

January 13, 2012

VIA EDGAR

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549-4628

Attention: Jeffrey Riedler
Johnny Gharib

Re: Arrowhead Research Corporation
Registration Statements on Form S-3
Filed December 16, 2011
File No. 333-178532

Ladies and Gentlemen:

Set forth below is the response of Arrowhead Research Corporation, a Delaware corporation (the "Company"), to the comment letter, dated December 29, 2011 (the "Comment Letter"), of the staff of the Division of Corporation Finance (the "Staff") of the Securities and Exchange Commission (the "Commission") to the Company's registration statement on Form S-3 (File No. 333-178532) (the "Registration Statement"). The Registration Statement was filed with the Commission on December 16, 2011.

For reference purposes, the Staff's comments as reflected in the Comment Letter are reproduced in bold and the corresponding responses of the Company are shown below the comments.

- 1. It appears that you are relying on General Instruction I.B.6 to register this offering. Pursuant to Instruction 7, please revise your filing to set forth on the outside front cover of the prospectus the calculations of the aggregate market value of the registrant's outstanding voting and nonvoting common equity pursuant to General Instruction I.B.6, and the amount of all securities offered pursuant to General Instruction I.B.6, during the prior 12 calendar month period that ends on, and includes, the date of the prospectus. Alternatively, if you are not relying on General Instruction I.B.6, please advise us why you are eligible to use Form S-3.**

RESPONSE TO COMMENT 1

In response to the Staff's comment, the Company hereby advises the Commission that it is eligible to use Form S-3 based on General Instruction I.B.1. On November 10, 2011, the Company had total shares outstanding of 105,260,722, of which 967,939 were held by affiliates, for a total public float of 104,292,783 shares. Also on November 10, 2011, the closing price of the Company's common stock was \$0.75 per share. Thus, the aggregate market value of the voting and non-voting common equity held by non-affiliates of the Company was greater than \$75 million as of November 10, 2011, which is a date within 60 days prior to the date of filing of the Form S-3. Therefore, the Company is eligible to use Form S-3 without the limitation set forth in General Instruction I.B.6.

The Company hereby acknowledges that (i) the Company is responsible for the adequacy and accuracy of the disclosure in its filing, (ii) Staff comments or changes to disclosure based on Staff comments does not foreclose the Commission from taking any actions with respect to the Company's filing, and (iii) it is the Staff's position that the Company may not assert Staff comments as defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

If you should have any questions about this letter or require any further information, please call the undersigned at (626) 304-3400 or Ryan Murr at (415) 315-6300.

Sincerely,

/s/ Kenneth A. Myszkowski

Kenneth A. Myszkowski
Chief Executive Officer

cc: Ryan Murr, Esq. (Ropes & Gray LLP)