

BIOCRYST PHARMACEUTICALS INC

Form 424B3

January 28, 2009

Table of Contents

**Filed Pursuant to Rule 424(b)(3)
Registration No. 333-153084**

PROSPECTUS

**3,335,408 Shares of Common Stock
3,159,895 Warrants to Purchase Common Stock**

This prospectus relates to the disposition from time to time of up to (i) 3,335,408 shares of our outstanding common stock in the aggregate, 175,513 of which are owned by the selling stockholders named on page 22 of this prospectus on the date hereof, and 3,159,895 of which are issuable upon exercise of warrants to purchase shares of our common stock (the warrants) owned by the selling stockholders on the date hereof, (ii) the disposition from time to time of up to 3,159,895 warrants owned by the selling stockholders on the date hereof, and (iii) the initial issuance of shares of our common stock upon the exercise of the warrants acquired from the selling stockholders pursuant to this prospectus.

We will not be paying any underwriting discounts or commissions in this offering. All of our securities offered hereby are being sold by the selling stockholders named in this prospectus. We will not receive any proceeds from sale of the securities included in this prospectus. To the extent that any of the warrants to purchase common stock are exercised, we will receive the exercise price paid for the shares of common stock purchased thereunder. The exercise price of the warrants is \$10.25 per share.

Our common stock, par value \$0.01 per share, trades on the Nasdaq Global Market under the symbol BCRX. On January 21, 2009, the reported last sale price of our common stock on the Nasdaq Global Market was \$2.09 per share.

The selling stockholders or their pledges, assignees or successors-in-interest may offer and sell or otherwise dispose of the shares of common stock and warrants described in this prospectus from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. See Plan of Distribution beginning on page 24 for more information about how the selling stockholders may sell or dispose of their shares of common stock and warrants.

The selling stockholders may resell the common stock and warrants to or through underwriters, broker-dealers or agents, who may receive compensation in the form of discounts, concessions or commissions. The selling stockholders will bear all commissions and discounts, if any, attributable to the sales of shares. We will bear all costs, expenses and fees in connection with the registration of the shares.

Investing in these securities involves a high degree of risk. See Risk Factors beginning on page 6 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities regulators have 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 January 27, 2009.

TABLE OF CONTENTS

	Page
<u>ABOUT THIS PROSPECTUS</u>	i
<u>PROSPECTUS SUMMARY</u>	1
<u>RISK FACTORS</u>	6
<u>INFORMATION REGARDING FORWARD-LOOKING STATEMENTS</u>	18
<u>USE OF PROCEEDS</u>	19
<u>DESCRIPTION OF SECURITIES</u>	20
<u>SELLING STOCKHOLDERS</u>	22
<u>PLAN OF DISTRIBUTION</u>	24
<u>LEGAL MATTERS</u>	26
<u>EXPERTS</u>	26
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	27
<u>INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE</u>	27

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, using a shelf registration or continuous offering process. Under this shelf process, certain selling stockholders may from time to time sell the shares of common stock and warrants described in this prospectus in one or more offerings.

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. Reference to selling stockholders refers to those stockholders listed herein under Selling Stockholders beginning on page 22 of this prospectus, who may sell shares from time to time as described in this prospectus. All trade names used in this prospectus are either our registered trademarks or trademarks of their respective holders.

You should rely only on the information contained or incorporated by reference into this prospectus or any applicable prospectus supplement. We have not, and the selling stockholders have not, authorized anyone to provide you with different information. The selling stockholders are offering to sell, and seeking offers to buy, shares of our common stock and warrants only in jurisdictions where it is lawful to do so. The information in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or any sale of our common stock or warrants.

Table of Contents

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.

Overview

BioCryst Pharmaceuticals, Inc. is a biotechnology company that designs, optimizes and develops novel drugs that block key enzymes involved in cancer, viral infections, and autoimmune diseases. We integrate the necessary disciplines of biology, crystallography, medicinal chemistry and computer modeling to effectively use structure-based drug design to discover and develop small molecule pharmaceuticals.

Our business strategy is to maximize sustainable value by moving our drug candidate portfolio through clinical development, registration and ultimately to the market. We believe this is best achieved by retaining full product rights to our drug candidates within specialty markets, while relying on collaborative arrangements with third parties for drug candidates within larger markets or outside our area of expertise.

Clinical Development Projects

Currently we have a well advanced and relatively full pipeline. We have one pivotal trial and two other phase II trials currently ongoing. In addition we have a number of potential preclinical candidates to be evaluated for clinical study.

Peramivir

Peramivir, a neuraminidase inhibitor, is in development for the treatment of influenza with two parenteral formulations, intramuscular (i.m.) and intravenous (i.v.).

We completed a double-blind placebo-controlled Phase II clinical trial with i.m. peramivir testing two different dose levels of peramivir (150mg and 300mg) versus placebo in adults with acute uncomplicated influenza. While the trial did not demonstrate statistically significant differences for its primary endpoint of time to alleviation of symptoms, the preliminary analysis of the virologic data indicated that peramivir demonstrated statistically significant reductions in influenza virus shedding in both peramivir treatment groups compared to placebo, with greater reductions in the 300mg dose. With this information and the additional pharmacokinetic information we have obtained subsequent to the trial, we initiated a Phase II placebo-controlled trial of 600 mg i.m. peramivir for the treatment of seasonal influenza. This trial uses a new, more concentrated 150 mg/ml formulation of peramivir.

In addition, in July 2007, we announced the initiation of a Phase II clinical trial in hospitalized patients using an i.v. formulation of peramivir to compare the efficacy and safety of i.v. peramivir to orally administered oseltamivir in patients who require hospitalization due to acute influenza. In October, 2008 BioCryst reported results of an exploratory Phase 2 trial of i.v. peramivir in subjects hospitalized for acute serious or potentially life-threatening influenza. The Phase 2 trial compared the efficacy and safety of five days of therapy with either 200 mg i.v. peramivir per day, 400 mg i.v. peramivir per day or 75 mg oral oseltamivir twice a day for five days, in subjects who required hospitalization related to influenza. The primary objective of the study was to evaluate a novel composite endpoint, time to clinical stability, which is comprised of normalization of temperature, oxygen saturation, respiratory rate, systolic blood pressure and heart rate. Secondary objectives of the study included evaluation of viral shedding, mortality, clinical relapse and time to resumption of usual activities. In the primary efficacy population, for all groups combined, the study demonstrated a median of 25.3 hours to clinical stability, a median of 2.0 log reduction in time weighted change from baseline in viral titer, zero mortality, no clinical relapse and a median of 10.8 days of time to resumption of usual activities. There were no statistically significant differences in any of the efficacy endpoints between the three treatment arms. Peramivir was generally safe and well-tolerated at these dose levels.

In January 2007, we announced the United States Department of Health and Human Services, HHS, had awarded us a \$102.6 million, four-year contract for the advanced development of peramivir. In January 2008, we announced that the development plan for peramivir had changed and that we would no longer pursue the Phase III i.m. program in peramivir for the current influenza season, but would move forward in evaluating higher doses than used in previous studies. Also in January, we announced that the program would cost in excess of the \$102.6 million

contract and that any funding above the \$102.6 million may be the responsibility of the Company. Since then, HHS and BioCryst have been working in collaboration through various contract modifications to maximize resources by stopping work on some projects (e.g. the Phase III i.m. program) and capping expenditures on other projects in order to maximize remaining funds. HHS and BioCryst executed a contract modification that fully funds BioCryst through the completion of both the phase II studies in outpatients treated with intramuscular peramivir, the phase II study in hospitalized patients with intravenous peramivir, and certain manufacturing and toxicology components of the program. The modification also allows the Company and HHS to agree on additional development activities for peramivir within the confirmed \$102.6 million funding. All temporary restraints, effected through a stop work order, have now been removed. Following completion of the phase II studies, the Company expects to continue the dialogue with HHS regarding additional funding beyond the \$102.6 million for peramivir development through U.S. licensure. The original contract of \$102.6 million and the four year term remain unchanged.

In March 2007, we announced our collaboration with Shionogi & Co., Ltd. (Shionogi) for the development and commercialization of peramivir in Japan. This exclusive license agreement for Japan included an upfront payment of \$14 million and future clinical event milestone payments of up to \$21 million. Shionogi recently completed a Phase II study of intravenous (i.v.) peramivir administered via a single dose injection in the outpatient setting for treatment of seasonal influenza. This trial met its

Table of Contents

primary endpoint of improvement in the median time to alleviation of symptoms in subjects with confirmed, acute, uncomplicated influenza infection, compared to placebo alone.

Forodesine HCl

Forodesine HCl is a transition-state analog inhibitor of the enzyme purine nucleoside phosphorylase, or PNP. In February 2006, we announced an exclusive licensing agreement with Mundipharma to develop and commercialize forodesine HCl in markets across Europe, Asia and Australia for use in oncology. We have retained full development and commercialization rights in the rest of the world, including North America.

An oral formulation of the compound is currently in a Phase IIb trial, which is planned to be a pivotal trial, for patients with Cutaneous T-cell Lymphoma, commonly called CTCL. The trial is being conducted under a special protocol assessment negotiated with the United States Food and Drug Administration, or the FDA. Additionally, forodesine HCl is currently being studied in a Phase II trial with an oral formulation in Chronic Lymphocytic Leukemia, commonly called CLL.

Forodesine HCl has been granted Orphan Drug status by the FDA for three indications:

T-cell non-Hodgkin lymphoma, including CTCL;

CLL and related leukemias including T-cell prolymphocytic leukemia, adult T-cell leukemia, and hairy cell leukemia; and

B-cell acute lymphoblastic leukemia, commonly called B-ALL.

In December 2007, we announced the presentation of data related to the Phase I/II clinical study of forodesine HCl in subjects with refractory CTCL and a poster detailing the in vitro activity of forodesine HCl as a single agent and the synergistic in vitro activity of forodesine HCl in combination with bendamustine in primary cells from 29 patients with CLL. These data were presented at the 2007 American Society of Hematology meeting. Use of single agent forodesine HCl is being explored in various cancer settings, and combination studies are being planned.

In December 2008, we announced interim data from the ongoing forodesine HCl Phase II program in patients with CLL and data from a healthy subject pharmacokinetic and pharmacodynamic study. The CLL study will continue with an amendment to study a new dosing regimen of oral forodesine, 200 mg twice-daily. An interim analysis was conducted on data from an exploratory Phase II single-arm, open-label program in patients with CLL whose previous treatment had failed. While this analysis showed that no partial or complete responses were observed, five out of 13 patients administered 200 mg of forodesine HCl once-daily had substantial reductions in malignant lymphocytes, and at the time of the analysis, seven patients were still on study. Forodesine HCl was generally safe and well-tolerated at the 200 mg once-daily dose. In a parallel, healthy subject, pharmacokinetic and pharmacodynamic study, we compared the effect of seven days of 200 mg forodesine HCl dosed once-daily with seven days of 200 mg forodesine HCl dosed twice-daily. The study demonstrated substantially increased drug exposure and pharmacodynamic effect in subjects administered forodesine HCl 200 mg twice-daily. Drug exposure, as measured by area under the (plasma-concentration/time) curve (AUC), increased by 63 percent ($P < 0.001$) for twice-daily dosing compared to once-daily dosing. Serum uric acid levels were reduced at steady state compared to baseline by 50.0 percent for twice-daily dosing compared to 23.5 percent for once-daily dosing ($p < 0.001$), indicating increased PNP enzyme inhibition with twice-daily dosing.

BCX-4208

BCX-4208 is another PNP inhibitor in clinical development. In November 2005, BioCryst announced it was entering into an exclusive worldwide development and commercialization agreement with Roche. In the third quarter of 2007, we announced that Roche had initiated a Phase II clinical trial with oral doses of BCX-4208/R3421, which is designed to evaluate the drug candidate in patients with moderate to severe plaque psoriasis. The efficacy assessment of the study has been completed. Consistent with interim findings reported by the Company in May 2008, the Phase II clinical study of BCX-4208, a potent, rationally designed, orally available PNP inhibitor, met its primary objectives of safety and tolerability. In addition, BCX-4208 displayed dose-dependent reductions in peripheral blood lymphocyte counts, including subsets measuring B cells (CD20), total T cells (CD3), T helper cells (CD4) and T suppressor/cytotoxic cells (CD8). Further, plasma levels of BCX-4208 increased with dose, and plasma uric acid

levels showed dose-related reductions with BCX-4208. In addition, consistent with interim results previously reported by the Company, no evidence of clinical efficacy, a secondary objective, was observed in psoriasis patients with doses and duration of administration tested.

In the Phase IIa trial, BCX-4208 was generally safe and well-tolerated at doses up to 120 mg daily. Most adverse events reported were considered mild or moderate, and low in frequency. No opportunistic infections were observed. In addition, detailed laboratory and clinical monitoring did not indicate any patterns suggestive of off-target adverse findings.

Also in May 2008, we announced that we received notice that Roche was exercising the no cause termination right under the license agreement for BCX-4208. As a result, BioCryst regained worldwide rights to BCX-4208.

Additional Products

In addition to our clinical programs shown above, we also retain exclusive world wide rights to potent inhibitors of hepatitis C nucleoside polymerase, parainfluenza neuraminidase, and additional PNP inhibitors. We will continue to evaluate and test each of these compounds to determine which should be taken into clinical testing.

Because none of our products have been approved by regulatory authorities, we may not be able to generate significant revenue or attain profitability. Since our inception, we have not generated any product sales from our drug discovery and development efforts and we have a history of significant losses. Given that we expect to incur substantial net losses to develop our potential products, it is unclear when, if ever, we will become profitable. See Risk Factors for a full discussion of these and other risks relating to our business and owning our capital stock.

Alliances

As our part of our strategy we will consider potential third party alliances in large primary care markets and in areas where do not have the resources or expertise to move candidates forward on our own. These alliances could include preclinical development, clinical development, regulatory approval, marketing, sales and distribution of our drug candidates.

Table of Contents

We have established collaborative relationships for development and commercialization of product candidates in their respective territories as follows:

Mundipharma Internal Holdings Limited, for forodesine HCl in Europe, Asia and Australia;

Shionogi & Co. Ltd.; and

Green Cross Corporation.

The process of establishing and implementing collaborative relationships is difficult, time-consuming and involves significant uncertainty. See **Risk Factors** for further details.

Summary of 2007 Private Placement

On August 9, 2007, we sold to a group of existing stockholders in a private placement:

8,315,513 shares of the Company's common stock at a purchase price of \$7.80 per share, the closing Nasdaq composite bid price on August 3, 2007, the last trading date prior to the agreement reached prior to the opening of trading on August 6, 2007; and

warrants (exercisable at \$10.25 per share) to purchase 3,159,895 shares of the Company's common stock, for a purchase price of \$0.125 per warrant share.

The aggregate purchase price was approximately \$65.3 million. The investors included funds managed by Baker Brothers Investments, Kleiner Perkins Caufield & Byers, EHS Holdings, OrbiMed Advisors, TPG Biotechnology, and Stephens Investment Management, all of whom are current stockholders.

We relied upon the exemptions from registration provided by Section 4(2) of the Securities Act and Regulation D promulgated under that section. Each investor represented that it was an accredited investor, as such term is defined in Regulation D under the Securities Act, and that it was acquiring the common stock and warrants for its own account and not with a view to or for sale in connection with any distribution thereof, and appropriate legends are affixed to the common stock and warrants.

We have filed with the SEC all of our agreements regarding the private placement with the selling stockholders, with our Current Report on Form 8-K filed August 7, 2007 and our Quarterly Report on Form 10-Q filed August 9, 2007. We made no other agreements, plans or arrangements with the selling stockholders in connection with the private placement.

We paid no investment banking fees or commissions in connection with the private placement. We estimate the aggregate market value of our common stock held by non-affiliates (based upon the Nasdaq Global Market closing sales price on August 15, 2008) was approximately \$61.3 million.

The shares and warrants included in the private placement were not registered under the Securities Act of 1933, as amended. Under the purchase agreement for the private placement, we agreed to register for resale under the Securities Act the shares, the warrants and the shares issuable upon exercise of the warrants sold to the selling stockholders. If registration statements covering such shares, warrants and shares issuable upon exercise of the warrants are not filed by us or declared effective by the SEC within the periods specified in the purchase agreement, or if effectiveness of a registration statement is suspended for longer than the periods specified in the purchase agreement, we must pay to each investor, as liquidated damages and not as a penalty, a cash payment equal to 1.5% of the aggregate purchase price per month, up to a maximum of 12%, paid by such investor to us with respect to the shares then held by such selling stockholder which are not then registered under an effective registration statement, until such event has been cured. No such amounts shall be payable by us in respect of the warrants or the shares issuable upon exercise of the warrants. We have agreed to maintain the effectiveness of the registration statements covering such securities for each selling stockholder until the earlier of August 9, 2009, the date all of such shares, including shares underlying the warrants, may be sold by the selling stockholder without restriction by the volume limitations of Rule 144(e) of the Securities Act or the date all of such shares have been sold pursuant to the registration statement.

On August 22, 2007, we filed a registration statement covering the resale of 8,140,000 shares of common stock as required by the purchase agreement, which was declared effective on August 30, 2007.

Table of Contents

This registration statement covers the resale by the selling stockholders of the balance of 175,513 shares of common stock purchased, the warrants to buy approximately 3,159,895 shares of common stock, and the 3,159,895 shares to be issued upon exercise of the warrants. We will not receive any proceeds from the resale of the common stock or warrants by the investors.

The private placement:

increases our concentration of stock ownership, which could limit the influence of other stockholders and delay, defer or prevent a change in our control;

upon registration of the shares covered by this prospectus, increases the number of shares of our common stock eligible for sale, which could depress our stock price and adversely affect the trading market for our stock; and

exercise of the warrants above their exercise price of \$10.25 will result in dilution to our other stockholders and more shares eligible for sale, which could depress our stock price.

Please review the risk factors under the heading **Risks Relating to Our Common Stock** for more information on these risks.

BioCryst is a Delaware corporation originally founded in 1986. Our principal offices are located at 2190 Parkway Lake Drive, Birmingham, Alabama 35244, and our telephone number is (205) 444-4600. Our web site is located at <http://www.biocryst.com>. The information on our web site is not incorporated by reference into this prospectus.

Table of Contents

The Offering

Issuer	BioCryst Pharmaceuticals, Inc.
Selling Stockholders	The selling stockholders identified in the table on page 22. They purchased our common stock and warrants in August 2007.
Securities Offered	up to 3,335,408 shares of our common stock, including 3,159,895 shares issuable upon exercise of the warrants; up to 3,159,895 warrants to purchase our common stock; and the initial issuance of shares of our common stock upon the exercise of the warrants acquired from the selling stockholders pursuant to this prospectus.
Use of Proceeds	We will not receive any proceeds from sales of the shares of common stock sold from time to time under this prospectus by the selling stockholders. We will not receive any proceeds from the resale of the warrants, including the sale of the shares of common stock issuable upon exercise of the warrants. To the extent that any of the warrants to purchase common stock are exercised, we will receive the exercise price paid for the shares of common stock purchased thereunder.
Risk Factors	An investment in our common stock involves a high degree of risk. See Risk Factors beginning on page 6 for a discussion of certain factors that you should consider when evaluating an investment in our common stock.
Nasdaq Global Market Symbol	BCRX

Table of Contents

RISK FACTORS

An investment in our securities involves a high degree of risk. You should consider carefully the following risks, along with all of the other information included in or incorporated by reference into this prospectus and any prospectus supplement, before deciding to buy our securities. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also impair our business operations. If we are unable to prevent events that have a negative effect from occurring, then our business may suffer. Negative events are likely to decrease our revenue, increase our costs, make our financial results poorer and/or decrease our financial strength, and may cause our stock price to decline. In that case, you may lose all or a part of your investment in our securities.

Risks Relating to Our Business

We have incurred substantial losses since our inception in 1986, expect to continue to incur such losses, and may never be profitable.

Since our inception in 1986, we have not been profitable. We expect to incur additional losses for the foreseeable future, and our losses could increase as our research and development efforts progress. To become profitable, we must successfully manufacture and develop drug product candidates, receive regulatory approval, and successfully commercialize or enter into profitable agreements with other parties. It could be several years, if ever, before we receive royalties from any current or future license agreements or revenues directly from product sales.

Because of the numerous risks and uncertainties associated with developing our product candidates and their potential for commercialization, we are unable to predict the extent of any future losses. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. If we are unable to achieve and sustain profitability, the market value of our common stock will likely decline.

Our success depends upon our ability to advance our products through the various stages of development, especially through the clinical trial process.

To receive the regulatory approvals necessary for the sale of our product candidates, we or our partners must demonstrate through preclinical studies and clinical trials that each product candidate is safe and effective. The clinical trial process is complex and uncertain. Because of the cost and duration of clinical trials, we may decide to discontinue development of product candidates that are unlikely to show good results in the trials, unlikely to help advance a product to the point of a meaningful collaboration, or unlikely to have a reasonable commercial potential. We may suffer significant setbacks in pivotal clinical trials, even after earlier clinical trials show promising results. Clinical trials may not be adequately designed or executed, which could affect the potential outcome and analysis of study results. Any of our product candidates may produce undesirable side effects in humans. These side effects could cause us or regulatory authorities to interrupt, delay or halt clinical trials of a product candidate. These side effects could also result in the FDA or foreign regulatory authorities refusing to approve the product candidate for any targeted indications. We, our partners, the FDA or foreign regulatory authorities may suspend or terminate clinical trials at any time if we or they believe the trial participants face unacceptable health risks. Clinical trials may fail to demonstrate that our product candidates are safe or effective and have acceptable commercial viability.

Our ability to successfully complete clinical trials is dependent upon many factors, including but not limited to:
our ability to find suitable clinical sites and investigators to enroll patients;

the availability of and willingness of patients to participate in our clinical trials;

difficulty in maintaining contact with patients to provide complete data after treatment;

our product candidates may not prove to be either safe or effective;

clinical protocols or study procedures may not be adequately designed or followed by the investigators;

manufacturing or quality problems could affect the supply of drug product for our trials; and

Table of Contents

delays or changes in requirements by governmental agencies.

Clinical trials are lengthy and expensive. We or our partners incur substantial expense for, and devote significant time to, preclinical testing and clinical trials, yet cannot be certain that the tests and trials will ever result in the commercial sale of a product. For example, clinical trials require adequate supplies of drug and sufficient patient enrollment. Delays in patient enrollment can result in increased costs and longer development times. Even if we or our partners successfully complete clinical trials for our product candidates, we or our partners might not file the required regulatory submissions in a timely manner and may not receive regulatory approval for the product candidate.

Our later stage clinical trials may not adequately show our drugs are safe or effective.

Progression of our drug products through the clinical development process is dependent upon our trials indicating our drugs have adequate safety profiles and show positive therapeutic effects in the patients being treated by achieving pre-determined endpoints according to the trial protocols. Failure to achieve either of these could result in delays in our trials or even require the performance of additional unplanned trials. This could result in delays in the development of our drug candidates and could result in significant unexpected costs.

If we fail to obtain additional financing, we may be unable to complete the development and commercialization of our product candidates or continue our research and development programs.

As our clinical programs continue to grow and patient enrollment increases, our costs will increase. Our current and planned clinical trials plus the related development, manufacturing, regulatory approval process requirements, and additional personnel resources and testing required for supporting the development of our drug candidates will consume significant capital resources. Our expenses, revenues and burn rate could vary significantly depending on many factors, including our ability to raise additional capital, the development progress of our collaborative agreements for our drug candidates, the amount of funding we receive from HHS for peramivir, the amount of funding or assistance, if any, we receive from other governmental agencies or other new partnerships with third parties for the development of our drug candidates, the progress and results of our current and proposed clinical trials for our most advanced drug products, the progress made in the manufacturing of our lead products and the progression of our other programs.

We expect that we will be required to raise additional capital to complete the development and commercialization of our current product candidates. Additional funding, whether through additional sales of securities or collaborative or other arrangements with corporate partners or from other sources, including governmental agencies, in general and from the HHS contract specifically, may not be available when needed or on terms acceptable to us. The issuance of preferred or common stock or convertible securities, with terms and prices significantly more favorable than those of the currently outstanding common stock, could have the effect of diluting or adversely affecting the holdings or rights of our existing stockholders. In addition, collaborative arrangements may require us to transfer certain material rights to such corporate partners. Insufficient funds may require us to delay, scale-back or eliminate certain of our research and development programs.

If HHS were to eliminate, reduce or delay funding from our contract or dispute some of our incurred costs, this would have a significant negative impact on our revenues, cash flows and the development of peramivir.

Our projections of revenues and incoming cash flows are substantially dependent upon HHS reimbursement for the costs related to our peramivir program. If HHS were to eliminate, reduce or delay the funding for this program or disallow some of our incurred costs, we would have to obtain additional funding for development of this drug candidate or significantly reduce or stop the development effort.

For example, in January 2008, we announced that the development plan for peramivir had changed and that we would no longer pursue the Phase III i.m. program in peramivir for the current influenza season, but would move forward in evaluating higher doses than used in previous studies. Also in January, we announced that the program would cost in excess of the \$102.6 million contract and that any funding above the \$102.6 million may be the responsibility of the Company. Since then, HHS and BioCryst have been working in collaboration through various contract modifications to maximize resources by stopping work on some projects (e.g. the Phase III i.m. program) and capping expenditures on other projects in order to maximize remaining funds. HHS and BioCryst executed a contract modification that fully funds BioCryst through the completion of both the phase II studies in outpatients treated with intramuscular peramivir, the phase II study in hospitalized patients with intravenous peramivir, and certain

manufacturing and toxicology components of the program. The modification also allows the Company and HHS to agree on additional development activities for peramivir within the confirmed \$102.6 million funding. All temporary restraints, effected through a stop work order, have now been removed. Following completion of the phase II studies, the Company expects to continue the dialogue with HHS regarding additional funding beyond the \$102.6 million for peramivir development through U.S. licensure. The original contract of \$102.6 million and the four year term remain unchanged. In July 2008, HHS indicated that it does not intend to reimburse us all of the costs incurred related to the terminated Phase III studies. We continue to pursue reimbursement of these costs. During the second quarter of 2008, we recorded a \$4.9 million reserve against revenue for amounts we previously expected to receive from HHS related to the costs incurred in this program. Approximately \$4.6 million of the reserve relates to revenues recognized in the first quarter of 2008, while approximately \$0.3 million of the reserve relates to revenues recognized in 2007.

Table of Contents

In contracting with HHS, we are subject to various U.S. government contract requirements, including general clauses for a cost-reimbursement research and development contract, which may limit our reimbursement or if we are found to be in violation could result in contract termination. U.S. government contracts typically contain unfavorable termination provisions and are subject to audit and modification by the government at its sole discretion. The U.S. government may terminate its contract with us either for its convenience or if we default by failing to perform in accordance with the contract schedule and terms, which would have a significant negative impact on our cash flows and operations.

Our contract with HHS has special contracting requirements, which create additional risks of reduction or loss of funding.

We have entered into a contract with HHS for the advanced development of our neuraminidase inhibitor, peramivir. In contracting with HHS, we are subject to various U.S. government contract requirements, including general clauses for a cost-reimbursement research and development contract. U.S. government contracts typically contain unfavorable termination provisions and are subject to audit and modification by the government at its sole discretion, which subjects us to additional risks. These risks include the ability of the U.S. government to unilaterally: terminate or reduce the scope of our contract; and

audit and object to our contract-related costs and fees, including allocated indirect costs.

The U.S. government may terminate its contract with us either for its convenience or if we default by failing to perform in accordance with the contract schedule and terms. Termination for convenience provisions generally enable us to recover only our costs incurred or committed, and settlement expenses and profit on the work completed prior to termination. Termination for default provisions does not permit these recoveries.

As a U.S. government contractor, we are required to comply with applicable laws, regulations and standards relating to our accounting practices and are subject to periodic audits and reviews. As part of any such audit or review, the U.S. government may review the adequacy of, and our compliance with, our internal control systems and policies, including those relating to our purchasing, property, estimating, compensation and management information systems. Based on the results of its audits, the U.S. government may adjust our contract-related costs and fees, including allocated indirect costs. In addition, if an audit or review uncovers any improper or illegal activity, we may be subject to civil and criminal penalties and administrative sanctions, including termination of our contracts, forfeiture of profits, suspension of payments, fines and suspension or prohibition from doing business with the U.S. government. We could also suffer serious harm to our reputation if allegations of impropriety were made against us. In addition, under U.S. government purchasing regulations, some of our costs may not be reimbursable or allowed under our contracts. Further, as a U.S. government contractor, we are subject to an increased risk of investigations, criminal prosecution, civil fraud, whistleblower lawsuits and other legal actions and liabilities as compared to private sector commercial companies.

If we fail to successfully commercialize or establish collaborative relationships to commercialize certain of our drug product candidates or if any partner terminates or fails to perform its obligations under agreements with us, potential revenues from commercialization of our product candidates could be reduced, delayed or eliminated.

Our business strategy is to increase the asset value of our drug candidate portfolio. We believe this is best achieved by retaining full product rights or through collaborative arrangements with third parties as appropriate. As needed, potential third party alliances could include preclinical development, clinical development, regulatory approval, marketing, sales and distribution of our drug product candidates.

Currently, we have established collaborative relationships with certain pharmaceutical companies, Roche (recently terminated), Mundipharma, and both Shionogi and Green Cross for the development and commercialization of BCX-4208, forodesine HCl and peramivir, respectively. The process of establishing and implementing collaborative relationships is difficult, time-consuming and involves significant uncertainty, including:

our partners may seek to renegotiate or terminate their relationships with us due to unsatisfactory clinical results, a change in business strategy, a change of control or other reasons;

our contracts for collaborative arrangements may expire;

our partners may choose to pursue alternative technologies, including those of our competitors;

8

Table of Contents

we may have disputes with a partner that could lead to litigation or arbitration;

we do not have day to day control over the activities of our partners and have limited control over their decisions;

our ability to generate future event payments and royalties from our partners depends upon their abilities to establish the safety and efficacy of our drug candidates, obtain regulatory approvals and achieve market acceptance of products developed from our drug candidates;

we or our partners may fail to properly initiate, maintain or defend our intellectual property rights, where applicable, or a party may utilize our proprietary information in such a way as to invite litigation that could jeopardize or potentially invalidate our proprietary information or expose us to potential liability;

our partners may not devote sufficient capital or resources towards our product candidates; and

our partners may not comply with applicable government regulatory requirements.

If any partner fails to fulfill its responsibilities in a timely manner, or at all, our commercialization efforts related to that collaboration could be reduced, delayed or terminated, or it may be necessary for us to assume responsibility for activities that would otherwise have been the responsibility of our partner. If we are unable to establish and maintain collaborative relationships on acceptable terms, we may have to delay or discontinue further development of one or more of our product candidates, undertake commercialization activities at our own expense or find alternative sources of funding. Any delay in the development or commercialization of our compounds would severely affect our business, because if our compounds do not progress through the development process or reach the market in a timely manner, or at all, we may not receive additional future event payments and may never receive product or royalty payments.

For example, in May 2008, we received notice that Roche was exercising the no cause termination right under the license agreement for BCX-4208. In the third quarter of 2007, we announced that Roche had initiated a Phase II clinical trial with oral doses of BCX-4208/R3421, which is designed to evaluate the drug candidate in patients with moderate to severe plaque psoriasis. The efficacy assessment of the study has been completed. Consistent with interim findings reported by the Company in May 2008, this study of BCX-4208, a potent, rationally designed, orally available PNP inhibitor, met its primary objectives of safety and tolerability. In addition, BCX-4208 displayed dose-dependent reductions in peripheral blood lymphocyte counts, including subsets measuring B cells (CD20), total T cells (CD3), T helper cells (CD4) and T suppressor/cytotoxic cells (CD8). Further, plasma levels of BCX-4208 increased with dose, and plasma uric acid levels showed dose-related reductions with BCX-4208. In addition, consistent with interim results previously reported by the Company, no evidence of clinical efficacy, a secondary objective, was observed in psoriasis patients with doses and duration of administration tested.

In the Phase IIa trial, BCX-4208 was generally safe and well-tolerated at doses up to 120 mg daily. Most adverse events reported were considered mild or moderate, and low in frequency. No opportunistic infections were observed. In addition, detailed laboratory and clinical monitoring did not indicate any patterns suggestive of off-target adverse findings.

In May 2008, we announced that we received notice that Roche was exercising the no cause termination right under the license agreement for BCX-4208. As a result, BioCryst regained worldwide rights to BCX-4208.

We are currently in dispute with Mundipharma regarding the contractual obligations of the parties with respect to certain costs related to the manufacturing and development of forodesine HCl. Notwithstanding, we do not believe that we are responsible for any of the disputed amounts. We are engaged in ongoing discussion to resolve this dispute. The maximum potential exposure to us is estimated to be approximately \$2.5 million. Because of the preliminary nature of the discussions, no amounts have been accrued as of September 30, 2008.

We have not commercialized any products or technologies and our future revenue generation is uncertain.

We have not commercialized any products or technologies, and we may never be able to do so. We currently have no marketing capability and no direct or third-party sales or distribution capabilities and may be unable to establish these capabilities for products we plan to commercialize. In addition, our revenue from collaborative agreements is dependent upon the status of our preclinical and clinical programs. If we fail to advance these programs to the point of being able to enter into successful collaborations, we will not receive any future event or other collaborative payments.

Our ability to receive revenue from products we commercialize presents several risks, including:

we or our collaborators may fail to successfully complete clinical trials sufficient to obtain FDA marketing approval;

many competitors are more experienced and have significantly more resources and their products could be more cost effective or have a better efficacy or tolerability profile than our product candidates;

we may fail to employ a comprehensive and effective intellectual property strategy which could result in decreased commercial value of our company and our products;

we may fail to employ a comprehensive and effective regulatory strategy which could result in a delay or failure in commercialization of our products;

Table of Contents

our ability to successfully commercialize our products are affected by the competitive landscape, which cannot be fully known at this time;

reimbursement is constantly changing which could greatly affect usage of our products; and

any future revenue directly from product sales would depend on our ability to successfully complete clinical studies, obtain regulatory approvals, manufacture, market and commercialize any approved drugs.

If our development collaborations with third parties, such as our development partners and contract research organizations, fail, the development of our drug product candidates will be delayed or stopped.

We rely heavily upon other parties for many important stages of our drug development programs, including but not limited to:

discovery of compounds that cause or enable biological reactions necessary for the progression of the disease or disorder, called enzyme targets;

licensing or design of enzyme inhibitors for development as drug product candidates;

execution of some preclinical studies and late-stage development for our compounds and product candidates;

management of our clinical trials, including medical monitoring and data management;

execution of additional toxicology studies that may be required to obtain approval for our product candidates; and

manufacturing the starting materials and drug substance required to formulate our drug products and the drug products to be used in both our clinical trials and toxicology studies.

Our failure to engage in successful collaborations at any one of these stages would greatly impact our business. If we do not license enzyme targets or inhibitors from academic institutions or from other biotechnology companies on acceptable terms, our product development efforts would suffer. Similarly, if the contract research organizations that conduct our initial or late-stage clinical trials, conduct our toxicology studies, manufacture our starting materials, drug substance and drug products or manage our regulatory function breached their obligations to us or perform their services inconsistent with industry standards and not in accordance with the required regulations, this would delay or prevent the development of our product candidates.

If we lose our relationship with any one or more of these parties, we could experience a significant delay in both identifying another comparable provider and then contracting for its services. We may be unable to retain an alternative provider on reasonable terms, if at all. Even if we locate an alternative provider, it is likely that this provider may need additional time to respond to our needs and may not provide the same type or level of service as the original provider. In addition, any provider that we retain will be subject to current Good Laboratory Practices (cGLP), current Good Manufacturing Practices (cGMP), or current Good Clinical Practices (cGCP), and similar foreign standards and we do not have control over compliance with these regulations by these providers. Consequently, if these practices and standards are not adhered to by these providers, the development and commercialization of our product candidates could be delayed.

Our development of both intravenous and intramuscular dosing of peramivir for avian and seasonal influenza is subject to all disclosed drug development and potential commercialization risks and numerous additional risks. Any potential revenue benefits to us are highly speculative.

Further development and potential commercialization of peramivir is subject to all the risks and uncertainties disclosed in our other risk factors relating to drug development and commercialization. In addition, potential commercialization of peramivir is subject to further risks, including but not limited to the following:

the injectable versions of peramivir are currently in Phase II clinical development and have been tested in a limited number of humans and may not be safe or effective;

Table of Contents

necessary government or other third party funding and clinical testing for further development of peramivir may not be available timely, at all, or in sufficient amounts;

the avian flu prevention or treatment concerns may not materialize at all, or in the near future;

advances in flu vaccines could substantially replace potential demand for an antiviral such as peramivir;

any substantial demand for avian flu treatments may occur before peramivir can be adequately developed and tested in clinical trials;

injectable forms of peramivir may not prove to be accepted by patients and physicians as a treatment for seasonal influenza compared to the other currently marketed antiviral drugs, which would limit revenue from non-governmental entities;

numerous large and well-established pharmaceutical and biotech companies will be competing to meet the market demand for avian flu drugs and vaccines;

regulatory authorities may not make needed accommodations to accelerate the drug testing and approval process for peramivir; and

in the next few years, it is expected that a limited number of governmental entities will be the primary potential customers for peramivir and if we are not successful at marketing peramivir to these entities for any reason, we will not receive substantial revenues from stockpiling orders from these entities.

If any or all of these and other risk factors occur, we will not attain significant revenues or gross margins from peramivir and our stock price will be adversely affected.

Because we have limited manufacturing experience, we depend on third-party manufacturers to manufacture our drug product candidates and the materials for our product candidates. If we cannot rely on third-party manufacturers, we will be required to incur significant costs and potential delays in finding new third-party manufacturers.

We have limited manufacturing experience and only a small scale manufacturing facility. We currently rely upon third-party manufacturers to manufacture the materials required for our drug product candidates and most of the preclinical and clinical quantities of our product candidates. We depend on these third-party manufacturers to perform their obligations in a timely manner and in accordance with applicable governmental regulations. Our third-party manufacturers may encounter difficulties with meeting our requirements, including but not limited to problems involving:

inconsistent production yields;

product liability claims;

difficulties in scaling production to commercial and validation sizes;

interruption of the delivery of materials required for the manufacturing process;

scheduling of plant time with other vendors or unexpected equipment failure;

potential catastrophes that could strike their facilities;

potential impurities in our drug substance or drug products that could affect availability of product for our clinical trials or future commercialization;

poor quality control and assurance or inadequate process controls; and

lack of compliance with regulations and specifications set forth by the FDA or other foreign regulatory agencies.

Table of Contents

These contract manufacturers may not be able to manufacture the materials required for our drug product candidates at a cost or in quantities necessary to make them commercially viable. We also have no control over whether third-party manufacturers breach their agreements with us or whether they may terminate or decline to renew agreements with us. To date, our third party manufacturers have met our manufacturing requirements, but they may not continue to do so. Furthermore, changes in the manufacturing process or procedure, including a change in the location where the drug is manufactured or a change of a third-party manufacturer, may require prior review and approval in accordance with the FDA's cGMPs, and comparable foreign requirements. This review may be costly and time-consuming and could delay or prevent the launch of a product. The FDA or similar foreign regulatory agencies at any time may also implement new standards, or change their interpretation and enforcement of existing standards for manufacture, packaging or testing of products. If we or our contract manufacturers are unable to comply, we or they may be subject to regulatory action, civil actions or penalties.

If we are unable to enter into agreements with additional manufacturers on commercially reasonable terms, or if there is poor manufacturing performance on the part of our third party manufacturers, we may not be able to complete development of, or market, our product candidates.

Our raw materials, drug substances, and drug products are manufactured by a limited group of suppliers and some at a single facility. If any of these suppliers were unable to produce these items, this could significantly impact our supply of drugs for further preclinical testing and clinical trials.

If we or our partners do not obtain and maintain governmental approvals for our products under development, we or our partners will not be able to sell these potential products, which would significantly harm our business because we will receive no revenue.

We or our partners must obtain regulatory approval before marketing or selling our future drug products. If we or our partners are unable to receive regulatory approval and do not market or sell our future drug products, we will never receive any revenue from such product sales. In the United States, we or our partners must obtain FDA approval for each drug that we intend to commercialize. The process of preparing for and obtaining FDA approval may be lengthy and expensive, and approval is never certain. Products distributed abroad are also subject to foreign government regulation. Neither the FDA nor foreign regulatory agencies have approved any of our drug product candidates. Because of the risks and uncertainties in biopharmaceutical development, our product candidates could take a significantly longer time to gain regulatory approval than we expect or may never gain approval. If the FDA delays regulatory approval of our product candidates, our management's credibility, our company's value and our operating results may suffer. Even if the FDA or foreign regulatory agencies approve a product candidate, the approval may limit the indicated uses for a product candidate and/or may require post-marketing studies.

The FDA regulates, among other things, the record keeping and storage of data pertaining to potential pharmaceutical products. We currently store most of our preclinical research data, our clinical data and our manufacturing data at our facility. While we do store duplicate copies of most of our clinical data offsite and a significant portion of our data is included in regular backups of our systems, we could lose important data if our facility incurs damage. If we get approval to market our potential products, whether in the United States or internationally, we will continue to be subject to extensive regulatory requirements. These requirements are wide ranging and govern, among other things:

adverse drug experience reporting regulations;

product promotion;

product manufacturing, including good manufacturing practice requirements; and

product changes or modifications.

Our failure to comply with existing or future regulatory requirements, or our loss of, or changes to, previously obtained approvals, could have a material adverse effect on our business because we will not receive product or royalty revenues if we or our partners do not receive approval of our products for marketing.

In June 1995, we notified the FDA that we submitted incorrect data for our Phase II studies of BCX-34 applied to the skin for CTCL and psoriasis. In November 1995, the FDA issued a List of Inspectional Observations,

Form FDA 483, which cited our failure to follow good clinical practices. The FDA also inspected us in June 1996. The focus was on the two 1995 Phase II dose-ranging studies of topical BCX-34 for the treatment of CTCL and psoriasis. As a result of the investigation, the

Table of Contents

FDA issued us a Form FDA 483, which cited our failure to follow good clinical practices. We are no longer developing BCX-34; however, as a consequence of these two investigations, our ongoing and future clinical studies may receive increased scrutiny, which may delay the regulatory review process.

We face intense competition, and if we are unable to compete effectively, the demand for our products, if any, may be reduced.

The biotechnology and pharmaceutical industries are highly competitive and subject to rapid and substantial technological change. We face, and will continue to face, competition in the licensing of desirable disease targets, licensing of desirable drug product candidates, and development and marketing of our product candidates from academic institutions, government agencies, research institutions and biotechnology and pharmaceutical companies. Competition may also arise from, among other things:

other drug development technologies;

methods of preventing or reducing the incidence of disease, including vaccines; and

new small molecule or other classes of therapeutic agents.

Developments by others may render our product candidates or technologies obsolete or noncompetitive.

We and our partners are performing research on or developing products for the treatment of several disorders including T-cell mediated disorders (T-cell cancers, transplant rejection, psoriasis and other autoimmune indications), oncology, influenza, and hepatitis C. We expect to encounter significant competition for any of the pharmaceutical products we plan to develop. Companies that complete clinical trials, obtain required regulatory approvals and commence commercial sales of their products before their competitors may achieve a significant competitive advantage. Such is the case with Eisai's Targretin for CTCL and the current neuraminidase inhibitors marketed by Glaxo Smith Kline and Roche for influenza. In addition, several pharmaceutical and biotechnology firms, including major pharmaceutical companies and specialized structure-based drug design companies, have announced efforts in the field of structure-based drug design and in the fields of PNP, influenza, hepatitis C, and in other therapeutic areas where we have discovery efforts ongoing. If one or more of our competitors' products or programs are successful, the market for our products may be reduced or eliminated.

Compared to us, many of our competitors and potential competitors have substantially greater:

capital resources;

research and development resources, including personnel and technology;

regulatory experience;

preclinical study and clinical testing experience;

manufacturing and marketing experience; and

production facilities.

Any of these competitive factors could reduce demand for our products.

If we fail to adequately protect or enforce our intellectual property rights or secure rights to patents of others, the value of those rights would diminish.

Our success will depend in part on our ability and the abilities of our partners to obtain, protect and enforce viable intellectual property rights including but not limited to trade name, trade mark and patent protection for our company and its products, methods, processes and other technologies we may license or develop, to preserve our trade secrets, and to operate without infringing the proprietary rights of third parties both domestically and abroad. The patent position of biotechnology and pharmaceutical companies is generally highly uncertain, involves complex legal and factual questions and has recently been the subject of much litigation. Neither the United States Patent and Trademark Office (USPTO), the Patent Cooperation Treaty offices, nor the courts of the United States and other

jurisdictions have consistent policies nor predictable rulings

13

Table of Contents

regarding the breadth of claims allowed or the degree of protection afforded under many biotechnology and pharmaceutical patents. The validity, scope, enforceability and commercial value of these rights, therefore, is highly uncertain.

Our success depends in part on avoiding the infringement of other parties' patents and other intellectual property rights as well as avoiding the breach of any licenses relating to our technologies and products. In the U.S., patent applications filed in recent years are confidential for 18 months, while older applications are not published until the patent issues. As a result, avoiding patent infringement may be difficult and we may inadvertently infringe third-party patents or proprietary rights. These third parties could bring claims against us, our partners or our licensors that even if resolved in our favor, could cause us to incur substantial expenses and, if resolved against us, could additionally cause us to pay substantial damages. Further, if a patent infringement suit were brought against us, our partners or our licensors, we or they could be forced to stop or delay research, development, manufacturing or sales of any infringing product in the country or countries covered by the patent we infringe, unless we can obtain a license from the patent holder. Such a license may not be available on acceptable terms, or at all, particularly if the third party is developing or marketing a product competitive with the infringing product. Even if we, our partners or our licensors were able to obtain a license, the rights may be nonexclusive, which would give our competitors access to the same intellectual property.

If we or our partners are unable or fail to adequately, initiate, protect, defend or enforce our intellectual property rights in any area of commercial interest or in any part of the world where we wish to seek regulatory approval for our products, methods, processes and other technologies, the value of the drug product candidates to produce revenue would diminish. Additionally, if our products, methods, processes, and other technologies or our commercial use of such products, processes, and other technologies, including but not limited to any tradename, trademark or commercial strategy infringe the proprietary rights of other parties, we could incur substantial costs. The USPTO and the patent offices of other jurisdictions have issued to us a number of patents for our various inventions and we have in-licensed several patents from various institutions. We have filed additional patent applications and provisional patent applications with the USPTO. We have filed a number of corresponding foreign patent applications and intend to file additional foreign and U.S. patent applications, as appropriate. We have also filed certain trademark and tradename applications worldwide. We cannot assure you as to:

the degree and range of protection any patents will afford against competitors with similar products;

if and when patents will issue;

if patents do issue we can not be sure that we will be able to adequately defend such patents and whether or not we will be able to adequately enforce such patents; or

whether or not others will obtain patents claiming aspects similar to those covered by our patent applications.

If the USPTO or other foreign patent office upholds patents issued to others or if the USPTO grants patent applications filed by others, we may have to:

obtain licenses or redesign our products or processes to avoid infringement;

stop using the subject matter claimed in those patents; or

pay damages.

We may initiate, or others may bring against us, litigation or administrative proceedings related to intellectual property rights, including proceedings before the USPTO or other foreign patent office. Any judgment adverse to us in any litigation or other proceeding arising in connection with a patent or patent application could materially and adversely affect our business, financial condition and results of operations. In addition, the costs of any such proceeding may be substantial whether or not we are successful.

Our success is also dependent upon the skills, knowledge and experience, none of which is patentable, of our scientific and technical personnel. To help protect our rights, we require all employees, consultants, advisors and partners to enter into confidentiality agreements that prohibit the disclosure of confidential information to anyone outside of our company and require disclosure and assignment to us of their ideas, developments, discoveries and inventions. These agreements may not provide adequate protection for our trade secrets, know-how or other proprietary information in the event of any unauthorized use or disclosure or the lawful development by others of such information, and if any of our proprietary information is

Table of Contents

disclosed, our business will suffer because our revenues depend upon our ability to license or commercialize our product candidates and any such events would significantly impair the value of such product candidates.

There is a substantial risk of product liability claims in our business. If we are unable to obtain sufficient insurance, a product liability claim against us could adversely affect our business.

We face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical trials and will face even greater risks upon any commercialization by us of our product candidates. We have product liability insurance covering our clinical trials in the amount of \$11 million. Clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance or increase our existing coverage at a reasonable cost to protect us against losses that could have a material adverse effect on our business. An individual may bring a product liability claim against us if one of our products or product candidates causes, or is claimed to have caused, an injury or is found to be unsuitable for consumer use. Any product liability claim brought against us, with or without merit, could result in:

liabilities that substantially exceed our product liability insurance, which we would then be required to pay from other sources, if available;

an increase of our product liability insurance rates or the inability to maintain insurance coverage in the future on acceptable terms, or at all;

withdrawal of clinical trial volunteers or patients;

damage to our reputation and the reputation of our products, resulting in lower sales;

regulatory investigations that could require costly recalls or product modifications;

litigation costs; and

the diversion of management's attention from managing our business.

If our facility incurs damage or power is lost for a significant length of time, our business will suffer.

We currently store numerous clinical and stability samples at our facility that could be damaged if our facility incurred physical damage or in the event of an extended power failure. We have backup power systems in addition to backup generators to maintain power to all critical functions, but any loss of these samples could result in significant delays in our drug development process.

In addition, we currently store most of our preclinical and clinical data at our facility. Duplicate copies of most critical data are stored off-site in a bank vault. Any significant degradation or failure of our computer systems could cause us to inaccurately calculate or lose our data. Loss of data could result in significant delays in our drug development process and any system failure could harm our business and operations.

If we fail to retain our existing key personnel or fail to attract and retain additional key personnel, the development of our drug product candidates and the expansion of our business will be delayed or stopped.

We are highly dependent upon our senior management and scientific team, the loss of whose services might impede the achievement of our development and commercial objectives. Competition for key personnel with the experience that we require is intense and is expected to continue to increase. Our inability to attract and retain the required number of skilled and experienced management, operational and scientific personnel, will harm our business because we rely upon these personnel for many critical functions of our business.

If, because of our use of hazardous materials, we violate any environmental controls or regulations that apply to such materials, we may incur substantial costs and expenses in our remediation efforts.

Our research and development involves the controlled use of hazardous materials, chemicals and various radioactive compounds. We are subject to federal, state and local laws and regulations governing the use, storage, handling and disposal of these materials and some waste products. Accidental contamination or injury from these materials could occur. In the event of

Table of Contents

an accident, we could be liable for any damages that result and any liabilities could exceed our resources. Compliance with environmental laws and regulations could require us to incur substantial unexpected costs, which would materially and adversely affect our results of operations.

Risks Relating to Our Common Stock

Our stock price is likely to be highly volatile and the value of your investment could decline significantly.

The market prices for securities of biotechnology companies in general have been highly volatile and may continue to be highly volatile in the future. Moreover, our stock price has fluctuated frequently, and these fluctuations are often not related to our financial results. For the twelve months ended September 30, 2008, the 52-week range of the market price of our stock was from \$2.40 to \$8.33 per share. The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock:

- announcements of technological innovations or new products by us or our competitors;
- developments or disputes concerning patents or proprietary rights;
- additional dilution through sales of our common stock or other derivative securities;
- status of new or existing licensing or collaborative agreements and government contracts;
- announcements relating to the status of our programs;
- we or our partners achieving or failing to achieve development milestones;
- publicity regarding actual or potential medical results relating to products under development by us or our competitors;
- publicity regarding certain public health concerns for which we are or may be developing treatments;
- regulatory developments in both the United States and foreign countries;
- public concern as to the safety of pharmaceutical products;
- actual or anticipated fluctuations in our operating results;
- changes in financial estimates or recommendations by securities analysts;
- changes in the structure of healthcare payment systems, including developments in price control legislation;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- additions or departures of key personnel or members of our board of directors;
- purchases or sales of substantial amounts of our stock by existing stockholders, including officers or directors;
- economic and other external factors or other disasters or crises; and
- period-to-period fluctuations in our financial results.

Because stock ownership is concentrated, you and other investors will have limited influence on stockholder decisions.

As of September 30, 2008, our directors, executive officers and our stockholders who hold 5% or greater of our outstanding common stock, beneficially owned a significant portion of our outstanding common stock and common stock equivalents. As a result,

Table of Contents

these holders will likely be able to significantly influence our operations and matters requiring stockholder approval, including the election of directors. The interests of these stockholders may be different from the interests of other stockholders and they could take actions that might not be considered by other stockholders to be in their best interests. This concentration of ownership may delay, defer or prevent a change in our control.

We have anti-takeover provisions in our corporate charter documents that may result in outcomes with which you do not agree.

Our board of directors has the authority to issue up to 4,905,000 shares of undesignated preferred stock and to determine the rights, preferences, privileges and restrictions of those shares without further vote or action by our stockholders. The rights of the holders of any preferred stock that may be issued in the future 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.

In addition, 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.

In June 2002, our board of directors adopted a stockholder rights plan and, pursuant thereto, issued preferred stock purchase rights (Rights) to the holders of our common stock. The Rights have certain anti-takeover effects. If triggered, the Rights would cause substantial dilution to a person or group of persons who acquires more than 15% (19.9% for William W. Featheringill, a Director who beneficially owned approximately 10.3% as of September 30, 2008, but owned more than 15% at the time the Rights were put in place) of our common stock on terms not approved by the board of directors. In August 2007, this plan was amended for a transaction involving funds managed by or affiliated with Baker Brother Investments such that they could purchase up to 25% without triggering the Rights. At September 30, 2008, such group beneficially owned approximately 18.8% of our stock.

We have never paid dividends on our common stock and do not anticipate doing so in the foreseeable future.

We have never paid cash dividends on our stock. We currently intend to retain all future earnings, if any, for use in the operation of our business. Accordingly, we do not anticipate paying cash dividends on our common stock in the foreseeable future.

Public sales of our common stock could depress the market price of our stock and adversely affect the liquidity of the trading market for our stock.

As of September 30, 2008, we had approximately 38.2 million shares of common stock outstanding. The approximately 11.5 million shares of common stock, including shares of common stock issuable upon the exercise of outstanding warrants, that may be sold by the selling stockholders under our most recent resale registration statements on Form S-3 are freely tradable without restriction or further registration under the federal securities laws unless purchased by our affiliates. Additionally, at September 30, 2008, we had outstanding options to purchase approximately 5.6 million shares of common stock. If these or other stockholders sell substantial amounts of our common stock in the public market, or if the market perceives that these sales may occur, the market price of our common stock might decline. We are unable to estimate the amount, timing or nature of future sales of outstanding common stock.

The additional volume of shares available for trading could increase selling demand on our stock on the Nasdaq Global Market, and outstrip buying demand. This may make it difficult to sell substantial amounts of our stock without adversely impacting the stock price, and could depress the market price for our stock.

Exercise of outstanding options and warrants will dilute stockholders and could decrease the market price of our common stock.

As of September 30, 2008, we had issued and outstanding approximately 38.2 million shares of common stock, outstanding options to purchase approximately 5.6 million additional shares of common stock and warrants (exercisable at \$10.25 per share) to purchase an additional 3,159,895 shares of our common stock. The existence of the outstanding options and warrants may adversely affect the market price of our common stock and the terms under which we could obtain additional equity capital.

Table of Contents

INFORMATION REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the information we incorporate by reference, contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, referred to as the Exchange Act, which are subject to the safe harbor created in Section 21E. All statements other than statements of historical facts contained in this prospectus are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as may, could, will, should, expect, plan, anticipate, believe, estimate, seek, potential or continue or 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 initiation, timing, progress and results of our preclinical testing, clinical trials, and other research and development efforts;

the potential funding from our contract with HHS for the development of peramivir;

the further preclinical or clinical development and commercialization of our product candidates, including peramivir, forodesine HCl and other PNP inhibitor and hepatitis C development programs;

the implementation of our business model, strategic plans for our business, product candidates and technology;

our ability to establish and maintain collaborations;

plans, programs, progress and potential success of our collaborations, including Mundipharma for forodesine HCl and Shionogi and Green Cross for peramivir;

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, future revenues, capital requirements and our needs for additional financing;

the timing or likelihood of regulatory filings and approvals;

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 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. Any forward-looking statement in this prospectus 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 amendments we make to those filings with the SEC.

Table of Contents

USE OF PROCEEDS

The proceeds from the sale or other disposition of the common stock and the warrants covered by this prospectus are solely for the accounts of the selling stockholders named in this prospectus. We will not receive any proceeds from the sale or other disposition of these shares of common stock, including the sale of the shares of common stock issuable upon exercise of the warrants, or the warrants. To the extent that any of the warrants to purchase common stock are exercised, we will receive the exercise price paid for the shares of common stock purchased thereunder.

The selling stockholders will pay any underwriting discounts and commissions and expenses incurred by the selling stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholders in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including, without limitation, all registration and filing fees, Nasdaq listing fees and fees and expenses of our counsel and our independent registered public accounting firm.

Table of Contents**DESCRIPTION OF SECURITIES**

The following summary description of our capital stock and the warrants summarizes general terms and provisions that apply to the capital stock and the warrants. 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, the rights agreement, as amended, and the form of warrant, 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 95,000,000 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 95,000 shares are designated Series B Junior Participating Preferred Stock with a par value of \$0.001 per share. On December 31, 2008, there were 38,275,167 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. 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.

Preferred Stock Purchase Rights

In June 2002, our board of directors adopted a stockholder rights plan and, pursuant thereto, issued preferred stock purchase rights (Rights) to the holders of our common stock. The Rights have certain anti-takeover effects. If triggered, the Rights would cause substantial dilution to a person or group of persons who acquires more than 15% (19.9% for William W. Featheringill, a Director who beneficially owned approximately 10.3% as of September 30, 2008, but owned more than 15% at the time the Rights were put in place) of our common stock on terms not approved by the board of directors. In August 2007, this plan was amended for a transaction involving funds managed by or affiliated with Baker Brother Investments such that they could purchase up to 25% without triggering the Rights. On September 30, 2008, such group beneficially owned approximately 18.8% of our stock. The rights are not exercisable until the distribution date, as defined in the Rights Agreement, dated June 17, 2002, by and between the Company and American Stock Transfer & Trust Company, as Rights Agent, as amended. The Rights will expire at the close of business on June 24, 2012, unless that final expiration date is extended or unless the rights are earlier redeemed or exchanged by the Company.

Each Right entitles the registered holder to purchase from the Company one one-thousandth of a share of Series B Junior Participating Preferred Stock (Series B), par value \$0.001 per share, at a purchase price of \$26.00, subject to adjustment. Shares of Series B purchasable upon exercise of the Rights will not be redeemable. Each share of Series B will be entitled to a dividend of 1,000 times the dividend declared per share of common stock. In the event of liquidation, each share of Series B will be entitled to a payment of 1,000 times the payment made per share of common stock. Each share of Series B will have 1,000 votes, voting together with the common stock. Finally, in the event of any merger, consolidation, or other transaction in which shares of common stock are exchanged, each share of Series B will be entitled to receive 1,000 times the amount received per share of common stock.

Table of Contents

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.

Warrants

We issued the warrants to purchase 3,159,895 shares of common stock on August 9, 2007. The warrants have an exercise price of \$10.25 per share and may be exercised at any time prior to the earlier to occur of the five-year anniversary of their issuance or the occurrence of certain reorganization transactions as set forth in the warrant. The exercise price and number of shares subject to the warrant is subject to adjustment in the event of a stock dividend, subdivision or combination of stock, reclassification, rights offering or other similar change affecting all outstanding shares of our common stock.

Table of Contents**SELLING STOCKHOLDERS**

In August 2007, we sold 8,315,513 shares of common stock and warrants to purchase 3,159,895 additional shares of common stock at \$10.25 per share to the selling stockholders in a private placement transaction. This prospectus covers the offer and sale or other disposition by the selling stockholders of up to an aggregate of 175,513 shares of common stock issued to the selling stockholders in the August 2007 private placement, up to an aggregate of 3,159,895 shares of common stock issuable upon exercise of the warrants sold to the selling stockholders in the August 2007 private placement, and up to an aggregate of 3,159,895 warrants to purchase common stock.

We are registering the above-referenced shares and warrants to permit each of the selling stockholders and their pledgees, donees, transferees or other successors-in-interest that receive their shares or warrants after the date of this prospectus to resell or otherwise dispose of the shares and warrants in the manner contemplated under the Plan of Distribution .

The selling stockholders may sell some, all or none of their shares or warrants. We do not know how long the selling stockholders will hold the shares or warrants before selling them. We currently have no agreements, arrangements or understandings with the selling stockholders regarding the sale of any of the shares or warrants. The shares or warrants offered by this prospectus may be offered from time to time by the selling stockholders. We have agreed to keep the registration statement effective for each selling stockholder until the earlier of (a) August 9, 2009, (b) such time as all the shares owned by a selling stockholder covered by this prospectus, including shares underlying the warrants, have been sold by the selling stockholder pursuant to the registration statement or (c) all such shares may be sold by the selling stockholder without restriction by the volume limitations of Rule 144(e) of the Securities Act.

The following table sets forth the name of each selling stockholder, the number of shares beneficially owned (including warrant shares) by each of the respective selling stockholders, the number of shares (including warrant shares) and warrants that may be offered under this prospectus and the number of shares of our common stock to be owned by the selling stockholders after this offering is completed. The number of shares in the column Number of Shares Being Offered represents all of the shares that a selling stockholder may offer under this prospectus. Information regarding any position, office or other material relationship which any selling stockholder has had with us within the past three years is included in the footnotes to the table.

Beneficial ownership of a security is determined in accordance with the rules and regulations of the SEC. Under these rules, a person is deemed to beneficially own a share of our common stock if that person has or shares voting power or investment power with respect to that share, or has the right to acquire beneficial ownership of that share within 60 days, including through the exercise of any option or other right or the conversion or any other security. Shares issuable under stock options and warrants are deemed outstanding for computing the percentage of the person holding options or warrants but are not outstanding for computing the percentage of any other person. The information set forth in the table below is as of December 31, 2008 and the percentage of beneficial ownership shown below is based upon 38,275,167 shares of common stock outstanding as of such date.

Name	Number of Shares Beneficially Owned Prior to Offering(1)	Number of Warrants Being Offered	Number of Shares Being Offered(1)	Shares Beneficially Owned	
				Number of Shares After Offering	% of Class
14159, L.P.(2)	172,299	35,611	37,589	134,710	*
667, L.P.(2)	2,183,219	424,726	448,317	1,734,902	4.48%
Baker Bros. Investments II, L.P.(2)	58,610	2,854	3,012	55,598	*
Baker Brothers Life Sciences, L.P.(2)	5,468,608	1,120,142	1,182,359	4,286,249	10.88%
	1,293,676	212,677	224,490	1,069,186	2.78%

Caduceus Private Investments II, LP(3)					
Caduceus Private Investments II (QP), LP(3)	484,555	79,631	84,054	400,501	1.04%
EHS Holdings, Inc.(4)	1,147,523	315,985	333,536	813,987	2.11%
KPCB Holdings, Inc.(5)	2,883,644	487,179	514,239	2,369,405	6.11%
Nanocap Fund, L.P.(6)	2,255,604	59,143	62,428	2,004,912	5.21%
Nanocap Qualified Fund, L.P.(6)	2,255,604	86,231	91,021	2,004,912	5.21%
Orphan Fund, L.P.(6)	2,255,604	92,126	97,243	2,004,912	5.21%
TPG Biotechnology Partners, L.P.(7)	1,383,969	243,590	257,120	1,126,849	2.93%
Total(8)	17,331,707	3,159,895	3,335,408	13,996,299	33.78%

* Represents less than 1%.

Table of Contents

- (1) Includes shares issuable upon the exercise of the warrants.

- (2) Share numbers include
 - (a) 35,611 shares issuable upon the exercise of warrants by 14159, L.P.,
 - (b) 424,726 shares issuable upon the exercise of warrants by 667, L.P., (c) 2,854 shares issuable upon the exercise of warrants by Baker Bros. Investments II, L.P., and
 - (d) 1,120,142 shares issuable upon the exercise of warrants by Baker Bros. Life Sciences, L.P. Julian C. Baker and Felix J. Baker, as managing members of these funds, have voting and investment control over these shares. Based on information provided to us by Messrs. Baker. Excludes shares

beneficially owned by Stephen R. Biggar, M.D., Ph.D. a director of BioCryst appointed to the board under a Stock Purchase Agreement dated as of February 17, 2005. Dr. Biggar is a Partner at Baker Brothers Investments, an affiliate of these selling stockholders. Dr. Biggar and Messrs. Baker disclaim beneficial ownership of these securities, except to the extent of their pecuniary interest therein.

- (3) Share numbers include
- (a) 212,677 shares issuable upon the exercise of warrants by Caduceus Private Investments II, L.P., and
 - (b) 79,631 shares issuable upon the exercise of warrants by Caduceus Private Investments II (QP), L.P.

Based on information provided to us by OrbiMed Capital GP II, LLC, general partner of these selling stockholders. Carl L. Gordon, CFA, Ph.D., is a General Partner of OrbiMed Capital GP II, LLC and was a director of BioCryst from May 2004 until May 2007. Dr. Gordon disclaims beneficial ownership of these securities, except to the extent of his pecuniary interest therein.

- (4) Share numbers include 315,985 shares issuable upon the exercise of warrants. Based on information provided to us by EHS Holdings, Inc. William W. Featheringill has been a director of BioCryst since 1995 and is the Chairman of the Board of EHS Holdings, Inc.
- (5) Share numbers include 487,179

shares issuable upon the exercise of warrants. Based on information provided to us by KPCB Pandemic and Bio Defense Fund, LLC, for which KPCB Holdings, Inc. acts as nominee. Beth C. Seidenberg, M.D., has been a director of BioCryst since December 2005 under an agreement with us and is a Partner of Kleiner Perkins Caufield & Byers. Dr. Seidenberg disclaims beneficial ownership of these securities, except to the extent of her pecuniary interest therein.

- (6) Share numbers include
 - (a) 59,143 shares issuable upon the exercise of warrants by Nanocap Fund, L.P., (b) 86,231 shares issuable upon the exercise of warrants by Nanocap Qualified Fund,

L.P., and
(c) 92,126
shares issuable
upon the
exercise of
warrants by
Orphan Fund,
L.P. Based on
information
provided to us
by Stephens
Investment
Management,
LLC, general
partner of each
of these selling
stockholders.

- (7) Share numbers include 243,590 shares issuable upon the exercise of warrants. Based on information provided to us by TPG Biotechnology GenPar, L.P. (GenPar). Tarrant Capital Advisors, Inc. (Tarrant Capital Advisors), a Delaware corporation, is the sole stockholder of Tarrant Advisors, Inc., which is the general partner of TPG Ventures Professionals, L.P., which is the general partner of TPG Ventures Partners, L.P., which is the

managing member of TPG Ventures Holdings, L.L.C., which is the sole member of TPG Biotech Advisors, L.L.C., which is the general partner of GenPar, which is the general partner of TPG Biotechnology Partners, L.P. (Biotechnology Partners). David Bonderman and James G. Coulter are directors, officers and sole shareholders of Tarrant Capital Advisors, and therefore, David Bonderman and James G. Coulter may each be deemed to beneficially own the shares and warrants directly held by Biotechnology Partners. The business address for Biotechnology Partners is c/o TPG Capital, L.P., 301 Commerce Street, Suite 3300, Fort Worth, TX 76102. Fred E. Cohen, M.D., D. Phil., has been a Board observer

of BioCryst since December 2005 as a representative of Biotechnology Partners under an agreement between us and Biotechnology Partners. Dr. Cohen disclaims beneficial ownership of the shares or warrants held by Biotechnology Partners. Biotechnology Partners has advised us it could be deemed to be an affiliate of a registered broker-dealer. Biotechnology Partners has represented to us that it purchased the shares in the ordinary course of its business and for its own account and, at the time of purchase, with no intention of distributing any of such shares or any arrangement or understanding with any other persons regarding the distribution of such shares.

(8) Share numbers
include
3,159,895
shares issuable
upon the
exercise of
warrants.

Table of Contents

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares or warrants 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 or warrants on any stock exchange, market or trading facility on which the shares or warrants 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 warrants: ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;

block trades in which the broker-dealer will attempt to sell such securities 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;

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;

broker-dealers may agree with the selling stockholders to sell a specified number of such securities at a stipulated price per share;

a combination of any such methods of sale; or

any other method permitted pursuant to applicable law.

The selling stockholders may also sell such securities under Rule 144 under the Securities Act, if available, rather than under this prospectus. The selling stockholders are not obligated to, and there is no assurance that the selling stockholders will, sell all or any of the securities we are registering. The selling stockholders may transfer, devise or gift such securities by other means not described in this prospectus.

In connection with the sale of our shares or warrants, 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 or warrants offered by them will be the purchase price of the common stock or warrants 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 or warrants to be made directly or through agents. We will not receive

any of the proceeds from this offering. Upon any exercise of the warrants by payment of cash, however, we will receive the exercise price of the warrants.

Table of Contents

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

We are required to pay certain fees and expenses incurred by us incident to the registration of the shares and warrants. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act. The selling stockholders have severally agreed to indemnify us against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

The selling stockholders, broker-dealers or agents that participate in the sale of the securities may be underwriters within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the securities may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are underwriters within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act. There is no underwriter or coordinating broker acting in connection with the proposed sale of the securities by the selling stockholders.

The selling stockholders may from time to time pledge or grant a security interest in some or all of the securities owned by them and, if they default in the performance of any of their secured obligations, the pledgees or secured parties may offer and sell the securities from time to time under this prospectus as it may be supplemented from time to time, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus.

To the extent required, the shares or warrants 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, any applicable commissions or discounts 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.

In order to comply with the securities laws of some states, if applicable, the securities may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the securities may not be sold unless they have been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

The anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of securities in the market and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the securities against certain liabilities, including liabilities arising under the Securities Act.

We have agreed with the selling stockholders to keep the registration statement of which this prospectus constitutes a part effective for each selling stockholder until the earlier of (1) August 9, 2009, (2) such time as all of the shares covered by this prospectus, including the shares underlying the warrants, have been disposed of pursuant to and in accordance with the registration statement or (3) the date on which such shares may be sold by the selling stockholder without restriction by the volume limitations of Rule 144(e) of the Securities Act.

Table of Contents

LEGAL MATTERS

The validity of the common stock offered hereby will be passed on for us by Gibson, Dunn & Crutcher LLP.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2007, and the effectiveness of our internal control over financial reporting as of December 31, 2007, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

Table of Contents

WHERE YOU CAN FIND MORE INFORMATION

We file electronically with the Securities and Exchange Commission 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 2190 Parkway Lake Drive, Birmingham, Alabama 35244 or sending an email to info@biocryst.com. You may read and copy any document we file at the SEC's Public Reference Room at 450 Fifth Street, N.W., Washington, D.C. 20549.

You can also obtain copies of this information by mail from the Public Reference Room of the SEC, 450 Fifth Street, N.W., Washington, D.C. 20549, 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 world wide web site that contains reports, proxy 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, 2007, filed with the SEC on March 4, 2008;

Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2008 (filed with the SEC on May 9, 2008), June 30, 2008 (filed with the SEC on August 8, 2008) and September 30, 2008 (filed with the SEC on October 31, 2008);

Our Current Reports on Form 8-K filed with the SEC on January 10, 2008, May 8, 2008, May 21, 2008, May 28, 2008, June 18, 2008, July 10, 2008, July 28, 2008, October 24, 2008, November 4, 2008, November 10, 2008 and December 29, 2008;

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 8, 1994, including any amendment or reports filed for the purpose of updating such description; and

The description of our preferred share purchase rights which is contained in our Registration Statement on Form 8-A (File No. 000-23186) filed with the SEC on June 17, 2002, including any 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 after the date of this prospectus and prior to the termination of this offering 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

Table of Contents

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 document 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.
2190 Parkway Lake Drive
Birmingham, Alabama 35244
(205) 444-4600

We have not, and the selling stockholders have not, authorized anyone to give any information or make any representation about us that is different from, or in addition to, that contained in this prospectus or in any of the materials that we have incorporated by reference into this document. Therefore, if anyone does give you information of this sort, you should not rely on it. 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.

Table of Contents

BioCryst Pharmaceuticals, Inc.
3,335,408 Shares of
Common Stock
3,159,895 Warrants to Purchase
Common Stock
PROSPECTUS
January 27, 2009