

**Prospectus Supplement No. 1**  
**To Prospectus dated January 30, 2008 and Prospectus Supplement dated August 15, 2008**

This Prospectus Supplement No. 1 relates to, and should be read together with, the Prospectus Supplement dated August 15, 2008 (the "First Supplemental Prospectus") and the base prospectus, dated January 30, 2008, contained in registration statement on Form S-3 filed by Arrowhead Research (File No. 333-148218) and declared effective on January 30, 2008 (together with the First Supplemental Prospectus, the "Prospectus").

**Size of Offering**

On August 15, 2008, we commenced a best efforts offering under the Prospectus for the sale of 2,777,777 units, with each unit consisting of one share of common stock and a warrant to purchase one share of common stock. The offering under the Prospectus could be increased by up to an additional 2,777,777 units based on investor interest. As of August 22, 2008, we sold 2,459,586 units offered by the Prospectus and, based on additional interest, through September 5, 2008, we sold an additional 1,404,403 units pursuant to the Prospectus, consisting of 1,401,670 units sold to parties unaffiliated with us at a purchase price of \$1.80 per unit and 2,733 units sold to an officer at a purchase price of \$1.83 per unit. Following the sale of these additional units on September 5, 2008, which we refer to as the "second closing," the offering was completed and no further offers or sales will be made under the Prospectus.

The following information supplements and updates the information contained in the First Supplemental Prospectus and includes all units to be sold pursuant to the Prospectus, including the units offered and sold in the second closing.

Common stock offered by Arrowhead in Follow-On Offering	1,404,403 shares, plus 1,401,403 shares of common stock underlying the warrants offered hereby.
Warrants issued by Arrowhead in Follow-On Offering	Each warrant has an exercise price of \$2.00 per share, has a term of five years and is exercisable beginning six months and one day after the date of issue. The shares of common stock and warrants comprising the units are immediately separable and will be issued separately.
Common stock to be outstanding after the Follow-On Offering	42,934,517 shares, or 46,798,506 shares if the warrants sold in the Follow-On Offering are exercised in full. (1) (2)
Net proceeds to us	Approximately \$6.6 M, after deducting finder's fees of 7.5% payable on a portion of the gross proceeds and estimated offering expenses payable by us.
Use of proceeds	The proceeds from the units sold in the Follow-On Offering will be used in the manner set forth in the First Supplemental Prospectus. We intend to use the net proceeds from this offering primarily to fund the ongoing operations of our majority- and minority-owned subsidiaries and for general corporate purposes, capital expenditures and to meet working capital needs.
Dilution	The aggregate units we sold in the Follow-On Offering exceeded the estimated 2,777,777 units set forth under the caption "Dilution" in the First Supplemental Prospectus. As a result, after giving effect to the Follow-On Offering, our pro forma as adjusted net tangible book value after this offering will be \$19.1 million, as of June 30, 2008. This represents an immediate increase in pro forma as adjusted net tangible book value of \$0.12 per share to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value of \$1.25 per share to investors participating in the offering.

- (1) The number of shares of common stock to be outstanding after the Follow-On Offering is based on 39,070,528 shares outstanding as of August 8, 2008.
- (2) The number of shares of common stock to be outstanding after the Follow-On Offering excludes, as of June 30, 2008:
- 7,991,680 shares issuable upon the exercise of stock options outstanding at a weighted average exercise price of \$3.26;
  - 1,397,500 shares issuable upon exercise of warrants outstanding at an exercise price of \$5.04, and;
  - 712,362 shares issuable upon exercise of warrants outstanding at an exercise price of \$7.06