ARROWHEAD PHARMACEUTICALS, INC.
Form 10-Q
May 08, 2018

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

FORM 10-Q

(Mark One)

QUARTERLY REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended March 31, 2018

TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Commission file number 001-38042

ARROWHEAD PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	46-0408024
(State of incorporation)	(I.R.S. Employer Identification No.)

225 S. Lake Avenue, Suite 1050

Pasadena, California 91101

(626) 304-3400

(Address and telephone number of principal executive offices)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was

required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer”, “smaller reporting company” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated		Accelerated filer
Non-accelerated filer	(Do not check if a smaller reporting company)	Smaller reporting company
Emerging growth company		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The number of shares of the registrant’s common stock outstanding as of May 7, 2018 was 87,577,188.

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Arrowhead Pharmaceuticals, Inc.

Consolidated Balance Sheets

	(unaudited) March 31, 2018	September 30, 2017
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$69,805,117	$24,838,567
Accounts receivable	16,288	67,797
Prepaid expenses	744,246	867,363
Other current assets	357,989	1,359,638
Short term investments	21,736,820	40,769,539
TOTAL CURRENT ASSETS	92,660,460	67,902,904
Property and equipment, net	14,582,313	15,513,019
Intangible assets, net	19,614,224	20,464,439
Other assets	141,918	141,918
TOTAL ASSETS	$126,998,915	$104,022,280
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	$1,810,431	$4,076,514
Accrued expenses	4,127,208	4,564,507
Accrued payroll and benefits	918,226	3,399,679
Deferred rent	440,580	440,580
Deferred revenue	1,565,000	5,269,741
Derivative liabilities	-	695,114
Note Payable	216,027	208,506
Other current liabilities	46,407	46,407
TOTAL CURRENT LIABILITIES	9,123,879	18,701,048
LONG-TERM LIABILITIES		
Deferred rent, net of current portion	1,744,863	1,929,052
Note Payable, net of current portion	2,215,091	2,325,018
Other non-current liabilities	200,000	200,000
TOTAL LONG-TERM LIABILITIES	4,159,954	4,454,070
Commitments and contingencies (Note 7)		
STOCKHOLDERS' EQUITY		
Arrowhead Pharmaceuticals, Inc. stockholders' equity:		
Common stock, $0.001 par value; 145,000,000 shares authorized; 87,570,398 and 74,785,426 shares issued and outstanding as of March 31, 2018 and September 30, 2017, respectively	179,940	167,155
Additional paid-in capital	574,963,592	514,037,301
Accumulated other comprehensive income (loss)	25,265	33,232
Accumulated deficit	(460,898,527)	(432,815,338)
Total Arrowhead Pharmaceuticals, Inc. stockholders' equity	114,270,270	81,422,350

Noncontrolling interest	(555,188)	(555,188)
TOTAL STOCKHOLDERS' EQUITY	113,715,082	80,867,162
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$126,998,915	$104,022,280

The accompanying notes are an integral part of these unaudited consolidated financial statements.

Arrowhead Pharmaceuticals, Inc.

Consolidated Statements of Operations and Comprehensive Loss

(unaudited)

	Three Months ended March 31, 2018	Three Months ended March 31, 2017	Six Months ended March 31, 2018	Six Months ended March 31, 2017
REVENUE	$650,125	$8,985,930	$4,159,946	$13,351,426
OPERATING EXPENSES				
Research and development	12,002,354	11,438,216	24,921,972	26,226,466
General and administrative expenses	3,681,830	3,677,356	8,085,381	8,156,491
TOTAL OPERATING EXPENSES	15,684,184	15,115,572	33,007,353	34,382,957
OPERATING LOSS	(15,034,059)	(6,129,642)	(28,847,407)	(21,031,531)
OTHER INCOME (EXPENSE)				
Interest income (expense), net	168,346	108,744	332,077	133,892
Change in value of derivatives	(18,598)	(27,383)	432,141	1,456,448
Other income (expense)	-	5,724	-	1,312,524
TOTAL OTHER INCOME (EXPENSE)	149,748	87,085	764,218	2,902,864
LOSS BEFORE INCOME TAXES	(14,884,311)	(6,042,557)	(28,083,189)	(18,128,667)
Provision for income taxes	-	-	-	-
NET LOSS	(14,884,311)	(6,042,557)	(28,083,189)	(18,128,667)
NET LOSS PER SHARE - BASIC & DILUTED	$(0.18)	$(0.08)	$(0.35)	$(0.25)
Weighted average shares outstanding - basic and diluted	84,083,937	74,629,855	79,406,838	73,019,726
OTHER COMPREHENSIVE INCOME (LOSS), NET OF TAX:				
Foreign Currency Translation Adjustments	1,561	154,464	(7,967)	(38,144)
COMPREHENSIVE LOSS	$(14,882,750)	$(5,888,093)	$(28,091,156)	$(18,166,811)

The accompanying notes are an integral part of these unaudited consolidated financial statements.

Arrowhead Pharmaceuticals, Inc.

Consolidated Statement of Stockholders' Equity

(unaudited)

	Common Stock	Amount ($)	Additional Paid-In Capital	Accumulated Other Comprehensive Income (loss)	Accumulated Deficit	Non-controlling Interest	Totals
Balance at September 30, 2017	74,785,426	167,155	514,037,301	33,232	(432,815,338)	(555,188)	80,867,162
Stock-based compensation	-	-	3,549,354	-	-	-	3,549,354
Exercise of stock options	79,374	79	193,046	-	-	-	193,125
Exercise of warrants	208,473	209	666,021	-	-	-	666,230
Common stock-Restricted Stock Units vesting	997,125	997	(55,665)	-	-	-	(54,668)
Common stock issued for cash at $5.25 per share, net of offering costs	11,500,000	11,500	56,573,535	-	-	-	56,585,035
Foreign currency translation adjustments	-	-	-	(7,967)	-	-	(7,967)
Net loss for the six months ended March 31, 2018	-	-	-	-	(28,083,189)	-	(28,083,189)
Balance at March 31, 2018	87,570,398	$179,940	$574,963,592	$ 25,265	$(460,898,527)	$ (555,188)	$113,715,082

The accompanying notes are an integral part of these unaudited consolidated financial statements.

Arrowhead Pharmaceuticals, Inc.

Consolidated Statements of Cash Flows

(unaudited)

	Six Months ended March 31, 2018	Six Months ended March 31, 2017
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$(28,083,189)	$(18,128,667)
Change in value of derivatives	(432,141)	(1,456,448)
Stock-based compensation	3,549,354	4,168,673
Depreciation and amortization	2,294,639	2,373,255
Amortization/(accretion) of note premiums	346,339	(64,387)
Changes in operating assets and liabilities:		
Accounts receivable	51,510	(505,825)
Prepaid expenses and Other Current Assets	1,225,562	2,524,107
Deferred revenue	(3,704,740)	17,307,431
Accounts payable	(2,266,082)	(4,988,620)
Accrued expenses	(2,918,752)	(5,415,933)
Other	(196,434)	(139,452)
NET CASH (USED IN) OPERATING ACTIVITIES	(30,133,934)	(4,325,866)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	(513,719)	(6,653,158)
Purchases of marketable securities	(5,018,040)	(24,846,105)
Proceeds from sale of marketable securities	23,704,420	-
NET CASH PROVIDED BY (USED IN) INVESTING ACTIVITIES	18,172,661	(31,499,263)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Principal payments on notes payable	(102,406)	(97,145)
Payments of taxes for net share settled restricted stock unit issuances	(54,667)	(417,140)
Proceeds from the exercises of warrants and stock options	499,861	-
Proceeds from the issuance of common stock	56,585,035	12,691,937
NET CASH PROVIDED BY (USED IN) FINANCING ACTIVITIES	56,927,823	12,177,652
NET INCREASE (DECREASE) IN CASH	44,966,550	(23,647,477)
CASH AT BEGINNING OF PERIOD	24,838,567	85,366,448
CASH AT END OF PERIOD	$69,805,117	$61,718,971
Supplementary disclosures:		
Interest Paid	$(88,537)	$(95,544)
Income Tax Credits Refunded	$-	$3,635,016
Income Tax Paid	$(2,400)	$(2,400)

The accompanying notes are an integral part of these unaudited consolidated financial statements.

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Arrowhead Pharmaceuticals, Inc.

Notes to Consolidated Financial Statements

(unaudited)

Unless otherwise noted, (1) the term “Arrowhead” refers to Arrowhead Pharmaceuticals, Inc., a Delaware corporation and its Subsidiaries, (2) the terms “Company,” “we,” “us,” and “our,” refer to the ongoing business operations of Arrowhead and its Subsidiaries, whether conducted through Arrowhead or a subsidiary of Arrowhead, (3) the term “Subsidiaries” refers collectively to Arrowhead Madison Inc. (“Arrowhead Madison”), Arrowhead Australia Pty Ltd (“Arrowhead Australia”) and Ablaris Therapeutics, Inc. (“Ablaris”), (4) the term “Common Stock” refers to Arrowhead’s Common Stock, (5) the term “Preferred Stock” refers to Arrowhead’s Preferred Stock and (6) the term “Stockholder(s)” refers to the holders of Arrowhead Common Stock.

NOTE 1. ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES

Nature of Business and Recent Developments

Arrowhead Pharmaceuticals, Inc. develops medicines that treat intractable diseases by silencing the genes that cause them. Using a broad portfolio of RNA chemistries and efficient modes of delivery, Arrowhead therapies trigger the RNA interference mechanism to induce rapid, deep and durable knockdown of target genes. RNA interference, or RNAi, is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. Deemed to be one of the most important recent discoveries in life science with the potential to transform medicine, the discoverers of RNAi were awarded a Nobel Prize in 2006 for their work. Arrowhead’s RNAi-based therapeutics leverage this natural pathway of gene silencing. The company's pipeline includes ARO-HBV for chronic hepatitis B virus, ARO-AAT for liver disease associated with alpha-1 antitrypsin deficiency (AATD), ARO-APOC3 and ARO-ANG3 for hypertriglyceridemia, ARO-ENaC for cystic fibrosis, ARO-HIF2 for renal cell carcinoma, and ARO-AMG1 for an undisclosed genetically validated cardiovascular target under a license and collaboration agreement with Amgen, Inc., a Delaware corporation (“Amgen”). ARO-LPA (AMG 890) for cardiovascular disease was out-licensed to Amgen in 2016.

With regard to key recent developments, during the first half of fiscal 2018, the Company filed Clinical Trial Applications (CTAs) for ARO-AAT and ARO-HBV to begin a phase 1 clinical study and a phase 1 / 2 clinical study for each program, respectively, and dosing is now underway in both studies. Additionally, on January 22, 2018, the Company sold 11,500,000 shares of Common Stock in a fully underwritten public offering, at a public offering price of $5.25 per share. Net proceeds to the Company were approximately $56.6 million after deducting underwriting commissions and discounts and other offering expenses payable by the Company.

Liquidity

The Consolidated Financial Statements have been prepared in conformity with the accounting principles generally accepted in the United States of America, which contemplate the continuation of the Company as a going concern. Historically, the Company’s primary source of financing has been through the sale of its securities. Research and development activities have required significant capital investment since the Company’s inception. The Company expects its operations to continue to require cash investment to pursue its research and development goals, including clinical trials and related drug manufacturing.

At March 31, 2018, the Company had $69.8 million in cash, and $21.7 million in short-term investments, to fund operations. During the six months ended March 31, 2018, the Company’s cash and investments balance increased by

$25.9 million, which was primarily the result of the $56.6 million net proceeds received from the public offering discussed above partially offset by cash outflows of $30.1 million related to operating activities.

On January 22, 2018, the Company sold 11,500,000 shares of Common Stock in a fully underwritten public offering, at a public offering price of $5.25 per share. Net proceeds to the Company were approximately $56.6 million after deducting underwriting commissions and discounts and other offering expenses payable by the Company. The Company believes its current financial resources are sufficient to fund its operations through at least the next twelve months.

Summary of Significant Accounting Policies

Principles of Consolidation—The consolidated financial statements include the accounts of Arrowhead and its Subsidiaries. Arrowhead's primary operating subsidiary is Arrowhead Madison, which is located in Madison, Wisconsin, where the Company's research and development facility is located. All significant intercompany accounts and transactions are eliminated in consolidation.

Basis of Presentation and Use of Estimates—The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. In the opinion of management, all adjustments, consisting of normal recurring accruals, considered necessary for a fair presentation have been included. Actual results could materially differ from those estimates. Additionally, certain reclassifications have been made to prior period financial statements to conform to the current period presentation. These condensed consolidated financial statements should be read in conjunction with the Company's consolidated financial statements and the notes thereto contained in our Annual Report on Form 10-K for the year ended September 30, 2017.

Cash and Cash Equivalents—The Company considers all liquid debt instruments purchased with a maturity of three months or less to be cash equivalents. The Company had no restricted cash at March 31, 2018 and September 30, 2017.

Concentration of Credit Risk—The Company maintains several bank accounts at two financial institutions for its operations. These accounts are insured by the Federal Deposit Insurance Corporation (FDIC) for up to $250,000 per institution. Management believes the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which these deposits are held.

Investments—The Company may invest excess cash balances in short-term and long-term marketable debt securities. Investments may consist of certificates of deposits, money market accounts, government-sponsored enterprise securities, corporate bonds and/or commercial paper. The Company accounts for its investment in marketable securities in accordance with FASB ASC 320, Investments – Debt and Equity Securities. This statement requires debt securities to be classified into three categories:

Held-to-maturity—Debt securities that the entity has the positive intent and ability to hold to maturity are reported at amortized cost.

Trading Securities—Debt securities that are bought and held primarily for the purpose of selling in the near term are reported at fair value, with unrealized gains and losses included in earnings.

Available-for-Sale—Debt securities not classified as either securities held-to-maturity or trading securities are reported at fair value with unrealized gains or losses excluded from earnings and reported as a separate component of shareholders' equity.

The Company classifies its investments in marketable debt securities based on the facts and circumstances present at the time of purchase of the securities. During the three and six months ended March 31, 2018 and 2017, respectively, all of the Company's investments were classified as held-to-maturity.

Held-to-maturity investments are measured and recorded at amortized cost on the Company's Consolidated Balance Sheet. Discounts and premiums to par value of the debt securities are amortized to interest income/expense over the term of the security. No gains or losses on investment securities are realized until they are sold or a decline in fair value is determined to be other-than-temporary.

Property and Equipment—Property and equipment are recorded at cost, which may equal fair market value in the case of property and equipment acquired in conjunction with a business acquisition. Depreciation of property and equipment is recorded using the straight-line method over the respective useful lives of the assets ranging from three to seven years. Leasehold improvements are amortized over the lesser of the expected useful life or the remaining lease term. Long-lived assets, including property and equipment are reviewed for impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable.

Intangible Assets Subject to Amortization—Intangible assets subject to amortization include certain patents and license agreements. Intangible assets subject to amortization are reviewed for impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable.

Contingent Consideration - The consideration for the Company's acquisitions may include future payments that are contingent upon the occurrence of a particular event. For example, milestone payments might be based on the achievement of various regulatory approvals or future sales milestones, and royalty payments might be based on drug product sales levels. The Company records a contingent consideration obligation for such contingent payments at fair value on the acquisition date. The Company estimates the fair value of contingent consideration obligations through valuation models designed to estimate the probability of such contingent payments based on various assumptions and incorporating estimated success rates. Estimated payments are discounted using present value techniques to arrive at an estimated fair value at the balance sheet date. Changes in the fair value of the contingent consideration obligations are recognized within the Company's Consolidated Statements of Operations and Comprehensive Loss. Changes in the fair value of the contingent consideration obligations can result from changes to one or multiple inputs, including adjustments to the discount rates, changes in the amount or timing of expected expenditures associated with product development, changes in the amount or timing of cash flows from products upon commercialization, changes in the assumed achievement or timing of any development milestones, changes in the probability of certain clinical events and changes in the assumed probability associated with regulatory approval. These fair value measurements are based on significant inputs not observable in the market. Substantial judgment is employed in determining the appropriateness of these assumptions as of the acquisition date and for each subsequent period. Accordingly, changes in assumptions could have a material impact on the amount of contingent consideration expense the Company records in any given period. The Company determined the fair value of its contingent consideration obligation to be $0 at March 31, 2018 and September 30, 2017.

Revenue Recognition— Revenue from product sales is recorded when persuasive evidence of an arrangement exists, title has passed and delivery has occurred, a price is fixed and determinable, and collection is reasonably assured.

The Company may generate revenue from technology licenses, collaborative research and development arrangements, research grants and product sales. Revenue under technology licenses and collaborative agreements typically consists of nonrefundable and/or guaranteed technology license fees, collaborative research funding, manufacturing and development services and various milestone and future product royalty or profit-sharing payments. These agreements are generally referred to as multiple element arrangements.

The Company applies the accounting standard on revenue recognition for multiple element arrangements. The fair value of deliverables under the arrangement may be derived using a best estimate of selling price if vendor specific objective evidence and third-party evidence is not available. Deliverables under the arrangement will be separate units of accounting if a delivered item has value to the customer on a standalone basis, if the arrangement includes a general right of return for the delivered item, and if delivery or performance of the undelivered item is considered probable and substantially in the Company's control.

The Company recognizes upfront license payments as revenue upon delivery of the license only if the license is determined to be a separate unit of accounting from the other undelivered performance obligations. The undelivered performance obligations typically include manufacturing or development services or research and/or steering committee services. If the license is not considered to have standalone value, then the license and other undelivered performance obligations would be accounted for as a single unit of accounting. In this case, the license payments and payments for performance obligations are recognized as revenue over the estimated period of when the performance obligations are performed or deferred indefinitely until the undelivered performance obligation is determined.

Whenever the Company determines that an arrangement should be accounted for as a single unit of accounting, the Company determines the period over which the performance obligations will be performed and revenue will be recognized. Revenue is recognized using a proportional performance or straight-line method. The proportional performance method is used when the level of effort required to complete performance obligations under an arrangement can be reasonably estimated. The amount of revenue recognized under the proportional performance method is determined by multiplying the total payments under the contract, excluding royalties and payments contingent upon achievement of milestones, by the ratio of the level of effort performed to date to the estimated total level of effort required to complete performance obligations under the arrangement. If the Company cannot reasonably estimate the level of effort to complete performance obligations under an arrangement, the Company recognizes revenue under the arrangement on a straight-line basis over the period the Company is expected to complete its performance obligations. Significant management judgment is required in determining the level of effort required under an arrangement and the period over which the Company is expected to complete its performance obligations under an arrangement.

Many of the Company's collaboration agreements entitle the Company to additional payments upon the achievement of development, regulatory and sales performance-based milestones. If the achievement of a milestone is considered probable at the inception of the collaboration, the related milestone payment is included with other collaboration consideration, such as upfront fees and research funding, in the Company's revenue calculation. Typically these milestones are not considered probable at the inception of the collaboration. As such, milestones will typically be recognized in one of two ways depending on the timing of when the milestone is achieved. If the milestone is achieved during the performance period, the Company will only recognize revenue to the extent of the proportional performance achieved at that date, or the proportion of the straight-line basis achieved at that date, and the

remainder will be recorded as deferred revenue to be amortized over the remaining performance period. If the milestone is achieved after the performance period has completed and all performance obligations have been delivered, the Company will recognize the milestone payment as revenue in its entirety in the period the milestone was achieved.

Deferred revenue will be classified as part of Current or Long-Term Liabilities in the accompanying Consolidated Balance Sheets based on the Company's estimate of the portion of the performance obligations regarding that revenue will be completed within the next 12 months divided by the total performance period estimate. This estimate is based on the Company's current operating plan and, if the Company's operating plan should change in the future, the Company may recognize a different amount of deferred revenue over the next 12-month period.

Allowance for Doubtful Accounts—The Company accrues an allowance for doubtful accounts based on estimates of uncollectible revenues by analyzing historical collections, accounts receivable aging and other factors. Accounts receivable are written off when all collection attempts have failed.

Research and Development—Costs and expenses that can be clearly identified as research and development are charged to expense as incurred in accordance with FASB ASC 730-10. Included in research and development costs are operating costs, facilities, supplies, external services, clinical trial and manufacturing costs, overhead directly related to the Company's research and development operations, and costs to acquire technology licenses.

Earnings (Loss) per Share—Basic earnings (loss) per share is computed using the weighted-average number of common shares outstanding during the period. Diluted earnings (loss) per share are computed using the weighted-average number of common shares and dilutive potential common shares outstanding during the period. Dilutive potential common shares primarily consist of stock options and restricted stock units issued to employees and warrants to purchase Common Stock of the Company. All outstanding stock options, restricted stock units and warrants for the three and six months ended March 31, 2018 and 2017 have been excluded from the calculation of Diluted earnings (loss) per share due to their anti-dilutive effect.

Stock-Based Compensation—The Company accounts for share-based compensation arrangements in accordance with FASB ASC 718, which requires the measurement and recognition of compensation expense for all share-based payment awards to be based on estimated fair values. The Company uses the Black-Scholes option valuation model to estimate the fair value of its stock options at the date of grant. The Black-Scholes option valuation model requires the input of subjective assumptions to calculate the value of stock options. For restricted stock units, the value of the award is based on the Company's stock price at the grant date. For performance-based restricted stock unit awards, the value of the award is based on the Company's stock price at the grant date, with consideration given to the probability of the performance condition being achieved. The Company uses historical data and other information to estimate the expected price volatility for stock option awards and the expected forfeiture rate for all awards. Expense is recognized over the vesting period for all awards, and commences at the grant date for time-based awards and upon the Company's determination that the achievement of such performance conditions is probable for performance-based awards. This determination requires significant judgment by management.

Income Taxes—The Company accounts for income taxes under the liability method, which requires the recognition of deferred income tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Under this method, deferred income taxes are recognized for the tax consequences in future years of differences between the tax bases of assets and liabilities and their financial reporting amounts at each period end based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. Valuation allowances are established, when necessary, to reduce deferred income tax assets to the amount expected to be realized. The provision for income taxes, if any, represents the tax payable for the period and the change in deferred income tax assets and liabilities during the period.

Recent Accounting Pronouncements

In May 2014, the FASB issued ASU No. 2014-09 Revenue from Contracts with Customers (Topic 606), which will supersede nearly all existing revenue recognition guidance under GAAP. ASU No. 2014-09 provides that an entity recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This update also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments, and assets recognized from costs incurred to obtain or fulfill a contract. ASU No. 2014-09 allows for either full retrospective or modified retrospective adoption and will become effective for the Company in the first quarter of 2019. In April 2016, the FASB issued an amendment to ASU No. 2014-09 with update ASU 2016-10 which provided more specific guidance around the identification of performance obligations and licensing arrangements. The Company is evaluating the potential effects of the adoption of this update on its financial statements.

In March 2016, the FASB issued ASU No. 2016-02, Leases. Under ASU 2016-02, lessees will be required to recognize a right-of-use asset and a lease liability for virtually all of their leases (other than leases that meet the definition of a short-term lease). For income statement purposes, a dual model was retained, requiring leases to be classified as either operating or finance. Operating leases will result in straight-line expense (similar to current operating leases) while finance leases will result in a front-loaded expense pattern (similar to current capital leases). ASU 2016-02 becomes effective for the Company in the first quarter of fiscal 2020. The Company expects the adoption of this update to have a material effect on the classification and disclosure of its leased facilities in Madison, Wisconsin.

In May 2017, the FASB issued ASU No. 2017-09, which is an update to Topic 718, Compensation - Stock Compensation. The update provides guidance on determining which changes to the terms and conditions of share-based payment awards, including stock options, require an entity to apply modification accounting under Topic 718. ASU 2017-09 becomes effective for the Company in the first quarter of fiscal 2019. The Company does not expect that ASU 2017-09 will have a material impact on the Company's results of operations and consolidated financial statements.

NOTE 2. COLLABORATION AND LICENSE AGREEMENTS – AMGEN, INC.

On September 28, 2016, the Company entered into two Collaboration and License agreements, and a Common Stock Purchase Agreement with Amgen Inc., a Delaware corporation (“Amgen”). Under one of the license agreements (the “Second Collaboration and License Agreement” or “ARO-LPA (AMG-890) Agreement”), Amgen has received a worldwide, exclusive license to Arrowhead’s novel, RNAi ARO-LPA program. These RNAi molecules are designed to reduce elevated lipoprotein(a), which is a genetically validated, independent risk factor for atherosclerotic cardiovascular disease. Under the other license agreement (the “First Collaboration and License Agreement” or “ARO-AMG1 Agreement”), Amgen received an option to a worldwide, exclusive license for ARO-AMG1, an RNAi therapy for an undisclosed genetically validated cardiovascular target. In both agreements, Amgen is wholly responsible for clinical development and commercialization.

Under the Common Stock Purchase Agreement, the Company has sold 3,002,793 shares of Common Stock to Amgen at a price of $7.16 per share, which represents the 30-day volume-weighted average price of the Common Stock on the NASDAQ stock market over the 30 trading days preceding the Effective Date, as defined in the ARO-AMG1 Agreement. Subject to Amgen’s exercise of the Option, as defined in the ARO-AMG1 Agreement, Amgen has agreed to purchase, and the Company has agreed to sell, an additional $5 million worth of shares of Common Stock based on a 30 trading day formula surrounding the date of the Option exercise.

Under the terms of the agreements taken together, the Company has received $35 million in upfront payments, $21.5 million in the form of an equity investment by Amgen in the Company’s Common Stock, and could receive up to $617 million in option payments, and development, regulatory and sales milestone payments. The Company is further eligible to receive single-digit royalties for sales of products under the ARO-AMG1 Agreement and up to low double-digit royalties for sales of products under the ARO-LPA (AMG-890) Agreement.

Under the terms of the ARO-AMG1 Agreement, the Company has granted an option to a worldwide, exclusive license to ARO-AMG1, an undisclosed genetically validated cardiovascular target. The collaboration between the Company and Amgen is governed by a joint steering committee comprised of an equal number of representatives from each party. The Company is also responsible for developing, optimizing and manufacturing the candidate through certain preclinical efficacy and toxicology studies to determine whether the candidate the Company has developed meets the required criteria as defined in the agreement (the “Arrowhead Deliverable”). If this is achieved, Amgen will then have

the option to an exclusive license for the intellectual property generated through the Company's development efforts, and will likely assume all development, regulatory and commercialization efforts for the candidate upon the option exercise. The Company has determined that the significant deliverables under the ARO-AMG1 Agreement include the license, the joint research committee and the development and manufacturing activities toward achieving the Arrowhead Deliverable. The Company also determined that, pursuant to the accounting guidance governing revenue recognition on multiple element arrangements, the license and collective undelivered activities and services do not have standalone value due to the specialized nature of the activities and services to be provided by the Company. Therefore, the deliverables are not separable and, accordingly, the license and undelivered services are being treated as a single unit of accounting. The Company will recognize revenue on a straight-line basis from October 1, 2016, through September 30, 2018. The due date for achieving the Arrowhead Deliverable is September 28, 2018. The Company received the upfront payment of $5 million due under this agreement in September 2016. The upfront $5 million payment was recorded as Deferred Revenue, and $0.6 million and $1.3 million of this was amortized into Revenue during the three and six months ended March 31, 2018, respectively. During the three and six months ended March 31, 2017, $0.6 million and $1.3 million of this upfront $5 million payment was amortized in Revenue, respectively. Of the upfront $5 million payment, approximately $1.3 million remained as Deferred Revenue as of March 31, 2018.

Under the terms of the ARO-LPA (AMG-890) Agreement, the Company has granted a worldwide, exclusive license to ARO-LPA (AMG-890). The collaboration between the Company and Amgen is governed by a joint research committee comprised of an equal number of representatives from each party, however Amgen has the final decision making authority regarding ARO-LPA

(AMG-890) in this committee. The Company is also responsible for assisting Amgen in the oversight of certain development and manufacturing activities, most of which are to be covered at Amgen's cost. The Company has determined that the significant deliverables under the ARO-LPA (AMG-890) Agreement include the license and the oversight of certain of the development and manufacturing activities. The Company also determined that, pursuant to the accounting guidance governing revenue recognition on multiple element arrangements, the license and collective undelivered activities and services do not have standalone value due to the specialized nature of the activities and services to be provided by the Company. Therefore, the deliverables are not separable and, accordingly, the license and undelivered services are being treated as a single unit of accounting. The Company recognized revenue on a straight-line basis from November 18, 2016 (the Hart-Scott-Rodino clearance date), through October 31, 2017, which was the date where the significant development and manufacturing related deliverables were completed. The Company received the upfront payment of $30 million due under the ARO-LPA (AMG-890) Agreement in November 2016. The upfront $30 million payment was recorded as Deferred Revenue, and $2.7 million of this was amortized into Revenue during the three months ended December 31, 2017. The upfront $30 million payment has been fully recognized, and $0 remains in Deferred Revenue as of March 31, 2018. During the three and six months ended March 31, 2017, $7.8 million and $11.5 million of the upfront $30 million payment was amortized into Revenue, respectively.

The Company also entered into a separate services agreement and separate statements of work with Amgen to provide certain services related to process development, manufacturing, materials supply, discovery studies, and other consulting services related to ARO-LPA (AMG 890) and ARO-AMG1. During the three and six months ended March 31, 2018, these work orders generated approximately $0.03 million and $0.2 million of Revenue, respectively. During the three and six months ended March 31, 2017, these work orders generated approximately $0.6 million and $0.6 million of Revenue, respectively.

NOTE 3. PROPERTY AND EQUIPMENT

The following table summarizes the Company's major classes of property and equipment:

	March 31, 2018	September 30, 2017
Computers, office equipment and furniture	$600,334	$600,334
Research equipment	10,174,679	9,660,960
Software	132,078	132,078
Leasehold improvements	12,208,380	12,208,380
Total gross fixed assets	23,115,471	22,601,752
Less: Accumulated depreciation and amortization	(8,533,158)	(7,088,733)
Property and equipment, net	$14,582,313	$15,513,019

NOTE 4. INVESTMENTS

The Company invests a portion of its excess cash balances in short-term debt securities and may, from time to time, also invest in long-term debt securities. Investments at March 31, 2018 consisted of corporate bonds with maturities

remaining of less than one year. The Company may also invest excess cash balances in certificates of deposits, money market accounts, government-sponsored enterprise securities, corporate bonds and/or commercial paper. The Company accounts for its investments in accordance with FASB ASC 320, Investments – Debt and Equity Securities. At March 31, 2018, all investments were classified as held-to-maturity securities.

The following tables summarize the Company's short-term investments as of March 31, 2018, and September 30, 2017.

	As of March 31, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial notes (due within one year)	$21,736,820	$ —	$(241,377)	$21,495,443

	As of September 30, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial notes (due within one year)	$40,769,539	$ —	$(334,755)	$40,434,784

NOTE 5. INTANGIBLE ASSETS

Intangible assets subject to amortization include patents and a license agreement capitalized as part of the Novartis RNAi asset acquisition in March 2015. The license agreement associated with the Novartis RNAi asset acquisition is being amortized over the estimated life remaining at the time of acquisition, which was 21 years, and the accumulated amortization of the asset is approximately $457,583. The patents associated with the Novartis RNAi asset acquisition are being amortized over the estimated life remaining at the time of acquisition, which was 14 years, and the accumulated amortization of the assets is approximately $4,785,407. Amortization expense for the three months ended March 31, 2018 and 2017 was $425,107 and $425,107, respectively. Amortization expense for the six months ended March 31, 2018 and 2017 was $850,215 and $850,215, respectively. Amortization expense is expected to be approximately $850,215 for the remainder of fiscal year 2018, $1,700,429 in 2019, $1,700,429 in 2020, $1,700,429 in 2021, $1,700,429 in 2022, $1,700,429 in 2023, and $10,261,864 thereafter.

The following table provides details on the Company's intangible asset balances:

	Intangible assets subject to amortization
Balance at September 30, 2017	$ 20,464,439
Impairment	-
Amortization	(850,215)
Balance at March 31, 2018	$ 19,614,224

NOTE 6. STOCKHOLDERS' EQUITY

At March 31, 2018, the Company had a total of 150,000,000 shares of capital stock authorized for issuance, consisting of 145,000,000 shares of Common Stock, par value $0.001 per share, and 5,000,000 shares of Preferred Stock, par value $0.001 per share.

At March 31, 2018, 87,570,398 shares of Common Stock were outstanding. At March 31, 2018, 9,459,720 shares of Common Stock were reserved for issuance upon exercise of options and vesting of restricted stock units granted or available for grant under Arrowhead's 2004 Equity Incentive Plan and 2013 Incentive Plan, as well as for inducement grants made to new employees.

On January 22, 2018, the Company sold 11,500,000 shares of Common Stock in a fully underwritten public offering, at a public offering price of $5.25 per share. Net proceeds to the Company were approximately $56.6 million after deducting underwriting commissions and discounts and other offering expenses payable by the Company.

The following table summarizes information about warrants outstanding at March 31, 2018:

Exercise prices	Number of Warrants	Remaining Life in Years
$ 7.14	80,000	0.2
	80,000	

	Total warrants outstanding

NOTE 7. COMMITMENTS AND CONTINGENCIES

Leases

The Company leases approximately 8,500 square feet of office space for its corporate headquarters in Pasadena, California. The lease will expire in September 2019. Monthly rental payments are approximately $27,000 per month, increasing approximately 3% annually.

The Company also leases approximately 60,000 square feet of office and laboratory space for its research facility in Madison, Wisconsin. The lease will expire in September 2026. As part of this lease, the Company was provided a primary tenant improvement allowance of $2.1 million which is accounted for as Deferred Rent and a secondary tenant improvement allowance of $2.7 million which is accounted for as a Note Payable on the Company's Consolidated Balance Sheet. Monthly rental payments, including payments of principal and interest on the Note Payable are approximately $182,200 per month. The monthly rental payments (excluding principal and interest on the Note Payable), will increase approximately 2.5% annually.

Facility rent expense for the three months ended March 31, 2018 and 2017 was $304,700 and $416,800, respectively. Facility rent expense for the six months ended March 31, 2018 and 2017 was $630,300 and $797,900, respectively.

As of March 31, 2018, future minimum lease payments due in fiscal years under operating leases are as follows:

2018 (remainder of)	$767,651
2019	1,435,409
2020	1,044,431
2021	1,070,496
2022	1,097,168
2023 and thereafter	4,669,328
Total	$10,084,483

Note Payable

As part of the Company's lease for its research facility in Madison, Wisconsin discussed above, the Company entered into a $2.7 million promissory note payable with its landlord to finance certain tenant improvements made to the new facility. The note will be amortized over the 10-year term of the lease, commencing on October 1, 2016. The note bears interest at a rate of 7.1% and is payable in equal monthly installments of principal and interest.

As of March 31, 2018, future principal payments due in fiscal years under the note payable are as follows:

2018 (remainder of)	$106,100
2019	223,820
2020	240,258
2021	257,903
2022	276,845
2023 and thereafter	1,326,192
Total	$2,431,118

Litigation

The Company and certain of its officers and directors were named as defendants in a putative consolidated class action in the United States District Court for the Central District of California regarding certain public statements in connection with the Company's hepatitis B drug research. The consolidated class action, initially filed as Wang v. Arrowhead Research Corp., et al., No. 2:14-cv-07890 (C.D. Cal., filed Oct. 10, 2014), and Eskinazi v. Arrowhead Research Corp., et al., No. 2:14-cv-07911 (C.D. Cal., filed Oct. 13, 2014), asserted claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and sought damages in an unspecified amount. Additionally, three putative stockholder derivative actions captioned Weisman v. Anzalone et al., No. 2:14-cv-08982 (C.D. Cal., filed Nov. 20, 2014), Bernstein (Backus) v. Anzalone, et al., No. 2:14-cv-09247 (C.D. Cal., filed Dec. 2, 2014); and Johnson v. Anzalone, et al., No. 2:15-cv-00446 (C.D. Cal., filed Jan. 22, 2015), were filed in the United States District Court for the Central District of California, alleging breach of fiduciary duty by the Company's Board of Directors in connection with the alleged facts underlying the securities claims. An additional consolidated derivative action asserting similar claims was filed in Los Angeles County Superior Court, initially filed as Bacchus v. Anzalone, et al., (L.A. Super., filed Mar. 5, 2015); and Jackson v. Anzalone, et al. (L.A. Super., filed Mar. 16, 2015). Each of these suits seeks damages in unspecified amounts and some seek various forms of injunctive relief. On October 7, 2016, the federal district court dismissed the consolidated class action with prejudice. Following the dismissal of the consolidated class action, the parties for the Weisman and Johnson actions jointly stipulated to dismiss the actions, with the parties bearing their own fees and costs. The parties to the Bernstein and consolidated derivative action agreed to stay the matters pending the resolution of the Ninth Circuit appeal of the dismissal of the consolidated class action. On February 15, 2018, the Ninth Circuit issued a memorandum affirming the district court's dismissal of all claims. Plaintiffs in the consolidated derivative action voluntarily dismissed their case. The parties to the Bernstein

action filed a stipulation to continue the stay of the action pending resolution of the Ninth Circuit appeal in Meller v. Arrowhead Pharmaceuticals, Inc., Case No. 2:16-cv-08505 (C.D. Cal.). The Company believes it has meritorious defenses and intends to vigorously defend itself in each of these matters. The Company makes provisions for liabilities when it is both probable that a liability has been incurred and the amount can be reasonably estimated. No such liability has been recorded related to these matters. The Company does not expect these matters to have a material effect on its Consolidated Financial Statements.

The Company and certain executive officers were named as defendants in a putative consolidated class action in the United States District Court for the Central District of California regarding certain public statements in connection with the Company's drug research programs. The consolidated class action, initially filed as Meller v. Arrowhead Pharmaceuticals, Inc., et al., No. 2:16-cv-08505 (C.D. Cal, filed Nov. 15, 2016), Siegel v. Arrowhead Pharmaceuticals, Inc., et al., No. 2:16-cv-8954 (C.D. Cal., filed Dec. 2, 2016), and Unz v. Arrowhead Pharmaceuticals, Inc., et al., No.2:17-cv-00310 (C.D. Cal., filed Jan. 13, 2017) asserts claims under

Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 regarding certain public statements in connection with the Company's drug research programs and seek damages in an unspecified amount. Additionally, a putative stockholder derivative action captioned Johnson v. Anzalone, et al., (Los Angeles County Superior Court, filed January 19, 2017) asserting substantially similar claims is pending in Los Angeles County Superior Court and is stayed pending the related consolidated class action. Two additional putative stockholder derivative actions, captioned Lucas v. Anzalone, et al., No. 2:17-cv-03207 (C.D. Cal., filed April 28, 2017), and Singh v. Anzalone, et al., No. 2:17-cv-03160 (C.D. Cal., filed April 27, 2017), alleging breach of fiduciary duty by the Company's Board of Directors in connection with the alleged facts underlying the securities claims, are pending in the United States District Court for the Central District of California. The Lucas and Singh actions have been consolidated. On December 21, 2017, the federal district court dismissed the consolidated class action with prejudice. On December 27, 2017 the plaintiffs appealed the dismissal to the United States Court of Appeals for the Ninth Circuit. The Lucas and Singh actions are stayed pending resolution of the Ninth Circuit appeal. The Company believes it has meritorious defenses and intends to vigorously defend itself in these matters. The Company makes provisions for liabilities when it is both probable that a liability has been incurred and the amount can be reasonably estimated. No such liability has been recorded related to these matters. The Company cannot predict the ultimate outcome of this matter and cannot accurately estimate any potential liability the Company may incur or the impact of the results of this matter on the Company.

With regard to legal fees, such as attorney fees related to these matters or any other legal matters, the Company recognizes such costs as incurred.

Purchase Commitments

In the normal course of business, we enter into various purchase commitments for the manufacture of drug components, for toxicology studies, and for clinical studies. As of March 31, 2018, these future commitments were estimated at approximately $23.5 million, of which approximately $13.5 million is expected to be incurred in fiscal 2018, and $10.0 is expected to be incurred beyond fiscal 2018.

Technology License Commitments

The Company has licensed from third parties the rights to use certain technologies for its research and development activities, as well as in any products the Company may develop using these licensed technologies. These agreements and other similar agreements often require milestone and royalty payments. Milestone payments, for example, may be required as the research and development process progresses through various stages of development, such as when clinical candidates enter or progress through clinical trials, upon NDA and upon certain sales level milestones. These milestone payments could amount to the mid to upper double-digit millions of dollars. During the three and six months ended March 31, 2018 and 2017, the Company did not reach any milestones requiring milestone payments. In certain agreements, the Company may be required to make mid to high single-digit percentage royalty payments based on a percentage of the sales of the relevant products.

NOTE 8. STOCK-BASED COMPENSATION

Arrowhead has two plans that provide for equity-based compensation. Under the 2004 Equity Incentive Plan and 2013 Incentive Plan, as of March 31, 2018, 2,033,442 and 6,828,728 shares, respectively, of Arrowhead's Common Stock are reserved for the grant of stock options, stock appreciation rights, restricted stock awards and performance unit/share awards to employees, consultants and others. No further grants may be made under the 2004 Equity Incentive Plan. As of March 31, 2018, there were options granted and outstanding to purchase 2,033,442 and

3,376,997 shares of Common Stock under the 2004 Equity Incentive Plan and the 2013 Incentive Plan, respectively, and there were 3,295,665 restricted stock units granted and outstanding under the 2013 Incentive Plan. Also, as of March 31, 2018, there were 595,050 shares reserved for options and 2,500 restricted stock units issued as inducement grants to new employees outside of equity compensation plans. During the three months ended March 31, 2018, no options or restricted stock units were granted under the 2004 Equity Incentive Plan, 467,000 options and 1,243,000 restricted stock units were granted under the 2013 Incentive Plan, and 78,000 options and no restricted stock units were granted as inducement awards to new employees outside of equity incentive plans. During the six months ended March 31, 2018, no options or restricted stock units were granted under the 2004 Equity Incentive Plan, 467,000 options and 1,243,000 restricted stock units were granted under the 2013 Incentive Plan, and 193,000 options and 2,500 restricted stock units were granted as inducement awards to new employees outside of equity incentive plans.

The following table summarizes information about stock options:

	Number of Options Outstanding	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
Balance At September 30, 2017	5,549,543	$ 6.00		
Granted	660,000	4.12		
Cancelled	(124,678)	8.33		
Exercised	(79,374)	2.43		
Balance At March 31, 2018	6,005,491	$ 5.80	6.4 years	$13,719,627
Exercisable At March 31, 2018	4,244,466	$ 6.49	5.5 years	$8,190,872

Stock-based compensation expense related to stock options for the three months ended March 31, 2018 and 2017 was $858,005 and $1,097,970, respectively. Stock-based compensation expense related to stock options for the six months ended March 31, 2018 and 2017 was $1,758,664 and $2,536,429, respectively. The Company does not recognize an income tax benefit as the Company is currently operating at a loss and an actual income tax benefit may not be realized. For non-qualified stock options, the loss creates a timing difference, resulting in a deferred tax asset, which is fully reserved by a valuation allowance.

The grant date fair value of the options granted by the Company for the three months ended March 31, 2018 and 2017 was $1,944,007 and $563,340, respectively. The grant date fair value of the options granted by the Company for the six months ended March 31, 2018 and 2017 was $2,292,906 and $778,879, respectively.

The intrinsic value of the options exercised during the three months ended March 31, 2018 and 2017 was $350,674 and $35,512, respectively. The intrinsic value of the options exercised during the six months ended March 31, 2018 and 2017 was $350,674 and $35,512, respectively.

As of March 31, 2018, the pre-tax compensation expense for all outstanding unvested stock options in the amount of approximately $4,962,192 will be recognized in the Company’s results of operations over a weighted average period of 2.4 years.

The fair value of each stock option award is estimated on the date of grant using the Black-Scholes option pricing model. The Black-Scholes option valuation model was developed for use in estimating the fair value of traded options, which do not have vesting restrictions and are fully transferable. The determination of the fair value of each stock option is affected by the Company’s stock price on the date of grant, as well as assumptions regarding a number of highly complex and subjective variables. Because the Company’s employee stock options have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management’s opinion, the existing models do not necessarily provide a reliable single measure of the fair value of its employee stock options.

The assumptions used to value stock options are as follows:

	Six Months Ended March 31,	
	2018	2017
Dividend yield	—	—

Risk-free interest rate	2.1 – 2.7%	1.3 – 2.1%
Volatility	110%	79%
Expected life (in years)	6.25	5.75 - 6.25
Weighted average grant date fair value per share of options granted	$3.47	$1.36

The dividend yield is zero as the Company currently does not pay a dividend.

The risk-free interest rate is based on that of the U.S. Treasury bond.

Volatility is estimated based on volatility average of the Company’s Common Stock price.

Restricted Stock Units

Restricted stock units (RSUs), including time-based and performance-based awards, were granted under the Company's 2013 Incentive Plan and as inducement grants granted outside of the Plan. During the three months ended March 31, 2018, the Company issued 1,243,000 RSUs under the 2013 Incentive Plan and no RSUs outside of the equity incentive plans. During the six months ended March 31, 2018, the Company issued 1,243,000 RSUs under the 2013 Incentive Plan and 2,500 RSUs as an inducement award to a new employee outside of the equity incentive plans. At vesting, each outstanding RSU will be exchanged for one share of the Company's Common Stock. RSU recipients may elect to net share settle upon vesting, in which case the Company pays the employee's income taxes due upon vesting and withholds a number of shares of Common Stock of equal value. RSU awards generally vest subject to the satisfaction of service requirements or the satisfaction of both service requirements and achievement of certain performance targets.

The following table summarizes the activity of the Company's RSUs:

	Number of RSUs	Weighted-Average Grant Date Fair Value
Unvested at September 30, 2017	3,108,000	$ 2.45
Granted	1,245,500	3.68
Vested	(1,005,333)	2.35
Forfeited	(50,000)	1.55
Unvested at March 31, 2018	3,298,167	$ 2.96

During the three months ended March 31, 2018 and 2017, the Company recorded $598,808 and $646,261 of expense related to RSUs, respectively. During the six months ended March 31, 2018 and 2017, the Company recorded $1,790,690 and $1,632,244 of expense related to RSUs, respectively. Such expense is included in stock-based compensation expense in the Company's Consolidated Statement of Operations and Comprehensive Loss.

For RSUs, the grant date fair value of the award is based on the Company's closing stock price at the grant date, with consideration given to the probability of achieving performance conditions for performance based awards.

As of March 31, 2018, the pre-tax compensation expense for all unvested RSUs in the amount of approximately $3,592,224 will be recognized in the Company's results of operations over a weighted average period of 2.6 years.

NOTE 9. FAIR VALUE MEASUREMENTS

The Company measures its financial assets and liabilities at fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., exit price) in an orderly transaction between market participants at the measurement date. Additionally, the Company is required to provide disclosure and categorize assets and liabilities measured at fair value into one of three different levels depending on the assumptions (i.e., inputs) used in the valuation. Level 1 provides the most reliable measure of fair value while Level 3 generally requires significant management judgment. Financial assets and liabilities are classified in their entirety based on the lowest level of input significant to the fair value measurement. The fair value hierarchy is defined as follows:

Level 1—Valuations are based on unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2—Valuations are based on quoted prices for similar assets or liabilities in active markets, or quoted prices in markets that are not active for which significant inputs are observable, either directly or indirectly.

Level 3—Valuations are based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement. Inputs reflect management's best estimate of what market participants would use in valuing the asset or liability at the measurement date.

The following table summarizes fair value measurements at March 31, 2018 and September 30, 2017 for assets and liabilities measured at fair value on a recurring basis:

March 31, 2018:

	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	$69,805,117	$ —	$ —	$69,805,117
Short-term investments	21,495,443	—	—	21,495,443
Derivative liabilities	—	—	—	—
Contingent Consideration	$—	$ —	$ —	$—

September 30, 2017:

	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	$24,838,567	$ —	$—	$24,838,567
Short-term investments	40,434,784	—	—	40,434,784
Derivative liabilities	—	—	695,114	695,114
Contingent Consideration	$—	$ —	$—	$—

As part of a financing in January 2013, Arrowhead issued warrants to purchase up to 833,530 shares of Common Stock (the “2013 Warrants”) of which 0 warrants were outstanding at March 31, 2018. Further, as part of a financing in December 2012, Arrowhead issued warrants to purchase up to 912,543 shares of Common Stock (the “2012 Warrants”) of which warrants to exercise 143,811 shares remained unexercised and were cancelled at their expiration during the three months ended December 31, 2017. Each of the Warrants contained a mechanism to adjust the strike price upon the issuance of certain dilutive equity securities. If during the terms of the Warrants, the Company issued Common Stock at a price lower than the exercise price for the Warrants, the exercise price would be reduced to the amount equal to the issuance price of the Common Stock. As a result of these features, the Warrants were subject to derivative accounting as prescribed under ASC 815. Accordingly, the fair value of the Warrants on the date of issuance was estimated using an option pricing model and recorded on the Company’s Consolidated Balance Sheet as a derivative liability. The fair value of the Warrants was estimated at the end of each reporting period and the change in the fair value of the Warrants was recorded as a non-operating gain or loss as change in value of derivatives in the Company’s Consolidated Statement of Operations and Comprehensive Loss. During the three months ended March 31, 2018 and 2017, the Company recorded a non-cash gain/(loss) from the change in fair value of the derivative liability of $(18,598) and $(25,883), respectively. During the six months ended March 31, 2018 and 2017, the Company recorded a non-cash gain/(loss) from the change in fair value of the derivative liability of $432,141 and $1,428,948, respectively.

The following is a reconciliation of the derivative liability related to these Warrants:

Value at September 30, 2017	$695,114
Issuance of instruments	—
Change in value	(432,141)
Net settlements	(262,973)

Value at March 31, 2018	$—

The derivative assets/liabilities were estimated using option pricing models that are based on the individual characteristics of the warrants or instruments on the valuation date, as well as assumptions for expected volatility, expected life and risk-free interest rate. Changes in the assumptions used could have a material impact on the resulting fair value. The primary input affecting the value of the Company's derivatives liabilities was the Company's stock price. Other inputs have a comparatively insignificant effect.

As of September 30, 2015, the Company had a liability for contingent consideration related to its acquisition of the Roche RNAi business completed in 2011. The fair value measurement of the contingent consideration obligations is determined using Level 3 inputs. The fair value of contingent consideration obligations is based on a discounted cash flow model using a probability-weighted income approach. The measurement is based upon unobservable inputs supported by little or no market activity based on the Company's assumptions and experience. Estimating timing to complete the development and obtain approval of products is difficult, and there are inherent uncertainties in developing a product candidate, such as obtaining U.S. Food and Drug Administration (FDA) and other regulatory approvals. In determining the probability of regulatory approval and commercial success, the Company utilizes data regarding similar milestone events from several sources, including industry studies and its own experience. These fair value measurements represent Level 3 measurements as they are based on significant inputs not observable in the market. Significant judgment is employed in determining the appropriateness of these assumptions as of the acquisition date and for each subsequent period. Accordingly, changes in assumptions could have a material impact on the amount of contingent consideration expense the Company records in any given period. In November 2016, the Company announced the discontinuation of its clinical trial efforts for ARC-520, ARC-AAT and ARC-521. Given this development, the Company assessed the fair value of its contingent consideration obligation to be $0 at March 31, 2018 and September 30, 2017.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Quarterly Report on Form 10-Q contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, and we intend that such forward-looking statements be subject to the safe harbors created thereby. For this purpose, any statements contained in this Quarterly Report on Form 10-Q except for historical information may be deemed to be forward-looking statements. Without limiting the generality of the foregoing, words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "estimate," or "continue" or the negative or other variations thereof or comparable terminology are intended to identify forward-looking statements. In addition, any statements that refer to projections of our future financial performance, trends in our businesses, or other characterizations of future events or circumstances are forward-looking statements.

The forward-looking statements included herein are based on current expectations of our management based on available information and involve a number of risks and uncertainties, all of which are difficult or impossible to predict accurately and many of which are beyond our control. As such, our actual results may differ significantly from those expressed in any forward-looking statements. Readers should carefully review the factors identified in our most recent Annual Report on Form 10-K under the caption "Risk Factors" as well as the additional risks described in other documents we file from time to time with the Securities and Exchange Commission ("SEC"), including subsequent quarterly reports on Form 10-Q. In light of the significant risks and uncertainties inherent in the forward-looking information included herein, the inclusion of such information should not be regarded as a representation by us or any other person that such results will be achieved, and readers are cautioned not to place undue reliance on such forward-looking information. Except as may be required by law, we disclaim any intent to revise the forward-looking statements contained herein to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

Overview and Recent Developments

Arrowhead Pharmaceuticals, Inc. develops medicines that treat intractable diseases by silencing the genes that cause them. Using a broad portfolio of RNA chemistries and efficient modes of delivery, Arrowhead therapies trigger the RNA interference mechanism to induce rapid, deep and durable knockdown of target genes. RNA interference, or RNAi, is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. Deemed to be one of the most important recent discoveries in life science with the potential to transform medicine, the discoverers of RNAi were awarded a Nobel Prize in 2006 for their work. Arrowhead's RNAi-based therapeutics leverage this natural pathway of gene silencing. The company's pipeline includes ARO-HBV for chronic hepatitis B virus, ARO-AAT for liver disease associated with alpha-1 antitrypsin deficiency (AATD), ARO-APOC3 and ARO-ANG3 for hypertriglyceridemia, ARO-ENaC for cystic fibrosis, ARO-HIF2 for renal cell carcinoma, and ARO-AMG1 for an undisclosed genetically validated cardiovascular target under a license and collaboration agreement with Amgen, Inc., a Delaware corporation ("Amgen"). ARO-LPA (AMG 890) for cardiovascular disease was out-licensed to Amgen in 2016.

Arrowhead operates a lab facility in Madison, Wisconsin, where the Company's research and development activities, including the development of RNAi therapeutics, are based. The Company's principal executive offices are located in Pasadena, California.

In fiscal 2017, Arrowhead refocused its resources on therapeutics that exclusively utilize the company's Targeted RNAi Molecule (TRiM™) platform technology. Therapeutics built on the TRiM™ platform have demonstrated high levels of pharmacologic activity in multiple animal models spanning several therapeutic areas. TRiM™ enabled therapeutics offer several potential advantages over prior generation and competing technologies, including: simplified manufacturing and reduced costs; multiple routes of administration including subcutaneous injection and inhaled administration; the ability to target multiple tissue types including liver, lung, and tumors; and the potential for improved safety and reduced risk of intracellular buildup, because there are less metabolites from smaller, simpler

molecules. As part of an R&D day in September 2017, the Company introduced its new TRiM™ platform and made the following announcements regarding its pipeline candidates:

- ARO-AAT, Arrowhead's second generation subcutaneously administered clinical candidate for the treatment of alpha-1 antitrypsin deficiency liver disease, achieved up to 92% knockdown in monkeys, thought to be near complete suppression of hepatic production of the alpha-1 antitrypsin protein. In non-GLP rat and monkey exploratory toxicology studies, no changes in clinical chemistries or histopathology suggestive of organ toxicity were observed at doses up to 300 mg/kg (100x expected human dose).
- ARO-HBV, Arrowhead's third generation subcutaneously administered clinical candidate for the treatment of chronic hepatitis B virus infection, achieved up to 99.9% knockdown of hepatitis B surface antigen (HBsAg), e-antigen (HBeAg), and HBV DNA in rodent models. In a non-GLP rat exploratory toxicology study, no changes in clinical chemistries or histopathology changes suggestive of organ toxicity were observed at doses up to 300 mg/kg (75-100x expected human dose).

- Arrowhead has expanded its cardiovascular disease portfolio utilizing the TRiM™ platform. ARO-APOC3, targeting apolipoprotein C-III, and ARO-ANG3, targeting angiopoietin-like protein 3 (ANGPTL3) will be added to ARO-LPA (AMG 890) and ARO-AMG1, which are both partnered with Amgen. ARO-APOC3 and ARO-ANG3 will both be developed for the treatment of hypertriglyceridemia.
- ARO-ENaC, the first generation candidate against cystic fibrosis, reached almost 90% target knockdown following inhaled administration in rodents.
- The ARO-HIF2 candidate targeting renal cell carcinoma achieved 85% target gene knockdown in a rodent tumor model.

During the first half of fiscal 2018, the Company filed Clinical Trial Applications (CTAs) for ARO-AAT and ARO-HBV to begin a phase 1 clinical study and a phase 1 / 2 clinical study for each program, respectively, and each of these studies has now begun dosing. These applications represent the first of five planned regulatory submissions to advance our pipeline candidates into clinical trials over the next 12 months.

The Company's collaboration agreements with Amgen also continue to progress as it relates to the ARO-LPA (AMG 890) and ARO-AMG1 candidates. Under the terms of the agreements taken together, the Company has received $35 million in upfront payments and $21.5 million in the form of an equity investment by Amgen in the Company's Common Stock, and could receive up to $617 million in option payments and development, regulatory and sales milestone payments. The Company is further eligible to receive single-digit royalties for sales of products under the ARO-AMG1 agreement and up to low double-digit royalties for sales of products under the ARO-LPA (AMG 890) Agreement.

The Company continues to develop other clinical candidates for future clinical trials. Clinical candidates are tested internally and through GLP toxicology studies at outside laboratories. Drug materials for such studies and clinical trials are contracted to third-party manufactures when cGMP production is required. The Company engages third-party contract research organizations (CROs) to manage clinical trials and works cooperatively with such organizations on all aspects of clinical trial management, including plan design, patient recruiting, and follow up. These outside costs, relating to the preparation for and administration of clinical trials, are referred to as "program costs". If the clinical candidates progress through human testing, program costs will increase.

Net losses were $14.9 million and $6.0 million during the three months ended March 31, 2018 and 2017, respectively. Net losses were $28.1 million and $18.1 million during the six months ended March 31, 2018 and 2017, respectively. Diluted losses per share were $0.18 and $0.08 during the three months ended March 31, 2018 and 2017, respectively. Diluted losses per share were $0.35 and $0.25 during the six months ended March 31, 2018 and 2017, respectively.

The Company strengthened its liquidity and financial position through an equity offering completed in January 2018, which generated approximately $56.6 million of net cash proceeds for the Company. These cash proceeds secured the funding needed to continue to advance our preclinical and clinical candidates. The Company had $69.8 million of cash and cash equivalents, $21.7 million of short-term investments and $127.0 million of total assets as of March 31, 2018, as compared to $24.8 million, $40.8 million and $104.0 million as of September 30, 2017, respectively. Based upon the Company's current cash resources and operating plan, the Company expects to have sufficient liquidity to fund operations for at least the next twelve months.

Critical Accounting Policies and Estimates

Management makes certain judgments and uses certain estimates and assumptions when applying GAAP in the preparation of our Consolidated Financial Statements. We evaluate our estimates and judgments on an ongoing basis and base our estimates on historical experience and on assumptions that we believe to be reasonable under the circumstances. Our experience and assumptions form the basis for our judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may vary from what we anticipate and different assumptions or estimates about the future could change our reported results. We believe the following

accounting policies are the most critical to us, in that they require our most difficult, subjective or complex judgments in the preparation of our consolidated financial statements. For further information, see Note 1, Organization and Significant Accounting Policies, to our Consolidated Financial Statements, which outlines our application of significant accounting policies.

Revenue Recognition

Revenue from product sales is recorded when persuasive evidence of an arrangement exists, title has passed and delivery has occurred, a price is fixed and determinable, and collection is reasonably assured.

The Company may generate revenue from technology licenses, collaborative research and development arrangements, research grants and product sales. Revenue under technology licenses and collaborative agreements typically consists of nonrefundable and/or guaranteed technology license fees, collaborative research funding, manufacturing and development services and various milestone and future product royalty or profit-sharing payments. These agreements are generally referred to as “multiple element arrangements”.

The Company applies the accounting standard on revenue recognition for multiple element arrangements. The fair value of deliverables under the arrangement may be derived using a best estimate of selling price if vendor specific objective evidence and third-party evidence is not available. Deliverables under the arrangement will be separate units of accounting if a delivered item has value to the customer on a standalone basis and if the arrangement includes a general right of return for the delivered item, delivery or performance of the undelivered item is considered probable and substantially in the Company’s control.

The Company recognizes upfront license payments as revenue upon delivery of the license only if the license is determined to be a separate unit of accounting from the other undelivered performance obligations. The undelivered performance obligations typically include manufacturing or development services or research and/or steering committee services. If the license is not considered to have standalone value, then the license and other undelivered performance obligations would be accounted for as a single unit of accounting. In this case, the license payments and payments for performance obligations are recognized as revenue over the estimated period of when the performance obligations are performed or deferred indefinitely until the undelivered performance obligation is determined.

Whenever the Company determines that an arrangement should be accounted for as a single unit of accounting, the Company determines the period over which the performance obligations will be performed and revenue will be recognized. Revenue is recognized using a proportional performance or straight-line method. The proportional performance method is used when the level of effort required to complete performance obligations under an arrangement can be reasonably estimated. The amount of revenue recognized under the proportional performance method is determined by multiplying the total payments under the contract, excluding royalties and payments contingent upon achievement of milestones, by the ratio of the level of effort performed to date to the estimated total level of effort required to complete performance obligations under the arrangement. If the Company cannot reasonably estimate the level of effort to complete performance obligations under an arrangement, the Company recognizes revenue under the arrangement on a straight-line basis over the period the Company is expected to complete its performance obligations. Significant management judgment is required in determining the level of effort required under an arrangement and the period over which the Company is expected to complete its performance obligations under an arrangement.

Many of the Company’s collaboration agreements entitle the Company to additional payments upon the achievement of development, regulatory and sales performance-based milestones. If the achievement of a milestone is considered probable at the inception of the collaboration, the related milestone payment is included with other collaboration consideration, such as upfront fees and research funding, in the Company’s revenue calculation. Typically, these milestones are not considered probable at the inception of the collaboration. As such, milestones will typically be recognized in one of two ways depending on the timing of when the milestone is achieved. If the milestone is achieved during the performance period, then the Company will only recognize revenue to the extent of the proportional performance achieved at that date, or the proportion of the straight-line basis achieved at that date, and

the remainder will be recorded as deferred revenue to be amortized over the remaining performance period. If the milestone is achieved after the performance period has completed and all performance obligations have been delivered, then the Company will recognize the milestone payment as revenue in its entirety in the period the milestone was achieved.

Deferred revenue will be classified as part of Current or Long-Term Liabilities in the accompanying Consolidated Balance Sheets based on the Company's estimate of the portion of the performance obligations regarding that revenue will be completed within the next 12 months divided by the total performance period estimate. This estimate is based on the Company's current operating plan and, if the Company's operating plan should change in the future, the Company may recognize a different amount of deferred revenue over the next 12-month period.

Impairment of Long-lived Assets

We review long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of assets may not be fully recoverable or that our assumptions about the useful lives of these assets are no longer appropriate. If impairment is indicated, recoverability is measured by a comparison of the carrying amount of an asset to the estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset.

Impairment of Intangible assets

Intangible assets consist of license agreements and patents acquired in conjunction with a business or asset acquisition. Intangible assets are monitored for potential impairment whenever events or circumstances indicate that the carrying amount may not be recoverable, and are also reviewed annually to determine whether any impairment is necessary. Based on ASU 2012-02, the annual review of intangible assets is performed via a two-step process. First, a qualitative assessment is performed to determine if it is more likely than not that the intangible asset is impaired. If required, a quantitative assessment is performed and, if necessary, impairment is recorded.

Stock-Based Compensation

We account for stock-based compensation arrangements in accordance with FASB ASC 718, which requires the measurement and recognition of compensation expense for all share-based payment awards to be based on estimated fair values. The Company uses the Black-Scholes option valuation model to estimate the fair value of its stock options at the date of grant. The Black-Scholes option valuation model requires the input of subjective assumptions to calculate the value of stock options. For restricted stock units, the value of the award is based on the Company's stock price at the grant date. For performance-based restricted stock unit awards, the value of the award is based on the Company's stock price at the grant date. The Company uses historical data and other information to estimate the expected price volatility for stock option awards and the expected forfeiture rate for all awards. Expense is recognized over the vesting period for all awards, and commences at the grant date for time-based awards and upon the Company's determination that the achievement of such performance conditions is probable for performance-based awards. This determination requires significant judgement by management.

Contingent Consideration

The consideration for our acquisitions often includes future payments that are contingent upon the occurrence of a particular event. For example, milestone payments might be based on progress of clinical development, the achievement of various regulatory approvals or future sales milestones, and royalty payments might be based on drug product sales levels. The Company records a contingent consideration obligation for such contingent payments at fair value on the acquisition date. The Company estimates the fair value of contingent consideration obligations through valuation models designed to estimate the probability of the occurrence of such contingent payments based on various assumptions and incorporating estimated success rates. Estimated payments are discounted using present value techniques to arrive at estimated fair value at the balance sheet date. Changes in the fair value of our contingent consideration obligations are recognized within our Consolidated Statements of Operations. Changes in the fair value of the contingent consideration obligations can result from changes to one or multiple inputs, including adjustments to the discount rates, changes in the amount or timing of expected expenditures associated with product development, changes in the amount or timing of cash flows from products upon commercialization, changes in the assumed achievement or timing of any development milestones, changes in the probability of certain clinical events and changes in the assumed probability associated with regulatory approval. These fair value measurements are based on significant inputs not observable in the market. Substantial judgment is employed in determining the appropriateness of these assumptions as of the acquisition date and for each subsequent period. Accordingly, changes in assumptions could have a material impact on the amount of contingent consideration expense the Company records in any given period.

Results of Operations

The following data summarize our results of operations for the following periods indicated:

	Three Months Ended March 31, 2018	Three Months Ended March 31, 2017
Revenue	$650,125	$8,985,930
Operating Loss	(15,034,059)	(6,129,642)
Net Loss	(14,884,311)	(6,042,557)
Loss per Share (Basic and Diluted)	$(0.18)	$(0.08)

	Six Months Ended March 31, 2018	Six Months Ended March 31, 2017
Revenue	$4,159,946	$13,351,426
Operating Loss	(28,847,407)	(21,031,531)
Net Loss	(28,083,189)	(18,128,667)
Loss per Share (Basic and Diluted)	$(0.35)	$(0.25)

Revenue in both the three months and six months ended March 31, 2018 were lower than the Revenue in the three months and six months ended March 31, 2017 because the initial $30 million payment associated with the ARO-LPA (AMG 890) Agreement was recognized primarily in these previous periods. Operating Expenses were consistent in each period. The reduction in Revenue was the key driver of the increase in Loss per Share in the current periods as compared to the previous periods.

Revenue

Total revenue was $650,125 and $8,985,930 for the three months ended March 31, 2018 and 2017, respectively. Total revenue was $4,159,946 and $13,351,426 for the six months ended March 31, 2018 and 2017, respectively. Revenue in the current period is primarily related to the upfront payments received from Amgen in 2016 that we are recognizing as Revenue as performance is completed for the ARO-LPA (AMG-890) and ARO-AMG1 Agreements. The decrease in our Revenue during the three months and six months ended March 31, 2018 was driven by a reduction in the amount of Revenue recognized associated with the $30 million upfront payment received from Amgen associated with the ARO-LPA (AMG-890) Agreement. We recognized Revenue from the ARO-LPA (AMG-890) Agreement on a straight-line basis as performance was completed from November 2016 thru October 2017.

Under the terms of the ARO-LPA (AMG 890) Agreement, the Company has granted a worldwide, exclusive license to ARO-LPA (AMG 890) . The collaboration between the Company and Amgen is governed by a joint research committee comprised of an equal number of representatives from each party; however, Amgen has the final decision making authority regarding ARO-LPA (AMG 890) in this committee. The Company is also responsible for assisting Amgen in the oversight of certain development and manufacturing activities, most of which are to be covered at Amgen’s cost. The Company has determined that the significant deliverables under the ARO-LPA (AMG 890) Agreement include the license and the oversight of certain of the development and manufacturing activities. The Company also determined that, pursuant to the accounting guidance governing revenue recognition on multiple element arrangements, the license and collective undelivered activities and services do not have standalone value due

to the specialized nature of the activities and services to be provided by the Company. Therefore, the deliverables are not separable and, accordingly, the license and undelivered services are being treated as a single unit of accounting. The Company recognized revenue on a straight-line basis from November 18, 2016 (the Hart-Scott-Rodino clearance date) through October 31, 2017, which is the date where the significant development and manufacturing related deliverables were completed. The Company received the upfront payment of $30 million due under this agreement in November 2016. The upfront $30 million payment was recorded as Deferred Revenue, and $2.7 million of this was amortized into Revenue during the three months ended December 31, 2017. The upfront $30 million payment has been fully recognized, and no balance remains in Deferred Revenue as of March 31, 2018. During the three and six months ended March 31, 2017, $7.8 million and $11.5 million of the upfront $30 million payment was amortized into Revenue, respectively.

Under the terms of the ARO-AMG1 Agreement, the Company has granted an option to a worldwide, exclusive license to ARO-AMG1, an undisclosed genetically validated cardiovascular target. The collaboration between the Company and Amgen is governed by a joint steering committee comprised of an equal number of representatives from each party. The Company is also responsible for developing, optimizing and manufacturing the candidate through certain preclinical efficacy and toxicology studies to determine whether the candidate the Company has developed meets the required criteria as defined in the agreement (the “Arrowhead Deliverable”). If this is achieved, Amgen will then have the option to an exclusive license for the intellectual property generated through the Company’s development efforts, and will likely assume all development, regulatory and commercialization efforts for the candidate upon the option exercise. The Company has determined that the significant deliverables under the ARO-AMG1 Agreement include the license, the joint research committee and the development and manufacturing activities toward achieving the Arrowhead Deliverable. The Company also determined that, pursuant to the accounting guidance governing revenue recognition on multiple

element arrangements, the license and collective undelivered activities and services do not have standalone value due to the specialized nature of the activities and services to be provided by the Company. Therefore, the deliverables are not separable and, accordingly, the license and undelivered services are being treated as a single unit of accounting. The Company will recognize revenue on a straight-line basis from October 1, 2016, through September 30, 2018. The due date for achieving the Arrowhead Deliverable is September 28, 2018. The Company received the upfront payment of $5 million due under this agreement in September 2016. The upfront $5 million payment was recorded as Deferred Revenue, and $0.6 million and $1.3 million of this was amortized into Revenue during the three and six months ended March 31, 2018, respectively. During the three and six months ended March 31, 2017, $0.6 million and $1.3 million of this upfront payment was amortized into Revenue, respectively. Of the upfront $5 million payment, $1.3 million remains in Deferred Revenue as of March 31, 2018.

The Company also entered into a separate services agreement and separate statements of work with Amgen to provide certain services related to process development, manufacturing, materials supply, discovery studies, and other consulting services related to ARO-LPA (AMG 890) and ARO-AMG-1. During the three and six months ended March 31, 2018, these work orders generated approximately $0.03 and $0.2 million of Revenue, respectively. During the three and six months ended March 31, 2017, these work orders generated approximately $0.6 million and $0.6 million of Revenue, respectively.

Operating Expenses

The analysis below details the operating expenses and discusses the expenditures of the Company within the major expense categories. Certain reclassifications have been made to prior period operating expense categories to conform to the current period presentation. For purposes of comparison, the amounts for the three and six months ended March 31, 2018 and 2017 are shown in the tables below.

Research and Development Expenses – Three and six months ended March 31, 2018 compared to the three and six months ended March 31, 2017

R&D expenses are related to the Company's research and development efforts, and related program costs which are comprised primarily of outsourced costs related to the manufacturing of clinical supplies, toxicity/efficacy studies and clinical trial expenses. Internal costs primarily relate to operations at our research facility in Madison, Wisconsin, including facility costs and laboratory-related expenses. Salaries and stock compensation expense consist of salary, bonuses, payroll taxes and related benefits and stock compensation for our R&D personnel. Depreciation and amortization expense relates to depreciation on lab equipment and leasehold improvements at our Madison research facility. The following table provides details of research and development expense for the periods indicated:

(in thousands, except percentages)

	Three Months Ended March 31, 2018	% of Expense Category		Three Months Ended March 31, 2017	% of Expense Category		Increase (Decrease) $		%
Salaries	$2,812	23	%	$2,554	22	%	$258	10	%
Stock compensation	648	5	%	732	6	%	(84)	-11	%
In Vivo studies	779	7	%	611	5	%	168	27	%
Drug manufacturing	2,540	21	%	1,421	12	%	1,119	79	%
Toxicity/efficacy studies	1,372	11	%	92	1	%	1,280	1391	%
Clinical trials	1,081	9	%	3,159	28	%	(2,078)	-66	%
License, royalty & milestones	3	0	%	-	0	%	3	0	%

Facilities and related	533	4	%	522	5	%	11	2	%
Depreciation/amortization	1,145	10	%	1,175	10	%	(30)	-3	%
Other R&D	1,089	9	%	1,172	10	%	(83)	-7	%
Total	$12,002	100	%	$11,438	100	%	$564	5	%

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	Six Months Ended March 31, 2018	% of Expense Category	Six Months Ended March 31, 2017	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Salaries	$5,623	23 %	$5,804	22 %	$(181)	-3 %
Stock compensation	1,192	5 %	1,567	6 %	(375)	-24 %
In Vivo studies	1,459	6 %	1,128	4 %	331	29 %
Drug manufacturing	5,992	24 %	3,656	14 %	2,336	64 %
Toxicity/efficacy studies	3,256	13 %	607	2 %	2,649	436 %
Clinical trials	1,896	8 %	7,823	30 %	(5,927)	-76 %
License, royalty & milestones	22	0 %	-	0 %	22	N/A
Facilities and related	1,128	5 %	1,115	4 %	13	1 %
Depreciation/amortization	2,278	9 %	2,352	9 %	(74)	-3 %
Other R&D	2,076	8 %	2,174	8 %	(98)	-5 %
Total	$24,922	100 %	$26,226	100 %	$(1,304)	-5 %

Salaries expense increased by $258,000 from $2,554,000 during the three months ended March 31, 2017 to $2,812,000 during the current period. Salaries expense decreased by $181,000 from $5,804,000 during the six months ended March 31, 2017 to $5,623,000 during the current period. The increase in the three-month period is primarily due to an increase in R&D headcount that has occurred since the Company's reduction in force in late 2016 associated with the discontinuation of our previous clinical candidates. The decrease in the six month period is primarily due to higher R&D headcount for a portion of the previous period (before the workforce reduction in late 2016), and severance costs associated with this workforce reduction.

Stock compensation expense, a non-cash expense, decreased by $84,000 from $732,000 during the three months ended March 31, 2017 to $648,000 during the current period. Stock compensation expense decreased by $375,000 from $1,567,000 during the six months ended March 31, 2017 to $1,192,000 during the current period. Stock compensation expense is based upon the valuation of stock options and restricted stock units granted to employees, directors, and certain consultants. Many variables affect the amount expensed, including the Company's stock price on the date of the grant, as well as other assumptions. The decrease in the expense in both periods is primarily due to a mix of lower grant date fair values of awards amortizing during the periods due to the Company's stock price.

In vivo studies expense increased by $168,000 from $611,000 during the three months ended March 31, 2017 to $779,000 during the current period. In vivo studies expense increased by $331,000 from $1,128,000 during the six months ended March 31, 2017 to $1,459,000 during the current period. In vivo studies expense can vary depending on the stage of preclinical candidates, the nature and amount of testing required and the cost variation of different in vivo testing models. The increase in in vivo studies expense in the current period is a result of additional discovery studies being conducted for the Company's subcutaneous drug candidates.

Drug manufacturing expense increased by $1,119,000 from $1,421,000 during the three months ended March 31, 2017 to $2,540,000 during the current period. Drug manufacturing expense increased by $2,336,000 from $3,656,000 during the six months ended March 31, 2017 to $5,992,000 during the current period. The increase primarily relates to the timing of manufacturing campaigns for ARO-AAT and ARO-HBV clinical trials and toxicology studies. We anticipate this expense to increase as we prepare to enter clinical trials with our other subcutaneous drug candidates.

Toxicity/efficacy studies expense increased by $1,280,000 from $92,000 during the three months ended March 31, 2017 to $1,372,000 during the current period. Toxicity/efficacy studies expense increased by $2,649,000 from $607,000 during the six months ended March 31, 2017 to $3,256,000 during the current period. This category includes IND-enabling toxicology studies as well as post-IND toxicology studies, such as long-term toxicology studies, and other efficacy studies. The increase primarily relates to toxicology studies for ARO-AAT and ARO-HBV as each candidate progresses through clinical trials. We anticipate this expense to increase as we prepare to enter clinical trials with our other subcutaneous drug candidates.

Clinical trials expense decreased by $2,078,000 from $3,159,000 during the three months ended March 31, 2017 to $1,081,000 during the current period. Clinical trials expense decreased by $5,927,000 from $7,823,000 during the six months ended March 31, 2017 to $1,896,000 during the current period. The decrease is primarily due to the discontinuation of our previous clinical candidates, and the close out of those studies. We anticipate this expense to increase as ARO-AAT and ARO-HBV progress through clinical trials and as we prepare to enter clinical trials with our other subcutaneous drug candidates.

License, royalty and milestones expense was relatively minor in both the three and six months ended March 31, 2017 and 2018. This category includes milestone payments which can vary from period to period depending on the nature of our various license agreements, and the timing of reaching various development milestones requiring payment. No significant milestones were achieved in either period.

Facilities expense was consistent at $522,000 during the three months ended March 31, 2017 and $533,000 during the current period. Facilities expense was consistent at $1,115,000 during the six months ended March 31, 2017 and $1,128,000 during the current period. This category includes rental costs for our research and development facility in Madison, Wisconsin.

Depreciation and amortization expense, a noncash expense, was consistent at $1,175,000 during the three months ended March 31, 2017 and $1,145,000 during the current period. Depreciation and amortization expense, was consistent at $2,352,000 during the six months ended March 31, 2017 and $2,278,000 during the current period. The majority of depreciation and amortization expense relates to depreciation on lab equipment at our Madison research facility. In addition, the Company records depreciation on leasehold improvements at its Madison research facility.

Other R&D expense decreased by $83,000 from $1,172,000 during the three months ended March 31, 2017 to $1,089,000 during the current period. Other research expense decreased by $98,000 from $2,174,000 during the six months ended March 31, 2017 to $2,076,000 during the current period. This category includes the following costs to support discovery efforts and the advancement of current drug candidates: in-house laboratory supplies, outsourced labs services, and other miscellaneous research and development expenses. The decrease primarily relates to a reduction in outsourced lab services as we have expanded our in-house manufacturing capabilities.

General & Administrative Expenses – Three and six months ended March 31, 2018 compared to the three and six months ended March 31, 2017

The following table provides details of our general and administrative expenses for the periods indicated:

(in thousands, except percentages)

	Three Months Ended March 31, 2018	% of Expense Category	Three Months Ended March 31, 2017	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Salaries	$1,330	36 %	$1,030	28 %	$300	29 %
Stock compensation	809	22 %	1,012	28 %	(203)	-20%
Professional/outside services	1,035	28 %	1,171	32 %	(136)	-12%
Facilities related	172	5 %	141	4 %	31	22 %
Depreciation/amortization	8	0 %	13	0 %	(5)	-38%
Other G&A	328	9 %	310	8 %	18	6 %

Total	$3,682	100	%	$3,677	100	%	$5	0	%

	Six Months Ended March 31, 2018	% of Expense Category		Six Months Ended March 31, 2017	% of Expense Category		Increase (Decrease) $	%	
Salaries	$2,505	31	%	$2,057	25	%	$448	22	%
Stock compensation	2,357	29	%	2,602	32	%	(245)	-9	%
Professional/outside services	2,181	27	%	2,302	28	%	(121)	-5	%
Facilities related	350	4	%	536	7	%	(186)	-35	%
Depreciation/amortization	16	0	%	21	0	%	(5)	-24	%
Other G&A	676	8	%	639	8	%	37	6	%
Total	$8,085	100	%	$8,157	100	%	$(72)	-1	%

Salaries expense increased by $300,000 from $1,030,000 during the three months ended March 31, 2017 to $1,330,000 during the current period. Salaries expense increased by $448,000 from $2,057,000 during the six months ended March 31, 2017 to $2,505,000 during the current period. The increase in both periods is primarily driven by annual merit increases and performance bonuses.

Stock compensation expense, a non-cash expense, decreased by $203,000 from $1,012,000 during the three months ended March 31, 2017 to $809,000 during the current period. Stock compensation expense decreased by $245,000 from $2,602,000 during the six months ended March 31, 2017 to $2,357,000 during the current period. Stock compensation expense is based upon the valuation of stock options and restricted stock units granted to employees, directors, and certain consultants. Many variables affect the amount expensed, including the Company's stock price on the date of the grant, as well as other assumptions. The decrease in the expense in both periods is primarily due to a mix of lower grant date fair values of awards amortizing during the periods due to the Company's stock price.

Professional/outside services include legal, accounting, consulting, patent expenses, business insurance expenses and other outside services retained by the Company. Professional/outside services expense decreased by $136,000 from $1,171,000 during the three months ended March 31, 2017 to $1,035,000 during the current period. Professional/outside services expense decreased by $121,000 from $2,302,000 during the six months ended March 31, 2017 to $2,181,000 during the current period. The decrease primarily related to general business consulting projects in the previous periods that did not recur.

Facilities-related expense increased $31,000 from $141,000 during the three months ended March 31, 2017 to $172,000 during the current period. Facilities-related expense decreased $186,000 from $536,000 during the six months ended March 31, 2017 to $350,000 during the current period. This category primarily includes rental costs for our corporate headquarters in Pasadena, California. However, the decrease in the six month period is primarily related to moving expenses incurred in the previous period associated with our research facility in Madison, Wisconsin.

Depreciation and amortization expense, a noncash expense, was relatively minor in each of the periods. The majority of general and administrative depreciation and amortization expense relates to depreciation on leasehold improvements at our Pasadena headquarters.

Other G&A expense increased by $18,000 from $310,000 during the three months ended March 31, 2017 to $328,000 during the current period. Other G&A expense increased by $37,000 from $639,000 during the six months ended March 31, 2017 to $676,000 during the current period. This category consists primarily of travel, communication and technology, office expenses, and franchise and property tax expenses. The increase in both periods was due to various travel and communication and technology expenses.

Other income / expense

Other income / expense was income of $87,085 and $149,748 during the three months ended March 31, 2017 and 2018, respectively. Other income / expense was income of $2,902,864 and $764,218 during the six months ended March 31, 2017 and 2018, respectively. The primary component of other income during the three month periods was interest income earned on our short-term investments. The primary component of other income during the six month periods was a change in the value of derivative liabilities related to certain warrants with a price adjustment feature, necessitating derivative accounting. The fluctuations were primarily driven by changes in the Company's stock price, which had a corresponding impact to the valuation of the underlying warrants. Additionally, the Company recorded $1.3 million in other income due to an insurance settlement related to a previously settled litigation case. The settlement amount was received during the three months ended December 31, 2016.

Liquidity and Cash Resources

Arrowhead has historically financed its operations through the sale of its securities. Research and development activities have required significant capital investment since the Company's inception and are expected to continue to require significant cash investment.

At March 31, 2018, the Company had cash on hand of approximately $69.8 million as compared to $24.8 million at September 30, 2017. Excess cash invested in fixed income securities was $21.7 million at March 31, 2018, compared to $40.8 million at September 30, 2017. Additionally, on January 22, 2018, the Company sold 11,500,000 shares of Common Stock in a fully underwritten public offering, at a public offering price of $5.25 per share. Net proceeds to the Company were approximately $56.6 million after deducting underwriting commissions and discounts and other offering expenses payable by the Company. The Company believes its current financial resources are sufficient to fund its operations through at least the next twelve months.

A summary of cash flows for the six months ended March 31, 2018 and 2017 is as follows:

	Six Months Ended March 31, 2018	Six Months Ended March 31, 2017
Cash Flow from Continuing Operations:		
Operating Activities	$(30,133,934)	$(4,325,866)
Investing Activities	18,172,661	(31,499,263)
Financing Activities	56,927,823	12,177,652
Net Increase (Decrease) in Cash	44,966,550	(23,647,477)
Cash at Beginning of Period	24,838,567	85,366,448
Cash at End of Period	$69,805,117	$61,718,971

During the six months ended March 31, 2018, the Company used $30.1 million in cash from operating activities for the on-going expenses of its research and development programs and general and administrative expenses. Cash provided by investing activities was $18.2 million, which was primarily related to maturities of fixed-income investments of $23.7 million offset by purchases of fixed-income securities of $5.0 million. Cash provided by financing activities of $56.9 million was driven by the $56.6 million of cash generated from the fully underwritten public offering in January 2018.

During the six months ended March 31, 2017, the Company used $4.3 million in cash from operating activities, primarily driven by $34.3 million of cash used for the on-going expenses of its research and development programs and general and administrative expenses, partially offset by the $30 million upfront payment received from Amgen. Cash used in investing activities was $31.5 million, which was primarily related to investments in short-term fixed-income securities of $24.8 million and $6.7 million of capital expenditures for leasehold improvements on the Company's Madison research facility and lab equipment purchases. Cash generated by financing activities of $12.2 million was driven by the $12.5 million equity investment received from Amgen, and was partially offset by cash paid for employee taxes on net share settlements of restricted stock units that vested during the period.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements or relationships.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

There has been no material change in our exposure to market risk from that described in Item 7A of our Annual Report on Form 10-K for the year ended September 30, 2017, filed with the Securities and Exchange Commission on December 12, 2017.

ITEM 4. CONTROLS AND PROCEDURES

Our Chief Executive Officer and our Chief Financial Officer, after evaluating our "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e)) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") as of the end of the period covered by this Quarterly Report on Form 10-Q (the "Evaluation Date"), have concluded that, as of the Evaluation Date, our disclosure controls and procedures are effective to ensure that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and to ensure that information required to be disclosed by us in such reports is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer where appropriate, to allow timely decisions regarding required disclosure.

No change in the Company’s internal controls over financial reporting (as defined in Rule 13a-15(f) and 15d-15(f) of the Exchange Act) occurred during the Company’s most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time, we may be involved in routine legal proceedings, as well as demands, claims and threatened litigation, which arise in the normal course of our business. Litigation can be expensive and disruptive to normal business operations. Moreover, the results of legal proceedings, particularly complex legal proceedings, cannot be predicted with any certainty. We disclosed information about certain of our legal proceedings in Part I, Item 3 of our Annual Report on Form 10-K for the year ended September 30, 2017. For an update to those disclosures, see Note 7 to the Consolidated Financial Statements under the heading “Litigation” in Part I, Item 1.

ITEM 1A. Risk Factors

There have been no material changes to the risk factors included in our Annual Report on Form 10-K for the year ended September 30, 2017. Please carefully consider the information set forth in this Quarterly Report on Form 10-Q and the risk factors discussed in Part I, “Item 1A. Risk Factors” in our Annual Report on Form 10-K for the year ended September 30, 2017, which could materially affect our business, financial condition or future results. The risks described in our Annual Report on Form 10-K, as well as other risks and uncertainties, could materially and adversely affect our business, results of operations and financial condition, which in turn could materially and adversely affect the trading price of shares of our Common Stock. Additional risks not currently known or currently material to us may also harm our business.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

All information under this Item has been previously reported on our Current Reports on Form 8-K.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

Exhibit Number	Document Description
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002*
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002**
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002**
101	The following materials from Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, formatted in XBRL (Extensible Business Reporting Language): (1) Consolidated Balance Sheets, (2) Consolidated Statements of Operations, (3) Consolidated Statement of Stockholders' Equity, (4) Consolidated Statements of Cash Flows, and (5) Notes to Consolidated Financial Statements. **

*Filed herewith
**Furnished herewith

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this Quarterly Report on Form 10-Q to be signed on its behalf by the undersigned, thereunto duly authorized.

Dated: May 8, 2018

ARROWHEAD
PHARMACEUTICALS, INC.

By: /s/ Kenneth A. Myszkowski
Kenneth A. Myszkowski
Chief Financial Officer

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