

PROSPECTUS SUPPLEMENT
(To Prospectus dated January 27, 2009)

761,326 Shares

BioCryst Pharmaceuticals, Inc.

Common Stock

Pursuant to the Fourth Amendment Agreement (the "Amendment Agreement"), dated as of May 5, 2010, among BioCryst Pharmaceuticals, Inc. ("we," "us" or "our"), Albert Einstein College of Medicine of Yeshiva University, a Division of Yeshiva University ("AECOM"), and Industrial Research Ltd. ("IRL"), we agreed to issue 380,663 shares of our common stock, par value \$0.01 per share, to each of AECOM and IRL, respectively. The shares were issued on May 7, 2010 in exchange for certain modifications to the License Agreement dated June 27, 2000, among us, AECOM and IRL, as amended, including a reduction in the percentage of certain payments we receive from third-party sublicensees that must be paid to AECOM and IRL. Pursuant to the Amendment Agreement, AECOM and IRL also agreed that they would not, during any trading day, sell or otherwise transfer or dispose of more than an amount of shares equal to thirty percent of the average daily number of shares of our common stock traded over the previous ten trading days. The terms of the Amendment Agreement are described more fully in Item 5 of Part II of our Quarterly Report on Form 10-Q for the quarter ended March 31, 2010 (filed with the Securities and Exchange Commission on May 7, 2010). We did not receive any cash proceeds from the issuance of shares of common stock to AECOM and IRL.

Our common stock is listed on The Nasdaq Global Market under the symbol "BCRX." On May 6, 2010, the last reported sale price of our common stock on The Nasdaq Global Market was \$7.30 per share.

This prospectus supplement should be read in conjunction with, and may not be delivered or utilized without, the prospectus dated January 27, 2009.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is May 7, 2010.