer to the information under the heading "Plan of Distribution" on page 8 of this prospectus.

Our common stock, par value \$0.01 per share, trades on the NASDAQ Global Select Market under the symbol "BCRX." On May 8, 2017, the last reported sale price of our common stock on The NASDAQ Global Select Market was \$5.35 per share.

We have not authorized anyone else to make additional representations or to provide you with information other than information provided or incorporated by reference in this prospectus. We take no responsibility for, and can provide no assurances as to the reliability of, any other information that others may give you or representations that others may make. The selling stockholders are not making or soliciting an offer of these securities in any state or jurisdiction where the offer is not permitted or in any circumstances in which such offer or solicitation is unlawful. You should assume that the information contained or incorporated by reference in this prospectus is accurate only as of the date of those documents.

Investing in our common stock involves a high degree of risk. See "Risk Factors" on page 2 of this prospectus and in the documents incorporated herein by reference.

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 _____, 2017.

TABLE OF CONTENTS

	<u>Page</u>
ABOUT THIS PROSPECTUS	i
PROSPECTUS SUMMARY	1
RISK FACTORS	2
INFORMATION REGARDING FORWARD-LOOKING STATEMENTS	3
USE OF PROCEEDS	5
SELLING STOCKHOLDERS	5
DESCRIPTION OF CAPITAL STOCK	7
PLAN OF DISTRIBUTION	8
LEGAL MATTERS	10
EXPERTS	10
WHERE YOU CAN FIND MORE INFORMATION	11
INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE	11

ABOUT THIS PROSPECTUS

All references to “Company,” “we,” “our,” or “us” refer solely to BioCryst Pharmaceuticals, Inc. and not to the persons who manage us or sit on our Board of Directors. All trade names used in this prospectus are either our registered trademarks or trademarks of their respective holders.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere or incorporated by reference into this prospectus. Because it is a summary, it does not contain all of the information that you should consider before investing in our securities. You should read this entire prospectus carefully, including the section entitled "Risk Factors" and the documents that we incorporate by reference into this prospectus, before making an investment decision.

Business of BioCryst Pharmaceuticals, Inc.

We are a biotechnology company that designs, optimizes and develops novel small molecule drugs that block key enzymes involved in the pathogenesis of diseases. We focus on oral treatments for rare diseases in which significant unmet medical needs exist and that align with our capabilities and expertise. We integrate the disciplines of biology, crystallography, medicinal chemistry and computer modeling to discover and develop small molecule pharmaceuticals through the process known as structure-guided drug design. Structure-guided drug design is a drug discovery approach by which we design synthetic compounds from detailed structural knowledge of the active sites of enzyme targets associated with particular diseases. We use X-ray crystallography, computer modeling of molecular structures and advanced chemistry techniques to focus on the three-dimensional molecular structure and active site characteristics of the enzymes that control cellular biology. Enzymes are proteins that act as catalysts for many vital biological reactions. Our goal generally is to design a compound that will fit in the active site of an enzyme and thereby prevent its catalytic activity.

We are a Delaware corporation originally founded in 1986. Our principal executive offices are located at 4505 Emperor Blvd. Suite 200, Durham, North Carolina 27703, and our telephone number is (919) 859-1302. For more information about us, please visit our website at <http://www.biocryst.com>. The information on our web site is not incorporated by reference into this prospectus.

RISK FACTORS

Investing in our common stock involves risks. Our business is influenced by many factors that are difficult to predict and beyond our control and that involve uncertainties that may materially affect our business, results of operations, financial condition or cash flows, or the value of these securities. These risks and uncertainties are described in the risk factors section of the documents that are incorporated by reference in this prospectus including in our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. You should carefully consider all of the information contained in or incorporated by reference in this prospectus before you invest in our securities. The occurrence of any of these risks might cause you to lose all or part of your investment in our common stock.

INFORMATION REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the information we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). All statements other than statements of historical facts contained in this prospectus and the information we incorporate by reference are forward-looking statements. These forward-looking statements can generally be identified by the use of words such as “may,” “will,” “intends,” “plans,” “believes,” “anticipates,” “expects,” “estimates,” “predicts,” “potential,” the negative of these words or similar expressions. Statements that describe our future plans, strategies, intentions, expectations, objectives, goals or prospects are also forward-looking statements. These forward-looking statements include, but are not limited to, statements about:

- the preclinical development, clinical development, commercialization, or post-marketing studies of our product candidates and products, including our HAE program, peramivir, galidesivir, and early stage discovery programs;
- the potential funding from our contracts with the National Institute of Allergy and Infectious Diseases within the United States Department of Health and Human Services and the Biomedical Advanced Research and Development Authority within the United States Department of Health and Human Services for the development of galidesivir;
- the potential for government stockpiling orders of peramivir, additional regulatory approvals of peramivir or milestones, royalties or profit from sales of peramivir by us or our partners;
- the potential use of peramivir as a treatment for H1N1, H5N1, and H7N9 or other strains of influenza;
- the implementation of our business model, strategic plans for our business, products, product candidates and technology;
- our ability to establish and maintain collaborations or out-license rights to our product candidates;
- plans, programs, progress and potential success of our collaborations, including Sequirus UK Limited, Shionogi & Co., Ltd. and Green Cross Corporation for peramivir, and Mundipharma for forodesine;
- JPR Royalty Sub LLC’s (“Royalty Sub”) ability to service its payment obligations in respect of the PhaRMA Senior Secured 14.0% Notes due 2020 (the “PhaRMA Notes”), and our ability to benefit from our equity interest in Royalty Sub;
- the foreign currency hedge agreement entered into by us in connection with the issuance by Royalty Sub of the PhaRMA Notes;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our product candidates and technology;
- our ability to operate our business without infringing the intellectual property rights of others;
- estimates of our expenses, revenues, capital requirements, annual cash utilization, and our needs for additional financing;
- our ability to continue as a going concern;
- the timing or likelihood of regulatory filings or regulatory agreements, deferrals, and approvals;
- our ability to raise additional capital to fund our operations or repay our recourse debt obligations;
- our ability to comply with the covenants as set forth in the agreements governing our debt obligations;

- our financial performance; and
- competitive companies, technologies and our industry.

These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under “Risk Factors” and elsewhere in this prospectus and the documents incorporated by reference. Any forward-looking statement reflects our current views with respect to future events and is subject to these and other risks, uncertainties and assumptions relating to our operations, results of operations, industry and future growth. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

Discussions containing these forward-looking statements are also contained in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” incorporated by reference from our most recent Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q for the quarters ended since our most recent Annual Report, our Current Reports on Form 8-K, as well as any future amendments we make to those filings or future filings with the Securities and Exchange Commission (the “SEC”).

USE OF PROCEEDS

We will not receive any proceeds from the sale of common stock by the selling stockholders. All proceeds from the sale of the shares will be for the accounts of the selling stockholders. See “Selling Stockholders” and “Plan of Distribution.”

SELLING STOCKHOLDERS

The table below sets forth, to our knowledge, information concerning the beneficial ownership of shares of our common stock by the selling stockholders as of May 8, 2017.

The information in the table below with respect to the selling stockholders has been obtained from the selling stockholders. When we refer to the “selling stockholders” in this prospectus, we mean the selling stockholders listed in the table below as offering shares, as well as their respective pledgees, donees, transferees or other successors-in-interest who may hold any of the selling stockholders’ interest.

We do not know if, when or in what amounts the selling stockholders may offer their shares for sale. The selling stockholders may sell some, all or none of the shares offered by this prospectus. Because the number of shares the selling stockholders may offer and sell is not presently known, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of shares that will be held by each selling stockholder after completion of this offering. This table, however, presents the maximum number of shares of common stock that the selling stockholders may offer pursuant to this prospectus and the number of shares of common stock that would be beneficially owned after the sale of the maximum number of shares of common stock by each selling stockholder.

Beneficial ownership is determined in accordance with the rules of the SEC, and includes voting or investment power with respect to shares. Unless otherwise indicated below, to our knowledge, each selling stockholder named in the table has sole voting and investment power with respect to the shares of common stock beneficially owned by it. The inclusion of any shares in this table does not constitute an admission of beneficial ownership for any selling stockholder named below. This table does not include certain shares of our common stock held by affiliates of the selling stockholders. The selling stockholders may hold a pecuniary interest in such additional shares.

Name of Selling Stockholder	Shares of Common Stock Beneficially Owned Prior to Offering		Number of Shares of Common Stock Being Offered	Shares of Common Stock to be Beneficially Owned After Offering	
	Number	Percentage(1)		Number	Percentage
Baker Bros. Advisors LP	11,791,784(2)	14.6%	11,710,951	80,833	0.1%

(1) Based on 80,421,820 shares of our common stock outstanding on May 8, 2017.

(2) Baker Bros. Advisors LP (“Adviser”) 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 held directly by 667, LP (“667”) and Baker Brothers Life Sciences, L.P. (“Life Science”, and together with 667, the “Funds”) and thus may be deemed the beneficial owner of such shares of common stock, which include: (a) 1,607,300 shares of common stock held by 667, and (b) 10,103,651 shares of common stock held by Life Sciences. Julian C. Baker and Felix J. Baker are the principals of Baker Bros. Advisors (GP) LLC, the sole general partner of Adviser and, as such, have voting and dispositive power with respect to the shares of common stock held by the Funds. In addition, Dr. Stephen R. Biggar, an employee of Adviser and former director of the Company, holds 5,833 shares of common stock and options to purchase 75,000 shares of common stock. Dr. Biggar previously served on the board of directors of the Company as a representative of the Funds. The policy of the Funds and Adviser does not permit employees to receive compensation for serving as a director of the issuer. Therefore, Dr. Biggar has no pecuniary interest in any stock options or shares of common stock directly held by him. The Funds are instead entitled to the pecuniary interest in any stock options and shares of common stock received as director compensation. Furthermore, Julian C. Baker and Felix J. Baker each directly hold and beneficially own 23,459 shares of common stock.

On March 15, 2017, we entered into a Registration Rights Agreement with 667, L.P. and Baker Brothers Life Sciences, L.P. pursuant to which we agreed that, if requested, we will register the shares of our common stock beneficially owned by the selling stockholders for resale under the Securities Act of 1933 (the “Securities Act”). Our registration obligations under this Registration Rights Agreement cover all shares of our common stock now held or later acquired by the selling stockholders, will continue in effect for up to 10 years, and include our obligation to facilitate certain underwritten public offerings of our common stock by the selling stockholders in the future. The registration statement of which this prospectus is a part is being filed pursuant to the Registration Rights Agreement.

DESCRIPTION OF CAPITAL STOCK

The following summary description of our capital stock summarizes general terms and provisions that apply to the capital stock. Because this is only a summary, it does not contain all of the information that may be important to you. This summary is subject to and qualified in its entirety by reference to our restated certificate of incorporation, as amended, by-laws, as amended, and the rights agreement, as amended, each of which are on file with the SEC. See “Where You Can Find More Information.”

Authorized and Outstanding Capital Stock

Our authorized capital stock consists of 200,000,000 shares of common stock, par value \$0.01 per share, and 5,000,000 shares of preferred stock, par value \$0.01 per share, of which 200,000 shares are designated Series B Junior Participating Preferred Stock with a par value of \$0.001 per share. On May 8, 2017, there were 80,421,420 shares of common stock outstanding and no shares of preferred stock outstanding.

Common Stock

Holders of our common stock are entitled to one vote per share on all matters submitted to a vote of stockholders and may not cumulate votes for the election of directors. Common stockholders have the right to receive dividends as and when declared by the Board of Directors from funds legally available therefor, subject to any preferential dividend rights of any preferred stock then outstanding. Upon our dissolution or liquidation, common stockholders are entitled to receive all assets legally available for distribution to stockholders, subject to any preferential rights of any preferred stock then outstanding. Holders of common stock have no preemptive rights and have no rights to convert their common stock into any other securities.

Preferred Stock

Preferred stock may be issued from time to time in one or more series, each such series to have such terms as determined by our Board of Directors. Our Board of Directors has the authority to determine and fix such voting powers, full or limited, or no voting powers, and such designations, preferences and relative participating, optional or other special rights, and qualifications, limitations or restrictions thereof, including without limitation dividend rights, conversion rights, redemption privileges and liquidation preferences, without further vote or action by our stockholders. We will distribute a prospectus supplement with regard to each particular series of preferred stock that will describe the terms and provisions of that series of preferred stock. The rights of the holders of any preferred stock that may be issued may adversely affect the rights of the holders of common stock. The issuance of preferred stock could make it more difficult for third parties to acquire a majority of our outstanding voting stock.

Anti-Takeover Provisions

Our certificate of incorporation provides for staggered terms for the members of the board of directors and supermajority approval of the removal of any member of the board of directors and prevents our stockholders from acting by written consent. Our certificate also requires supermajority approval of any amendment of these provisions. These provisions and other provisions of our by-laws and of Delaware law applicable to us could delay or make more difficult a merger, tender offer or proxy contest involving us.

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- 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;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- underwritten transactions;
- short sales effected after the date the registration statement of which this prospectus is a part is declared effective by the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- through the distribution of the common stock by any selling stockholder to its partners, members or stockholders;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

In addition, any shares covered by this prospectus that qualify for sale pursuant to Rule 144 under the Securities Act may be sold under Rule 144 rather than under this prospectus.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment or supplement to this prospectus amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering.

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are “underwriters” within the meaning of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act. Underwriters and their controlling persons, dealers and agents may be entitled, under agreements entered into with us and the selling stockholders, to indemnification against and contribution toward specific civil liabilities, including liabilities under the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, and any applicable discounts, commissions, concessions or other compensation with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

To facilitate the offering of the shares offered by the selling stockholders, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. This may include over-allotments or short sales, which involve the sale by persons participating in the offering of more shares than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the common stock by bidding for or purchasing shares in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if shares sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the common stock at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

We have agreed to indemnify the selling stockholders against certain liabilities, including liabilities under the Securities Act, relating to the registration of the shares offered by this prospectus.

LEGAL MATTERS

Alane Barnes has rendered an opinion with respect to the validity of the common stock being offered by this prospectus. Ms. Barnes is compensated by the Company as an employee, participates in various benefit plans offered to our employees, and owns directly or has the right to acquire through the exercise of options or the vesting of restricted stock units less than 1% of our outstanding shares of common stock.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2016, and the effectiveness of our internal control over financial reporting as of December 31, 2016, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements and our management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2016 are incorporated by reference in reliance on Ernst & Young LLP's reports, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file electronically with the SEC our annual reports on Form 10-K, quarterly interim reports on Form 10-Q, current reports on Form 8-K, proxy statements and other information. We make available on or through our website, <http://www.biocryst.com>, free of charge, copies of these filings as soon as reasonably practicable after we electronically file them with or furnish them to the SEC. The information on our website is not incorporated by reference into this prospectus. You can also request copies of such documents by contacting our Investor Relations Department at 4505 Emperor Blvd., Suite 200, Durham, North Carolina 27703 or sending an email to investorrelations@biocryst.com. You may read and copy any document we file at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You can also obtain copies of this information by mail from the Public Reference Room of the SEC at prescribed rates. You may obtain information on the operation of the Public Reference Room by calling the SEC at (800) SEC-0330.

The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information about issuers, like BioCryst, that file electronically with the SEC. The address of that site is <http://www.sec.gov>. Unless specifically listed below under "Incorporation of Certain Documents by Reference" the information contained on the SEC website is not incorporated by reference into this prospectus.

We have filed with the SEC a registration statement on Form S-3 that registers the securities we are offering. The registration statement, including the attached exhibits and schedules, contains additional relevant information about us and our securities. The rules and regulations of the SEC allow us to omit certain information included in the registration statement from this prospectus.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information into this prospectus. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be part of this prospectus, except for any information that is superseded by information that is included directly in this document.

This prospectus includes by reference the documents listed below that we have previously filed with the SEC and that are not included in or delivered with this document. They contain important information about us and our financial condition.

- Our Annual Report on Form 10-K for the year ended December 31, 2016, filed with the SEC on February 27, 2017;
- Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2017, filed with the SEC on May 8, 2017;
- Our Current Reports on Form 8-K filed with the SEC on February 27, 2017 (filing containing items 8.01 and 9.01 only), March 15, 2017 and March 17, 2017; and
- The description of our common stock which is contained in our Registration Statement on Form 8-A (File No. 000-23186) filed with the SEC on January 7, 1994, together with the amendment thereto filed with the SEC on March 14, 1994, including any other amendment or reports filed for the purpose of updating such description.

All documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this Registration Statement and prior to its effectiveness and on or after the date of this prospectus and prior to the termination of any offering of securities pursuant to this prospectus shall be deemed to be incorporated by reference herein and to be a part of this prospectus from the date of filing of such documents, excluding any information furnished under Item 2.02 or Item 7.01 of any Current Report on Form 8-K and exhibits filed on such form that are related to such items. Any statement contained in a document incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You can obtain any of the documents incorporated by reference in this prospectus from us without charge, excluding any exhibits to those documents unless the exhibit is specifically incorporated by reference as an exhibit to this prospectus. You can obtain documents incorporated by reference in this prospectus at no cost by requesting them in writing or by telephone from us at the following address:

Investor Relations
BioCryst Pharmaceuticals, Inc.
4505 Emperor Blvd., Suite 200
Durham, North Carolina 27703
(919) 859-1302

We have not authorized anyone else to make additional representations or to provide you with information other than information provided or incorporated by reference in this prospectus. We take no responsibility for, and can provide no assurances as to the reliability of, any other information that others may give you or representations that others may make. If you are in a jurisdiction where offers to sell, or solicitations of offers to purchase, the securities offered by this document are unlawful, or if you are a person to whom it is unlawful to direct these types of activities, then the offer presented in this document does not extend to you.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

The following table sets forth all expenses payable by the registrant in connection with the issuance and distribution of the securities, other than underwriting discounts and commissions. The registrant will bear all of such expenses (except for any brokerage, accounting, tax, or legal services or any other expenses incurred by the selling stockholders in disposing of the shares). All the amounts shown are estimates, except the registration fee.

Registration fee	\$ 7,438
Accounting fees and expenses	25,000
Legal fees and expenses	50,000
Miscellaneous	17,562
Total	<u>\$ 100,000</u>

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145 of the Delaware General Corporation Law (the “DGCL”) sets forth the circumstances in which a Delaware corporation is permitted and/or required to indemnify its directors and officers. The DGCL permits a corporation to indemnify its directors and officers in certain proceedings if the director or officer has complied with the standard of conduct set out in the DGCL. The standard of conduct requires that the director or officer must have acted in good faith, in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to matters in a criminal proceeding, the director or officer must have had no reason to believe that his or her conduct was unlawful. With respect to suits by or in the right of the corporation, the DGCL permits indemnification of directors and officers if the person meets the standard of conduct, except that it precludes indemnification of directors and officers who are adjudged liable to the corporation, unless the Court of Chancery or the court in which the corporation’s action or suit was brought determines that the director or officer is fairly and reasonably entitled to indemnity for expenses. To the extent that a present or former director or officer of the corporation is successful on the merits or otherwise in his or her defense of a proceeding, the corporation is required to indemnify the director or officer against reasonable expenses incurred in defending himself or herself. The rights provided in Section 145 of the DGCL are not exclusive, and the corporation may also provide for indemnification under bylaw, agreement, vote of stockholders or disinterested directors or otherwise.

The registrant’s Third Restated Certificate of Incorporation, as amended (the “Certificate of Incorporation”), provides for indemnification of any director or officer 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, by reason of the fact that he is or was, or has agreed to become, a director or officer of the registrant, or is or was serving, or agreed to serve, at the request of the registrant, as a director, officer or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him or on his behalf in connection with such action, suit or proceeding and any appeal therefrom, in each case to the fullest extent permitted by the DGCL. The registrant shall not indemnify any person seeking indemnification in connection with a proceeding or part thereof initiated by such person unless the initiation was approved by the Board of Directors of the registrant. The Certificate of Incorporation further provides for permissible indemnification of employees and other agents to the maximum extent permitted by the DGCL and the Certificate of Incorporation with respect to directors and officers.

Section 102(b)(7) of the DGCL provides that a corporation may relieve its directors from personal liability to the corporation or its stockholders for monetary damages for any breach of their fiduciary duty as directors except for (i) a breach of the duty of loyalty; (ii) acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law; (iii) willful or negligent violations of certain provisions in the DGCL imposing certain requirements with respect to stock repurchases, redemptions and dividends; or (iv) for any transactions from which the director derived an improper personal benefit. The registrant’s Certificate of Incorporation provides that no directors of the registrant shall be liable to the registrant or its stockholders for monetary damages for breach of fiduciary duty as a director to the fullest extent permitted by the DGCL.

In addition, the registrant currently maintains liability insurance for its directors and officers insuring them against certain liabilities asserted against them in their capacities as directors or officers or arising out of such status.

The indemnification provisions noted above may be sufficiently broad to permit indemnification of the registrant's officers and directors for liabilities arising under the Securities Act.

ITEM 16. EXHIBITS.

See the Exhibit Index attached to this registration statement and incorporated herein by reference.

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:

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

(b) 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; and

(c) 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)(a), (1)(b) and (1)(c) 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 Commission by the registrant pursuant to Section 13 or 15(d) of the Exchange Act that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act, 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 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 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.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act 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.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions described in Item 15, or otherwise, the registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. 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 Securities Act and will be governed by the final adjudication of such issue.

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
4.1	Third Restated Certificate of Incorporation of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed December 22, 2006 (File No. 000-23186).
4.2	Certificate of Amendment to the Third Restated Certificate of Incorporation of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed July 24, 2007 (File No. 000-23186).
4.3	Certificate of Amendment to the Third Restated Certificate of Incorporation of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed May 7, 2014 (File No. 000-23186).
4.4	Certificate of Increase of Authorized Number of Shares of Series B Junior Participating Preferred Stock. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed November 4, 2008 (File No. 000-23186).
4.5	Certificate of Increase of Authorized Number of Shares of Series B Junior Participating Preferred Stock of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed May 7, 2014 (File No. 000-23186).
4.6	Amended and Restated Bylaws of the Company effective October 29, 2008. Incorporated by reference to Exhibit 3.2 to the Company's Form 8-K filed November 4, 2008 (File No. 000-23186).
4.7	Specimen Certificate for Registrant's Common Stock. Incorporated by reference to Exhibit 4.7 to the Company's Form S-3 filed November 28, 2008 (File No. 333-155783).
4.8	Registration Rights Agreement, dated March 15, 2017, by and between BioCryst Pharmaceuticals, Inc., 667, L.P., and Baker Brothers Life Sciences, L.P. Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed March 17, 2017 (File No. 000-23186).
5.1	Opinion of Alane Barnes.
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.
23.2	Consent of Alane Barnes (included in Exhibit 5.1).
24.1	Power of Attorney (included on the signature page of this Registration Statement).

[BioCryst Pharmaceuticals, Inc. Letterhead]

May 10, 2017

BioCryst Pharmaceuticals Inc.
4505 Emperor Boulevard, Suite 200
Durham, North Carolina 27703

Re: BioCryst Pharmaceuticals, Inc.
Registration Statement on Form S-3

Ladies and Gentlemen:

I am the Vice President, General Counsel and Corporate Secretary of BioCryst Pharmaceuticals, Inc., a Delaware corporation (the "**Company**") and have acted as counsel to the Company in connection with the preparation and filing with the Securities and Exchange Commission (the "**Commission**") of a Registration Statement on Form S-3 (the "**Registration Statement**") under the Securities Act of 1933, as amended (the "**Securities Act**"), relating to the registration for resale of an aggregate of 11,710,951 shares (the "**Shares**") of the Company's common stock, par value \$0.01 per share, which may be sold by certain selling stockholders identified in the Registration Statement (the "**Selling Stockholders**") from time to time pursuant to Rule 415 under the Securities Act.

In arriving at the opinions expressed below, I have examined originals, or copies certified or otherwise identified to my satisfaction as being true and complete copies of the originals, of the Registration Statement, the Third Restated Certificate of Incorporation, as amended, of the Company, the Amended and Restated Bylaws of the Company, and such other documents, corporate records, certificates of officers of the Company and of public officials and other instruments as I have deemed necessary or advisable to enable me to render these opinions. In my examination, I have assumed without independent verification the legal capacity of all natural persons, the genuineness of all signatures, the authenticity and completeness of all documents submitted to me as originals, the conformity to original documents of all documents submitted to me as certified, conformed, or photostatic copies and the authenticity of the originals of such latter documents. As to any facts material to these opinions, I have relied to the extent I deemed appropriate and without independent investigation upon statements and representations of officers and other representatives of the Company or certificates obtained from public officials and others.

Based upon and subject to the foregoing and to the other qualifications, limitations and assumptions set forth in this letter, I am of the opinion that the Shares to be sold by the Selling Stockholders pursuant to the Registration Statement are validly issued, fully paid and non-assessable.

The opinions expressed herein are limited to the Delaware General Corporation Law as currently in effect. I express no opinion as to any other laws, statutes, ordinances, rules or regulations. I assume no obligation to revise or supplement this opinion in the event of future changes in such laws or the interpretations thereof or such facts.

I consent to the filing of this opinion as an exhibit to the Registration Statement, and to the use of my name under the caption "Legal Matters" in the Registration Statement. In giving this consents, I do not thereby admit that I am within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

[Signature page follows.]

Very truly yours,

/s/ Alane Barnes

Alane Barnes
Vice President, General Counsel and Corporate Secretary

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" in this Registration Statement and related Prospectus of BioCryst Pharmaceuticals, Inc. for the registration of common stock to be sold by the selling shareholder, and to the incorporation by reference therein of our reports dated February 27, 2017, with respect to the consolidated financial statements of BioCryst Pharmaceuticals, Inc. and the effectiveness of internal control over financial reporting of BioCryst Pharmaceuticals, 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

Raleigh, North Carolina
May 10, 2017