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. \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. \Box				
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. \Box				
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. \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	Accelerated filer			
Non-accelerated filer \Box (Do not check if a smaller reporting company)	Smaller reporting company	\boxtimes		

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.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Post-Effective Amendment No. 3 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Pasadena, State of California, on February 16, 2012.

ARROWHEAD RESEARCH CORPORATION

By: /s/ Kenneth A. Myszkowski

Kenneth A. Myszkowski Chief Financial Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Post-Effective Amendment No. 3 to the Registration Statement has been by the following persons in the capacities and on the dates indicated.

Signature	<u>Title</u>	<u>Date</u>
/s/ CHRISTOPHER ANZALONE	Chief Executive Officer and President and Director (Principal	
Christopher Anzalone	Executive Officer)	February 16, 2012
/s/ KENNETH A. MYSZKOWSKI	Chief Financial Officer (Principal Financial Officer and Principal	
Kenneth A. Myszkowski	Accounting Officer)	February 16, 2012
*	Executive Chairman of the Board	
R. Bruce Stewart		February 16, 2012
*	Director	
Edward W. Frykman		February 16, 2012
*	Director	
Charles P. McKenney		February 16, 2012
	Director	
Mauro Ferrari		
	Director	
Douglass Given		
	Director	
Michael S. Perry		
*By: /s/ Kenneth A. Myszkowski Kenneth A. Myszkowski Attorney-in-fact		