



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

December 22, 2010

Patrick M. Wheeler
Chief Financial Officer
ARCA biopharma, Inc.
8001 Arisra Place, Suite 200
Broomfield, CO 80021

Re: ARCA biopharma, Inc.
Form 10-K for Fiscal Year Ended December 31, 2009
Filed March 4, 2010
File No. 000-22873

Dear Mr. Wheeler:

We have completed our review of your Form 10-K and have no further comments at this time.

Sincerely,

Joel Parker
Accounting Branch Chief