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**ARCA BIOPHARMA LICENSES EXCLUSIVE WORLDWIDE RIGHTS TO  
BUCINDOLOL GENETIC MARKERS**

*Broomfield, CO, April 15, 2011* – ARCA biopharma, Inc. (Nasdaq: ABIO) today announced that it has entered into a license agreement with the University of Cincinnati for exclusive worldwide rights to a portfolio of U.S. and international patents, which includes certain patents covering genetic markers for the Company’s lead drug candidate, Gencaro™ (bucindolol hydrochloride), which is being developed for the treatment of chronic heart failure.

The licensed patents relate to genetic polymorphisms of adrenergic cardiac receptors which the Company believes provide the basis for exclusive worldwide development, use and commercialization of the genetic test which may indicate a patient’s likely response to Gencaro as a treatment for multiple cardiovascular disorders. The licensed patents had been the subject of an Exclusive License Agreement between the Company and the University of Cincinnati executed in December 2009. ARCA has been awarded a patent from the U.S. Patent and Trademark Office (March 2010) and a patent from the European Patent Office (October 2010) on methods of treating heart failure patients with bucindolol based on genetic testing.

The Company has previously entered into a commercialization and licensing agreement with Laboratory Corporation of America (LabCorp) to develop, produce, market and sell diagnostic tests in connection with the medical prescription of Gencaro.

**About Gencaro™**

Gencaro™ (bucindolol hydrochloride) is a pharmacologically unique beta-blocker and mild vasodilator being developed for the treatment of chronic heart failure (HF). Gencaro is an oral tablet formulation, dosed twice daily. Gencaro is considered part of the beta-blocker class because of its property of blocking beta-1 as well as beta-2 receptors in the heart, preventing these receptors from binding with other molecules that would otherwise activate the receptor. Because of its mild vasodilator effects, the Company believes Gencaro is well-tolerated in patients with advanced HF.

The FDA has previously designated as a Fast Track development program the investigation of Gencaro for the reduction of cardiovascular mortality and cardiovascular hospitalizations in a genotype-defined heart failure population.

### **About ARCA biopharma**

ARCA biopharma is dedicated to developing genetically-targeted therapies for heart failure and other cardiovascular diseases. The Company's lead product candidate, Gencaro™ (bucindolol hydrochloride), is an investigational, pharmacologically unique beta-blocker and mild vasodilator being developed for heart failure. ARCA has identified common genetic variations that it believes predict individual patient response to Gencaro, giving it the potential to be the first genetically-targeted heart failure treatment. ARCA is collaborating with Laboratory Corporation of America to develop the companion genetic test for Gencaro. For more information please visit [www.arcabiopharma.com](http://www.arcabiopharma.com).

### **Safe Harbor Statement**

This press release contains "forward-looking statements" for purposes of the safe harbor provided by the Private Securities Litigation Reform Act of 1995. These statements include, but are not limited to, statements regarding the ARCA's development program potential to be the first genetically-targeted therapy for heart failure. Such statements are based on management's current expectations and involve risks and uncertainties. Actual results and performance could differ materially from those projected in the forward-looking statements as a result of many factors, including, without limitation, the risks and uncertainties associated with: the Company's financial resources and whether they will be sufficient to meet the Company's business objectives and operational requirements; the protection and market exclusivity provided by the Company's intellectual property; risks related to the drug discovery and the regulatory approval process; and, the impact of competitive products and technological changes. These and other factors are identified and described in more detail in ARCA's filings with the SEC, including without limitation the Company's annual report on Form 10-K for the year ended December 31, 2010 and subsequent filings. The Company disclaims any intent or obligation to update these forward-looking statements.

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