

Ardea Biosciences, Inc./DE
 Form 424B3
 July 31, 2009

**PROSPECTUS SUPPLEMENT No. 2
 (TO PROSPECTUS DATED JANUARY 20, 2009)**

**Filed Pursuant to Rule 424(b)(3)
 under the Securities Act of 1933 in connection with
 Registration No. 333-156708**

**ARDEA BIOSCIENCES, INC.
 COMMON STOCK**

This prospectus supplement No. 2 supplements and amends the prospectus dated January 20, 2009, as supplemented, which is referred to herein as the Prior Prospectus, relating to the resale from time to time of up to 3,421,668 shares of our common stock by the selling stockholders named in the Prior Prospectus and the selling stockholders donees, pledgees or successors. Of the shares, 2,737,336 were issued pursuant to a private placement that closed on December 19, 2008, and an additional 684,332 shares are issuable upon the exercise of warrants sold in the private placement which are first exercisable beginning June 17, 2009 and expire on December 19, 2013.

This prospectus supplement should be read in conjunction with the Prior Prospectus, which is to be delivered with this prospectus supplement. This prospectus supplement is not complete without, and may not be delivered or utilized except in connection with, the Prior Prospectus, including any amendments or supplements thereto.

We are filing this prospectus supplement to reflect the transfer by each of RA Capital Healthcare Fund, LP and RA Capital Healthcare Fund II, LP, to OTA, LLC of certain warrants and the shares that are issuable upon exercise of such warrants, registered for such entities for resale pursuant to the Prior Prospectus. This prospectus supplement does not impact any other selling stockholders set forth in the table appearing under the caption Selling Stockholders on pages 18 to 20 of the Prior Prospectus, which we refer to herein as the Selling Stockholder Table.

The Selling Stockholder Table is hereby amended and supplemented by (i) deleting the contents of footnotes (13) and (14), (ii) adding the stockholder identified in the table below and the related footnote set forth below and (iii) changing the Number of Shares Being Offered by RA Capital Healthcare Fund II, LP and RA Capital Healthcare Fund, LP from 9,231 and 1,221,606, respectively, to 7,385 and 977,285 respectively. For purposes of this prospectus supplement, the percentage of ownership shown below is based on 17,835,734 shares of our common stock outstanding as of December 31, 2008.

| Name | Shares of Common Stock Owned Prior to Offering | Number of Shares Being Offered | Shares Owned After Offering | |
|--|--|--------------------------------------|-----------------------------------|---------|
| | | | Number | Percent |
| OTA, LLC (18) | | 246,167 | | * |
| (18) Number of shares being offered consists entirely of 246,167 shares of common stock issuable upon the exercise of warrants acquired by RA Capital Healthcare | | | | |

Fund, LP and
RA Capital
Healthcare Fund
II, LP in the
Private
Placement and
subsequently
sold to OTA,
LLC in a private
transaction.
OTA, LLC is a
registered
broker-dealer
and Ira
Leventhal, a
senior managing
director of
OTA, LLC has
voting and
investment
control over the
reported
securities.

Information contained in this prospectus supplement regarding selling stockholders is based on information provided by or on behalf of the selling stockholders, and may change over time.

Investing in our common stock involves a high degree of risk. You are urged to read the section entitled Risk Factors beginning on page 5 of the Prior Prospectus, as well as the section entitled Risk Factors included in our recent quarterly and annual reports filed with the Securities and Exchange Commission, which describe specific risks and other information that should be considered before you make an investment decision.

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

The date of this Prospectus Supplement is July 31, 2009.