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**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, D.C. 20549

**FORM 8-K**

**CURRENT REPORT  
PURSUANT TO SECTION 13 OR 15(D)  
OF THE SECURITIES EXCHANGE ACT OF 1934**

Date of Report: August 31, 2005

**BioCryst Pharmaceuticals, Inc.**

(Exact Name of Registrant as Specified in Charter)

**Delaware**  
(State or other jurisdiction of incorporation)

**000-23186**  
(Commission File Number)

**62-1413174**  
(IRS Employer Identification #)

**2190 Parkway Lake Drive, Birmingham, Alabama 35244**  
(Address of Principal Executive Office)

**(205) 444-4600**  
(Registrant's telephone number, including area code)

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**Item 8.01 Other Events.**

On August 31, 2005, Registrant issued a press release announcing the initiation of a Phase II clinical trial with oral Fodosine™ in patients with advanced, refractory chronic lymphocytic leukemia (CLL). The press release is being filed as Exhibit 99.1 to this Current Report on Form 8-K.

Neither the filing of any press release as an exhibit to this Current Report on Form 8-K nor the inclusion in such press release of a reference to Registrant's Internet address shall, under any circumstances, be deemed to incorporate the information available at such Internet address into this Current Report on Form 8-K. The information available at Registrant's Internet address is not part of this Current Report on Form 8-K or any other report filed by Registrant with the Securities and Exchange Commission.

**Item 9.01 Exhibits.**

Exhibit No.	Description
99.1	Press release dated August 31, 2005 entitled "BioCryst Initiates Fodosine™ Oral Phase II Clinical Trial in Patients with Advanced, Fludarabine-Refractory Chronic Lymphocytic Leukemia (CLL)".

## SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dated: August 31, 2005

BioCryst Pharmaceuticals, Inc.

By: /s/ Michael A. Darwin

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Michael A. Darwin  
Chief Financial Officer and Chief  
Accounting Officer

## EXHIBIT INDEX

Exhibit	Description
99.1	Press release dated August 31, 2005 entitled "BioCryst Initiates Fodosine™ Oral Phase II Clinical Trial in Patients with Advanced, Fludarabine-Refractory Chronic Lymphocytic Leukemia (CLL)".



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**FOR IMMEDIATE RELEASE**

**BIOCRYST INITIATES FODOSINE™ ORAL PHASE II CLINICAL TRIAL IN  
PATIENTS WITH ADVANCED, FLUDARABINE-REFRACTORY  
CHRONIC LYMPHOCYTIC LEUKEMIA (CLL)**

**Birmingham, Alabama – August 31, 2005** – BioCryst Pharmaceuticals, Inc. (Nasdaq NM: BCRX) today announced that one of its investigators at the University of Texas M.D. Anderson Cancer Center has initiated a Phase II trial of oral Fodosine™ (fodosine hydrochloride), the company's lead transition-state analog inhibitor of purine nucleoside phosphorylase (PNP). The trial is designed to evaluate the efficacy and safety of Fodosine™ in patients with advanced, fludarabine-refractory chronic lymphocytic leukemia (CLL).

“Through data gathered in our multiple clinical and preclinical studies of Fodosine™, we believe the drug may provide an important treatment option for patients suffering from both T-cell and B-cell mediated leukemias, including chronic lymphocytic leukemia,” stated Dr. Charles E. Bugg, Chairman and CEO of BioCryst. “Additionally, we believe providing an oral formulation of Fodosine™ will address some of the important quality of life issues faced by fludarabine-refractory CLL patients.”

**Study Design**

Conducted at the University of Texas M.D. Anderson Cancer Center, this single-site Phase II, open label trial will evaluate the efficacy and safety of Fodosine™ as determined by response rate, time to disease progression, and patient tolerance. Patients will receive orally administered Fodosine™ at a dose of 200 mg for four weeks. After this first full cycle of therapy, patients will be evaluated and responding patients or patients with stable disease will be allowed to receive further treatment cycles up to a maximum of six cycles. The study is scheduled to enroll up to 30 patients.

## Background

Chronic lymphocytic leukemia is the most common form of leukemia, accounting for approximately 25-30% of all leukemias in North America and Europe. Over the past 10 years, studies have established nucleoside analogs, in particular fludarabine, as effective agents in the treatment of patients with CLL. Although it has shown efficacy, fludarabine has been so widely used, as both an initial and salvage therapy, that a significant population of patients has become fludarabine-refractory. These patients are subject to a more resistant disease phenotype as well as an increased risk of infection. As a result, the prognosis of fludarabine-refractory patients is poor.

Fodosine™, currently in a number of clinical studies, was originally developed to target T-cell leukemia. However, data from preclinical studies and Phase I/II clinical trials suggest that patients with other lymphoid malignancies including B-lymphoproliferative disorders such as B-ALL and B-CLL also respond to treatment with Fodosine™. Based on these data, BioCryst is pursuing the study of Fodosine™ in several indications. The company believes that the oral formulation of the drug will be particularly suitable for treating patients with symptoms of the advanced disease as seen in fludarabine-refractory patients.

In August of 2004, Fodosine™ was granted designation as an Orphan Drug for several cancer indications, including chronic lymphocytic leukemia, by the U.S. Food and Drug Administration.

## **About BioCryst**

BioCryst Pharmaceuticals, Inc. designs, optimizes and develops novel drugs that block key enzymes involved in cancer, cardiovascular diseases, autoimmune diseases, and viral infections. BioCryst integrates 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.

BioCryst's lead product candidate, Fodosine™, is a transition-state analog inhibitor of the target enzyme purine nucleoside phosphorylase (PNP). The drug is currently in a Phase IIa trial for patients with T-cell leukemia and a combination IV and oral Phase I pharmacokinetic trial in healthy volunteers. Results of the Phase IIa and the Phase I pharmacokinetic trial will assist in the design of a planned combination IV and oral Phase IIb pivotal clinical trial in patients with T-cell leukemia. Additionally, Fodosine™ is currently being studied in a Phase I trial with an oral formulation in cutaneous T-cell lymphoma (CTCL) and a Phase II trial in chronic lymphocytic leukemia (CLL). BioCryst also plans to initiate a Phase I/II trial in B-cell acute lymphoblastic leukemia during 2005. Fodosine™ has been granted Orphan Drug status by the U.S. Food and Drug Administration for three indications: T-cell non-Hodgkin's lymphoma, including CTCL; CLL and related leukemias including T-cell prolymphocytic leukemia, adult T-cell leukemia, and hairy cell leukemia; and for treatment of acute lymphoblastic leukemia (ALL). Additionally the FDA has granted "fast track" status to the development of Fodosine™ for the treatment of relapsed or refractory T-cell leukemia. A Phase Ib study with BioCryst's second-generation PNP inhibitor, BCX-4208, was recently initiated and is being conducted with the goal of initiating a Phase II study in patients with psoriasis in late 2005 or early 2006. In addition, BioCryst has drug candidates for two enzyme targets in preclinical testing, including hepatitis C polymerase and influenza neuraminidase and is also focusing on the target tissue factor/factor VIIa with a program at the discovery stage. For more information about BioCryst, please visit the company's web site at <http://www.biocryst.com>.

## **Forward-looking statements**

These statements involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Some of the factors that could affect the forward-looking statements contained herein include that we may not be able to enroll the required number of subjects in clinical trials of Fodosine™ or BCX-4208, that each of the Phase IIa trial for patients with T-cell leukemia, Phase I trial of BCX-4208, the Phase I trial of Fodosine™ for treatment of patients with cutaneous T-cell lymphoma and the Phase II trial of Fodosine™ for advanced fludarabine-refractory CLL may not be successfully completed, that BioCryst may not commence as expected additional trials with Fodosine™ and with BCX-4208, that Fodosine™, BCX-4208, or any of our other product candidates may not receive required regulatory clearances from the FDA, that Phase IIa clinical trials of Fodosine™ may not show the drug is effective over the 6-week period, that ongoing and future clinical trials may not have positive results, that we may not be able to obtain a Special Protocol Assessment or otherwise be able to complete successfully the Phase IIb trial that is currently planned to be pivotal, that we may not be able to continue future development of Fodosine™, BCX-4208 or any of our other current development programs including influenza neuraminidase, tissue factor/factor VIIa and hepatitis C polymerase, that Fodosine™, BCX-4208 or our other development programs may never result in future product, license or royalty payments being received by BioCryst, that BioCryst may not reach favorable agreements with potential pharmaceutical and biotech partners for further development of its product candidates, that BioCryst may not have sufficient cash to continue funding the development, manufacturing, marketing or distribution of its products and that additional funding, if necessary, may not be available at all or on terms acceptable to BioCryst. Please refer to the documents BioCryst files periodically with the Securities and Exchange Commission, specifically BioCryst's most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and current reports on Form 8-K, which identify important factors that could cause the actual results to differ materially from those contained in the projections or forward-looking statements.

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