

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

**Post-Effective Amendment No. 3 on
Form S-3
to
Form S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

ARROWHEAD RESEARCH CORPORATION

(Exact name of registrant as specified in its charter)

Delaware
(State of incorporation)

46-0408024
(I.R.S. Employer
Identification Number)

**225 South Lake Avenue, Suite 300
Pasadena, CA 91101
626-304-3400**

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

**Christopher Anzalone, Chief Executive Officer
Arrowhead Research Corporation
225 South Lake Avenue, Suite 300
Pasadena, CA 91101
626-304-3400**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

With copies to:

**Ryan Murr
Ropes & Gray LLP
Three Embarcadero Center
San Francisco, CA 94111
(415) 315-6300**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input checked="" type="checkbox"/>

DEREGISTRATION OF SECURITIES

On August 14, 2009, Arrowhead Research Corporation filed a registration statement with the Securities and Exchange Commission (the “SEC”) on Form S-1, SEC File No. 333-161344 (the “**Registration Statement**”), which was amended by Pre-Effective Amendment No. 1 to Form S-1 filed with the SEC on August 28, 2009 and Pre-Effective Amendment No. 2 to Form S-1 filed with the SEC on September 11, 2009, for the purpose of registering the sale of 919,664 shares (as adjusted, the “**Shares**”) of our Common Stock, \$0.001 par value per share (the “**Common Stock**”) by the selling security holders identified therein (the “**Selling Stockholders**”). The Registration Statement was declared effective by the SEC on September 15, 2009. Post-Effective Amendment No. 1 on Form S-1 was filed on December 28, 2009 and declared effective on January 1, 2010. Post-Effective Amendment No. 2 to Form S-1 on Form S-3 was filed on June 1, 2010 and declared effective on June 11, 2010.

This Post-Effective Amendment No. 3 to Form S-1 on Form S-3 is being filed to deregister, as of the effective date of this Post-Effective Amendment No. 3, any shares of our Common Stock under the Registration Statement that have not been sold pursuant to the Registration Statement and to terminate the effectiveness of the Registration Statement.

In connection with the closings of the offering and sale of the Shares by the Company to the Selling Stockholders on July 17, 2009 and August 6, 2009, the Company entered into registration rights agreements with the Selling Stockholders, which required the Company to maintain effectiveness of the Registration Statement until the earlier of (A) one (1) year from the date of the closing of the sale of the Shares to the Selling Stockholders and (B) the date on which any Shares held by the Selling Stockholders may be sold in their entirety in a single transaction pursuant to Rule 144. Accordingly, the Company is no longer required to maintain the effectiveness of the Registration Statement by the registration rights agreements.

