ARCA BIOPHARMA ANNOUNCES CLOSING OF $6.1 MILLION REGISTERED DIRECT OFFERING

Westminster, CO, June 3, 2020 – ARCA biopharma, Inc. (Nasdaq: ABIO) a late stage biopharmaceutical company applying a precision medicine approach to developing genetically targeted therapies for cardiovascular diseases, today announced the closing of its previously announced registered direct offering with certain institutional and accredited investors of 348,000 shares of ARCA's common stock, at a purchase price of $9.00 per share, and pre-funded warrants to purchase 325,500 shares of common stock at a purchase price of $8.999 per warrant. The gross proceeds to ARCA, before deducting placement agent fees and other offering expenses, were approximately $6.1 million. The gross proceeds represent a mutually agreed reduction in the gross proceeds of the offering from the initial $9.4 million previously announced on June 1, 2020.

JonesTrading Institutional Services LLC acted as the exclusive placement agent for the offering.

ARCA anticipates that the net proceeds from this offering will be used to initiate its clinical trial of AB201 and for working capital and general corporate purposes.

The shares of common stock were offered pursuant to a "shelf" registration statement on Form S-3 (File No. 333-238067), which was declared effective by the Securities and Exchange Commission (SEC) on May 20, 2020. A prospectus supplement and the accompanying prospectus relating to the registered direct offering will be filed with the SEC. Electronic copies of the prospectus supplement and the accompanying prospectus relating to the registered direct offering may be obtained from JonesTrading Institutional Services LLC by calling (212) 907-5332, or by e-mailing Compliance@jonestrading.com, or at the SEC's website at http://www.sec.gov.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such jurisdiction.

About ARCA biopharma

ARCA biopharma is dedicated to developing genetically targeted therapies for cardiovascular diseases through a precision medicine approach to drug development. ARCA is developing AB201 as a potential treatment for diseases caused by RNA viruses, initially focusing on COVID-19. ARCA is also developing Gencaro™ (bucindolol hydrochloride), an investigational, pharmacologically unique beta-blocker and mild vasodilator, as a potential treatment for atrial fibrillation in heart failure patients. 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 AF prevention treatment. The U.S. FDA has granted the Gencaro development

program Fast Track designation and a Special Protocol Assessment (SPA) agreement. For more information, please visit www.arcabio.com or follow ARCA on LinkedIn.

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 expected gross and net proceeds from the offering, the planned use of proceeds from the offering, potential future development plans for AB201 and Gencaro, the expected features and characteristics of AB201 or Gencaro, including the potential for AB201 to treat COVID-19, the potential for genetic variations to predict individual patient response to Gencaro, Gencaro's potential to treat AF, future vaccines and/or treatment options for patients with COVID-19, future treatment options for patients with AF, and the potential for Gencaro to be the first genetically targeted AF prevention treatment. 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: uncertainties related to market conditions; ARCA may not be able to raise sufficient capital on acceptable terms, or at all, to continue development of AB201 or Gencaro or to otherwise continue operations in the future; statements related to the intended use of net proceeds from the registered direct offering; results of earlier clinical trials may not be confirmed in future trials; the protection and market exclusivity provided by ARCA'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 Securities and Exchange Commission, including without limitation ARCA's annual report on Form 10-K for the year ended December 31, 2019, and subsequent filings. ARCA disclaims any intent or obligation to update these forward-looking statements.

Investor & Media Contact:
Derek Cole
720.940.2163
derek.cole@arcabio.com

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