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**COMPARATIVE ANALYSIS OF FOUR BETA BLOCKER TRIALS PRESENTED AT  
THE AMERICAN COLLEGE OF CARDIOLOGY 58<sup>TH</sup> ANNUAL SCIENTIFIC  
SESSION**

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Results Suggest Genetic Diversity Should be Considered in the Interpretation of Results of  
Cardiovascular Trials

*Broomfield, CO, March 29, 2009* – ARCA biopharma, Inc. (Nasdaq: ABIO), a biopharmaceutical company developing genetically-targeted therapies for heart failure and other cardiovascular diseases, announced today that a comparative analysis of primary endpoint data from four beta blocker trials was presented at the American College of Cardiology 58<sup>th</sup> Annual Scientific Session being held March 29-31, 2009.

Results of the analysis, which compared all-cause mortality in participants in the COPERNICUS, MERIT-HF, CIBIS-II and BEST trials, suggest that differences in survival associated with beta-blocker treatment observed in clinical trials may be significantly influenced by inclusion of varying geographic populations (U.S. vs. Rest of World, or ROW) and that genetic diversity should be considered in the relevance of cardiovascular trials and interpretation of results.

Large randomized, controlled trials have shown that beta-blockers reduce mortality by 34 to 35 percent in heart failure patients with moderate to severe systolic dysfunction. The majority of patients enrolled in these trials were from outside the U.S. In contrast, the Beta-Blocker Evaluation of Survival Trial (BEST), the only intention-to-treat mortality trial which enrolled almost exclusively U.S. patients, showed a 13 percent reduction in all-cause mortality.

The magnitude of the effect on survival of beta-blocker therapy was either reduced (HR 0.80) or neutral (HR 1.05) in large U.S. populations included in COPERNICUS and MERIT-HF, respectively. These effects are more comparative to BEST trial results with bucindolol in U.S. patients. The Very Favorable genotype subgroup in BEST showed significantly improved mortality reduction compared to other beta-blockers. Such findings suggest that differences in beta-blocker survival benefit observed in clinical trials may be significantly influenced by

inclusion of varying geographic populations. Genetic diversity should be considered in the relevance of cardiovascular trials and interpretation of results.

BEST included a prospectively-designed DNA substudy that identified a subgroup of approximately 47 percent of participants who had the “Very Favorable” response genotype (beta1-adrenergic receptor 389 Arginine homozygous). This genotype subgroup of BEST was compared to the overall study cohorts. Comparisons were not prospectively defined at the time of the randomized trials. There is no adjustment for differences in baseline characteristics of the trial populations. The beta1-adrenergic receptor 389 Arginine/Glycine polymorphism is known to be influenced by racial differences that vary in European versus American populations, and other adrenergic receptor polymorphisms that could influence beta-blocker response also exhibit racial differences in allele frequencies.

Results of the analysis showed that Gencaro treatment in the Very Favorable genotype subgroup of BEST patients in the U.S. resulted in a 44 percent reduction in all-cause mortality, a 51 percent reduction in cardiovascular mortality, a 49 percent reduction in mortality plus cardiac transplant, a 38 percent reduction in mortality and heart failure hospitalizations, a 37 percent reduction in heart failure progression, a 40 percent reduction in heart failure hospitalizations, a 52 percent reduction in heart failure hospitalization days and 65 percent reduction in total myocardial infarctions in heart failure patients.

“Geographically distinct populations can have different genetic profiles that can affect the safety and efficacy of drugs and devices,” said Dr. Christopher O’Connor, professor of medicine in the Division of Cardiology, chief of the Division of Clinical Pharmacology in the Department of Medicine, and director of the Duke Heart Failure Program at Duke University Medical Center. “Our comparative analysis investigated whether or not improvement in survival was different due to enrollment of ex-U.S. participants. Our findings revealed that differences in beta blocker survival benefit observed in clinical trials may be significantly influenced by inclusion of varying geographic populations. Therefore, we believe it is important to consider genetic diversity when interpreting clinical trial results.”

The poster presenting this comparative analysis is available on the ARCA’s website at [www.arcabiopharma.com](http://www.arcabiopharma.com).

### **About ARCA biopharma**

ARCA biopharma, Inc. is dedicated to developing and commercializing genetically targeted therapies for heart failure and other cardiovascular disease. The Company's lead product candidate, Gencaro™ (bucindolol hydrochloride), is an investigational, pharmacologically unique beta-blocker and mild vasodilator being developed for heart failure and other indications. 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. The New Drug Application for approval of Gencaro for the indication of chronic heart failure, including the proposed brand name, is currently under review by the U.S. Food and Drug Administration with a Prescription Drug User Fee Act (PDUFA) date of May 31, 2009. ARCA is collaborating with Laboratory Corporation of America to develop the companion genetic test for Gencaro. The Company’s second compound in development, NU172, is a direct thrombin

inhibitor which has completed Phase 1b development for use as a potential short-acting anticoagulant during medical or surgical procedures. For more information please visit [www.arcabiopharma.com](http://www.arcabiopharma.com).

### **Safe Harbor Statement**

This press release contains "forward-looking statements" which include, without limitation, statements regarding the need for consideration of genetic diversity in the relevance of cardiovascular trials and interpretation of results, the determination that the Very Favorable genotype subgroup in BEST showed significantly improved mortality reduction compared to other beta-blockers in non-head-to-head trials, the potential for Gencaro to be the first genetically targeted treatment for heart failure, and the clinical, regulatory and commercial potential of ARCA's development compounds, Gencaro and NU172, which statements are hereby identified as "forward-looking statements" for purposes of the safe harbor provided by the Private Securities Litigation Reform Act of 1995. 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 risk that ARCA does not successfully integrate the business operations of the parties to its recent business combination; the company's inability to further identify, develop and achieve commercial success for products and technologies; the risk that the company's financial resources will be insufficient to meet the company's business objectives; uncertainties relating to drug discovery and the regulatory approval process; clinical development processes; enrollment rates for patients in the company's clinical trials; changes in relationships with strategic partners and dependence upon strategic partners for the performance of critical activities under collaborative agreements; 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 ARCA's annual report on Form 10-K for the year ended December 31, 2008 and subsequent filings. We disclaim any intent or obligation to update these forward-looking statements.

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