ARROWHEAD PHARMACEUTICALS, INC.
Form 10-Q
February 06, 2017

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 December 31, 2016

TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Commission file number 000-21898

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, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act.

Large accelerated Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company

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 February 3, 2017 was 74,569,706.

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Arrowhead Pharmaceuticals, Inc.

Consolidated Balance Sheets

| | (unaudited) December 31, 2016 | September 30, 2016 |
|---|---|---|
| ASSETS | | |
| CURRENT ASSETS | | |
| Cash and cash equivalents | $102,105,569 | $85,366,448 |
| Trade receivables | 60,000 | 75,000 |
| Prepaid expenses | 569,415 | 1,289,923 |
| Other current assets | 3,495,369 | 3,771,172 |
| TOTAL CURRENT ASSETS | 106,230,353 | 90,502,543 |
| Property and equipment, net | 16,165,659 | 15,386,761 |
| Intangible assets, net | 21,739,761 | 22,164,868 |
| Other assets | 122,333 | 122,333 |
| TOTAL ASSETS | $144,258,106 | $128,176,505 |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | |
| CURRENT LIABILITIES | | |
| Accounts payable | $3,698,297 | $12,232,906 |
| Accrued expenses | 4,762,105 | 4,587,467 |
| Accrued payroll and benefits | 2,150,014 | 3,969,706 |
| Deferred rent | 440,580 | 440,580 |
| Deferred revenue | 25,584,181 | 2,569,792 |
| Derivative liabilities | 118,795 | 1,602,626 |
| Note Payable | 197,713 | 194,310 |
| Other current liabilities | 46,407 | 46,407 |
| TOTAL CURRENT LIABILITIES | 36,998,092 | 25,643,794 |
| LONG-TERM LIABILITIES | | |
| Deferred rent, net of current portion | 2,188,703 | 2,274,997 |
| Deferred revenue, net of current portion | 5,180,115 | 2,500,000 |
| Note Payable, net of current portion | 2,482,775 | 2,533,455 |
| Other non-current liabilities | 200,000 | 200,000 |
| TOTAL LONG-TERM LIABILITIES | 10,051,593 | 7,508,452 |
| Commitments and contingencies (Note 6) | | |
| STOCKHOLDERS' EQUITY | | |
| Arrowhead Pharmaceuticals, Inc. stockholders' equity: | | |
| Preferred stock, $0.001 par value; 5,000,000 shares authorized; 0 and 15,652 shares issued and outstanding as of December 31, 2016 and September 30, 2016 | - | 16 |
| Common stock, $0.001 par value; 145,000,000 shares authorized; 74,413,040 and 69,746,685 shares | 166,782 | 162,116 |

| | | |
|---|---|---|
| issued and outstanding as of December 31, 2016 and September 30, 2016, respectively | | |
| Additional paid-in capital | 508,303,137 | 493,844,909 |
| Accumulated other comprehensive income (loss) | (185,159) | 7,449 |
| Accumulated deficit | (410,521,151) | (398,435,043) |
| Total Arrowhead Pharmaceuticals, Inc. stockholders' equity | 97,763,609 | 95,579,447 |
| Noncontrolling interest | (555,188) | (555,188) |
| TOTAL STOCKHOLDERS’ EQUITY | 97,208,421 | 95,024,259 |
| TOTAL LIABILITIES AND STOCKHOLDERS’ EQUITY | $144,258,106 | $128,176,505 |

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

Arrowhead Pharmaceuticals, Inc.

Consolidated Statements of Operations

(unaudited)

| | Three Months ended December 31, 2016 | Three Months ended December 31, 2015 |
|---|---|---|
| REVENUE | $4,365,496 | $43,750 |
| OPERATING EXPENSES | | |
| Research and development | 9,527,051 | 10,338,833 |
| Salaries and payroll-related costs | 4,276,105 | 3,919,886 |
| General and administrative expenses | 1,854,174 | 1,951,609 |
| Stock-based compensation | 2,424,442 | 2,380,343 |
| Depreciation and amortization | 1,185,611 | 794,349 |
| TOTAL OPERATING EXPENSES | 19,267,383 | 19,385,020 |
| OPERATING LOSS | (14,901,887) | (19,341,270) |
| OTHER INCOME (EXPENSE) | | |
| Interest income (expense), net | 25,148 | 100,380 |
| Change in value of derivatives | 1,483,831 | (23,524) |
| Other income (expense) | 1,306,800 | - |
| TOTAL OTHER INCOME (EXPENSE) | 2,815,779 | 76,856 |
| LOSS BEFORE INCOME TAXES | (12,086,108) | (19,264,414) |
| Provision for income taxes | - | - |
| NET LOSS | (12,086,108) | (19,264,414) |
| NET LOSS PER SHARE - BASIC & DILUTED | $(0.17) | $(0.32) |
| Weighted average shares outstanding - basic and diluted | 71,444,600 | 59,548,672 |
| OTHER COMPREHENSIVE INCOME (LOSS), NET OF TAX: | | |
| Foreign Currency Translation Adjustments | (192,608) | 45,818 |
| COMPREHENSIVE LOSS | $(12,278,716) | $(19,218,596) |

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

Arrowhead Pharmaceuticals, Inc.

Consolidated Statement of Stockholders' Equity

(unaudited)

| | Preferred Stock | Amount ($) | Common Stock | Amount ($) | Additional Paid-In Capital | Accumulated Other Comprehensive Income (loss) | Accumulated Deficit | Non-controlling Interest | Totals |
|---|---|---|---|---|---|---|---|---|---|
| Balance at September 30, 2016 | 15,652 | $16 | 69,746,685 | $162,116 | $493,844,909 | $7,449 | $(398,435,043) | $(555,188) | $95,024,259 |
| Stock-based compensation | - | - | - | - | 2,424,442 | - | - | - | 2,424,442 |
| Common stock-Restricted Stock Units vesting | - | - | 249,556 | 249 | (381,813) | - | - | - | (381,564) |
| Common stock issued to Amgen at $7.16 per share | - | - | 1,745,810 | 1,746 | 12,418,254 | | | | 12,420,000 |
| Preferred stock converted to common stock | (15,652) | (16) | 2,670,989 | 2,671 | (2,655) | - | - | - | - |
| Foreign currency translation adjustments | - | - | - | - | - | (192,608) | - | - | (192,608) |
| Net loss for the three months ended December 31, 2016 | - | - | - | - | - | | (12,086,108) | - | (12,086,108) |
| Balance at December 31, 2016 | - | $- | 74,413,040 | $166,782 | $508,303,137 | $(185,159) | $(410,521,151) | $(555,188) | $97,208,421 |

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

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Arrowhead Pharmaceuticals, Inc.

Consolidated Statements of Cash Flows

(unaudited)

| | Three Months ended December 31, 2016 | Three Months ended December 31, 2015 |
|---|---|---|
| CASH FLOWS FROM OPERATING ACTIVITIES: | | |
| Net loss | $(12,086,108) | $(19,264,414) |
| Change in value of derivatives | (1,483,831) | 23,524 |
| Stock-based compensation | 2,424,442 | 2,380,343 |
| Depreciation and amortization | 1,185,611 | 794,349 |
| Amortization of note premiums | - | 108,403 |
| Changes in operating assets and liabilities: | | |
| Accounts receivable | 15,000 | (1,054,719) |
| Prepaid expenses and Other Current Assets | 1,027,021 | (490,057) |
| Deferred revenue | 25,652,536 | - |
| Accounts payable | (4,648,013) | 257,216 |
| Accrued expenses | (1,850,996) | (3,945,503) |
| Other | (235,471) | 42,789 |
| NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES | 10,000,191 | (21,148,069) |
| CASH FLOWS FROM INVESTING ACTIVITIES: | | |
| Purchases of property and equipment | (5,296,653) | (406,612) |
| Proceeds from sale of marketable securities | - | 3,000,000 |
| NET CASH PROVIDED BY (USED IN) INVESTING ACTIVITIES | (5,296,653) | 2,593,388 |
| CASH FLOWS FROM FINANCING ACTIVITIES: | | |
| Principal payments on capital leases and notes payable | (47,277) | (54,051) |
| Payments of taxes for net share settled restricted stock unit issuances | (417,140) | (440,534) |
| Proceeds from the issuance of common stock | 12,500,000 | - |
| NET CASH PROVIDED BY (USED IN) FINANCING ACTIVITIES | 12,035,583 | (494,585) |
| NET INCREASE (DECREASE) IN CASH | 16,739,121 | (19,049,266) |
| CASH AT BEGINNING OF PERIOD | 85,366,448 | 81,214,354 |
| CASH AT END OF PERIOD | $102,105,569 | $62,165,088 |
| Supplementary disclosures: | | |
| Interest paid | $(48,195) | $(3,054) |
| Property and Equipment expenditures included in accounts payable and accrued expenses | $(1,041,276) | $- |

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 develops novel drugs to 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 (RNAi) is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. 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-F12 for hereditary angioedema and thromboembolic disorders, ARO-HIF2 for renal cell carcinoma, and ARO-AMG1 for an undisclosed genetically validate cardiovascular target under a license and collaboration agreement with Amgen, Inc., a Delaware corporation (“Amgen”). ARO-LPA for cardiovascular disease was recently out-licensed to Amgen.

During a portion of the first quarter of fiscal 2017, the Company continued to develop its clinical candidates, ARC-520 and ARC-521, for the treatment of chronic hepatitis B infection as well as its second clinical candidate, ARC-AAT, an RNAi therapeutic designed to treat liver disease associated with AATD. However, in November 2016, the Company announced that it would be discontinuing these clinical programs, and redeploying its resources and focus toward utilizing the Company’s new proprietary subcutaneous and extra-hepatic delivery systems. Each of these clinical candidates utilized the intravenously administered $DPC_{iv}$, or EX1, delivery vehicle. The decision to discontinue development of EX1-containing programs was based primarily on two factors. First, during ongoing discussions with regulatory agencies and outside experts, it became apparent that there would be substantial delays in all clinical programs that utilize EX1, while the Company further explored the cause of deaths in a non-clinical toxicology study in non-human primates. Second, the Company has made substantial advances in RNA chemistry and targeting resulting in large potency gains for subcutaneous administered and extra-hepatic RNAi-based development programs. In preclinical studies with the subcutaneous platform, the Company has obtained depth and duration of target gene knockdown approaching that of intravenously administered EX1-containing candidates, at lower doses and with good safety margins. ARO-HBV and ARO-AAT are the Company’s subcutaneous administered preclinical candidates for chronic hepatitis B virus and liver disease associated with AATD, respectively. Because of the discontinuation of its existing clinical programs, the Company has also reduced its workforce by approximately 30%, while maintaining resourcing necessary to support current and potential future partner-based programs and the Company’s pipeline.

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 December 31, 2016, the Company had $102.1 million in cash to fund operations. During the three months ended December 31, 2016, the Company's cash position increased by $16.7 million, which was primarily the result of $42.5 million in upfront payments and equity investments from Amgen, partially offset by cash outflows related to operating activities and capital expenditures.

On November 18, 2016, the Company and Amgen received Hart-Scott-Rodino clearance with regard to the ARO-LPA Agreement discussed in Note 2 below. Based on the terms of this agreement, and the Common Stock Purchase Agreement discussed in Note 2 below, the Company issued 1,745,810 shares of Common Stock to Amgen, and received proceeds of approximately $12.5 million. Additionally, the Company received a $30 million upfront payment due under the ARO-LPA Agreement discussed below.

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.

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 December 31, 2016 and September 30, 2016.

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 certain 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 and equity 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 and equity 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.

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.

The Company had no investments at December 31, 2016 and September 30, 2016, respectively.

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 often includes 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 December 31, 2016 and September 30, 2016, given the discontinuation of its clinical trials.

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 control of the vendor.

The Company recognizes upfront license payments as revenue upon delivery of the license only if the license has standalone value from any undelivered performance obligations and that value can be determined. The undelivered performance obligations typically include manufacturing or development services or research and/or steering committee services. If the fair value of the undelivered performance obligations can be determined, then these obligations would be accounted for separately. 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 months ended December 31, 2016 and 2015 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.

Derivative Assets and Liabilities – The Company accounts for warrants and other derivative financial instruments as either equity or assets/liabilities based upon the characteristics and provisions of each instrument. Warrants classified as equity are recorded as Additional Paid-In Capital on the Company's Consolidated Balance Sheet. Some of the Company's warrants were determined to be ineligible for equity classification due to provisions that may result in an adjustment to their exercise price. Warrants classified as derivative liabilities and other derivative financial instruments that require separate accounting as assets or liabilities are recorded on the Company's Consolidated Balance Sheet at their fair value on the date of issuance and are revalued on each subsequent balance sheet date until such instruments are exercised or expire, with any changes in the fair value between reporting periods recorded as Other Income or Expense. The Company estimates the fair value of these assets/liabilities 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.

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 2018. 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.

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 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 will be 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 execution. 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 Agreement.

Under the terms of the First Collaboration and License Agreement, the Company has granted 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 First Collaboration and License 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 initial $5 million payment was recorded as Deferred Revenue, and $0.6 million of this was amortized into Revenue during the three months ended December 31, 2016.

Under the terms of the Second Collaboration and License Agreement, the Company has granted a worldwide, exclusive license to ARO-LPA. 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 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 Second Collaboration and License 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 will recognize 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 are anticipated to be completed. The Company received the upfront payment of $30 million due under this agreement in November 2016. The initial $30 million payment was recorded as Deferred Revenue, and $3.7 million of this was amortized into Revenue during the three months ended December 31, 2016.

NOTE 3. PROPERTY AND EQUIPMENT

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

| | December 31, 2016 | September 30, 2016 |
|---|---|---|
| Computers, office equipment and furniture | $601,159 | $442,915 |
| Research equipment | 8,729,818 | 7,490,400 |
| Software | 107,871 | 80,841 |
| Leasehold improvements | 12,000,074 | 11,885,365 |
| Total gross fixed assets | 21,438,922 | 19,899,521 |
| Less: Accumulated depreciation and amortization | (5,273,263 ) | (4,512,760 ) |
| Property and equipment, net | $16,165,659 | $15,386,761 |

During the three months ended December 31, 2016, the Company's Research equipment increased as the Company continues to build out its new research facility in Madison, Wisconsin.

NOTE 4. 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 $272,076. 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 $2,845,377. Amortization expense for the three months ended December 31, 2016 and 2015 was $425,107 and $438,991, respectively. Amortization expense is expected to be approximately $1,275,322 for the remainder of fiscal year 2017, $1,700,429 in 2018, $1,700,429 in 2019, $1,700,429 in 2020, $1,700,429 in 2021, $1,700,429 in 2022, and $11,962,294 thereafter.

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

| | Intangible assets subject to amortization | |
|---|---|---|
| Balance at September 30, 2016 | $ | 22,164,868 |
| Impairment | | - |
| Amortization | | (425,107) |
| Balance at December 31, 2016 | $ | 21,739,761 |

NOTE 5. STOCKHOLDERS' EQUITY

At December 31, 2016, 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 December 31, 2016, 74,413,040 shares of Common Stock were outstanding. At December 31, 2016, 8,100,085 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.

During the three months ended December 31, 2016, 15,652 shares of Series C Preferred Stock were converted into 2,670,990 shares of Common Stock. No preferred stock was outstanding as of December 31, 2016.

On November 18, 2016, a tranche of 1,745,810 shares was sold to Amgen at a price of $7.16 per share as part of the ARO-LPA Agreement discussed in Note 2 above. The Company received proceeds of $12.5 million in November 2016.

The following table summarizes information about warrants outstanding at December 31, 2016:

| Exercise prices | Number of Warrants | Remaining Life in Years |
|---|---|---|
| $ 70.60 | 94,897 | 0.4 |
| $ 2.12 | 75,000 | 1.2 |
| $ 1.83 | 277,284 | 1.0 |
| $ 7.14 | 80,000 | 1.5 |
| Total warrants outstanding | 527,181 | |

NOTE 6. 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 $26,000 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 $180,100 per month.

The Company previously leased additional research facility space in Middleton, Wisconsin, however, this lease expired in December 2016. Monthly rental expense for the Middleton space was approximately $14,000. Other monthly rental expenses included common area maintenance and real estate taxes totaling approximately $4,000 per month.

Facility rent expense for the three months ended December 31, 2016 and 2015 was $381,100 and $198,600, respectively.

As of December 31, 2016, future minimum lease payments due in fiscal years under operating leases are as follows:

| | |
|---|---|
| 2017 | $1,118,650 |
| 2018 | 1,531,765 |
| 2019 | 1,435,409 |
| 2020 | 1,044,431 |
| 2021 | 1,070,496 |
| 2022 and thereafter | 5,766,495 |
| Total | $11,967,246 |

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 December 31, 2016, future principal payments due in fiscal years under the note payable are as follows:

| | |
|---|---|
| 2017 | $146,963 |
| 2018 | 208,506 |
| 2019 | 223,820 |
| 2020 | 240,258 |
| 2021 | 257,903 |
| 2022 and thereafter | 1,603,038 |
| Total | $2,680,488 |

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 facts underlying the securities claims. An additional consolidated derivative action asserting similar claims is pending 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. On October 10, 2016 the plaintiffs appealed the consolidated class action to the United States Court of Appeals for the Ninth Circuit. The Weisman and Johnson derivative actions have been dismissed without prejudice. The Bernstein derivative action remains pending. 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. 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.

The Company and certain executive officers were named as defendants in related putative securities class actions filed on November 15, 2016, December 2, 2016 and January 13, 2017 in the Central District of California and respectively captioned Meller v. Arrowhead Pharmaceuticals, Inc., et al., No. 2:16-cv-08505, Siegel v. Arrowhead Pharmaceuticals, Inc., et al., No. 2:16-cv-8954, and Unz v. Arrowhead Pharmaceuticals, Inc., et al., No.2:17-cv-00310. The plaintiffs bring 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. 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 December 31, 2016, these future commitments were estimated at approximately $12.4 million, of which approximately $12.4 million is expected to be incurred in fiscal 2017, and $0 is expected to be incurred beyond fiscal 2017.

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 months ended December 31, 2016 and 2015, 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 7. 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 December 31, 2016, 2,467,979 and 5,064,151 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 December 31, 2016, there were options granted and outstanding to purchase 2,467,979 and 3,212,743 shares of Common Stock under the 2004 Equity Incentive Plan and the 2013 Incentive Plan, respectively, and there were 783,334 restricted stock units granted and outstanding under the 2013 Incentive Plan. Also, as of December 31, 2016, there were 544,622 shares reserved for options and 23,333 restricted stock units issued as inducement grants to new employees outside of equity compensation plans. During the three months ended December 31, 2016, no options or restricted stock units were granted under the 2004 Equity Incentive Plan, 48,000 options were granted under the 2013 Incentive Plan, and no options or 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, 2016 | 6,691,200 | $ 6.56 | | |
| Granted | 48,000 | 6.50 | | |
| Cancelled | (513,856) | 7.24 | | |
| Exercised | — | — | | |
| Balance At December 31, 2016 | 6,225,344 | $ 6.50 | 6.2 years | $ — |
| Exercisable At December 31, 2016 | 4,152,293 | $ 6.26 | 5.1 years | $ — |

Stock-based compensation expense related to stock options for the three months ended December 31, 2016 and 2015 was $1,438,459 and $1,217,217, 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 December 31, 2016 and 2015 was $215,539 and $365,876, respectively.

The intrinsic value of the options exercised during the three months ended December 31, 2016 and 2015 was $0 and $3,515, respectively.

As of December 31, 2016, the pre-tax compensation expense for all outstanding unvested stock options in the amount of approximately $8,112,217 will be recognized in the Company’s results of operations over a weighted average period of 2.3 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:

| | Three Months Ended December 31, | |
|---|---|---|
| | 2016 | 2015 |
| Dividend yield | — | — |
| Risk-free interest rate | 1.34 – 1.44% | 1.41 – 1.81% |
| Volatility | 79% | 89% |
| Expected life (in years) | 6.25 | 6.25 |
| Weighted average grant date fair value per share of options granted | $4.49 | $4.46 |

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 December 31, 2016, the Company did not issue additional RSU awards. At vesting, each existing 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 withheld upon vesting and withholds a number of shares 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, 2016 | 1,356,667 | $ 6.72 |
| Granted | — | — |
| Vested | (550,000 ) | 7.02 |
| Forfeited | — | — |
| Unvested at December 31, 2016 | 806,667 | $ 6.51 |

During the three months ended December 31, 2016 and 2015, the Company recorded $985,983 and $1,163,126 of expense, 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 December 31, 2016, the pre-tax compensation expense for all unvested RSUs in the amount of approximately $1,604,377 will be recognized in the Company's results of operations over a weighted average period of 1.5 years.

NOTE 8. 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 December 31, 2016 and September 30, 2016 for assets and liabilities measured at fair value on a recurring basis:

December 31, 2016:

| | Level 1 | Level 2 | Level 3 | Total |
|---|---|---|---|---|
| Cash and cash equivalents | $102,105,569 | $ — | $— | $102,105,569 |
| Derivative liabilities | $— | $ — | $118,795 | $118,795 |

September 30, 2016:

| | Level 1 | Level 2 | Level 3 | Total |
|---|---|---|---|---|
| Cash and cash equivalents | $85,366,448 | $ — | $— | $85,366,448 |
| Derivative liabilities | $— | $ — | $1,602,626 | $1,602,626 |

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 265,161 warrants were outstanding at December 31, 2016. Further, as part of a financing in January 2013, Arrowhead issued warrants to purchase up to 833,530 shares of Common Stock (the "2013 Warrants" and, together with the 2012 Warrants, the "Warrants") of which 12,123 warrants were outstanding at December 31, 2016. Each of the Warrants contains a mechanism to adjust the strike price upon the issuance of certain dilutive equity securities. If during the terms of the Warrants, the Company issues 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 are 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 is estimated at the end of each reporting period and the change in the fair value of the Warrants is 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 December 31, 2016 and 2015, the Company recorded a non-cash gain/(loss) from the change in fair value of the derivative liability of $1,454,831 and $(21,574), respectively.

The assumptions used in valuing the derivative liability were as follows:

| 2012 Warrants | December 31, 2016 | September 30, 2016 |
|---|---|---|
| Risk-free interest rate | 0.85% | 0.68% |
| Expected life | 0.9 Years | 1.2 Years |
| Dividend yield | — | — |
| Volatility | 79% | 89% |
| | | |
| 2013 Warrants | December 31, 2016 | September 30, 2016 |
| Risk-free interest rate | 0.85% | 0.68% |

| | | |
|---|---|---|
| Expected life | 1.0 Years | 1.3 Years |
| Dividend yield | — | — |
| Volatility | 79% | 89% |

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

| | |
|---|---|
| Value at September 30, 2016 | $1,565,874 |
| Issuance of instruments | — |
| Change in value | (1,454,831) |
| Net settlements | — |
| Value at December 31, 2016 | $111,043 |

In conjunction with the financing of Ablaris in fiscal 2011, Arrowhead sold exchange rights to certain investors whereby the investors have the right to exchange their shares of Ablaris for a prescribed number of Arrowhead shares of Common Stock based upon a predefined ratio. The exchange rights have a seven-year term and a current exchange ratio of  0.01. Exchange rights for 675,000 Ablaris shares were sold in fiscal 2011, and 500,000 remain outstanding at December 31, 2016. The exchange rights are subject to derivative accounting as prescribed under ASC 815. Accordingly, the fair value of the exchange rights 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 exchange rights is estimated at the end of each reporting period and the change in the fair value of the exchange rights is recorded as a non-operating gain or loss in the Company's Consolidated Statement of Operations and Comprehensive Loss. During the three months ended December 31, 2016 and 2015, the Company recorded a non-cash gain/(loss) from the change in fair value of the derivative liability of $29,000 and $(1,950), respectively.

The assumptions used in valuing the derivative liability were as follows:

| | December 31, 2016 | September 30, 2016 |
|---|---|---|
| Risk-free interest rate | 0.85% | 0.68% |
| Expected life | 1.2 Years | 1.5 Years |
| Dividend yield | — | — |
| Volatility | 79% | 89% |

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

| | |
|---|---|
| Value at September 30, 2016 | $36,752 |
| Issuance of instruments | — |
| Change in value | (29,000) |
| Net settlements | — |
| Value at December 31, 2016 | $7,752 |

The derivative assets/liabilities are 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 is the Company's stock price. Other inputs have a comparatively insignificant effect.

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 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

Arrowhead Pharmaceuticals, Inc. develops novel drugs to 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 (RNAi) is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. 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-F12 for hereditary angioedema and thromboembolic disorders, ARO-HIF2 for renal cell carcinoma, and ARO-AMG1 for an undisclosed genetically validate cardiovascular target under a license and collaboration agreement with Amgen, Inc., a Delaware corporation ("Amgen"). ARO-LPA for cardiovascular disease was recently out-licensed to Amgen.

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.

During a portion of the first quarter of fiscal 2017, the Company continued to develop its clinical candidates, ARC-520 and ARC-521, for the treatment of chronic hepatitis B infection as well as its second clinical candidate, ARC-AAT, an RNAi therapeutic designed to treat liver disease associated with AATD. However, in November 2016, the Company announced that it would be discontinuing these clinical programs, and redeploying its resources and focus toward utilizing the Company's new proprietary subcutaneous and extra-hepatic delivery systems. Each of these discontinued clinical candidates utilized the intravenously administered $DPC_{iv}$, or EX1, delivery vehicle. The decision to discontinue development of EX1-containing programs was based primarily on two factors. First, during ongoing discussions with regulatory agencies and outside experts, it became apparent that there would be substantial delays in all clinical programs that utilize EX1, while the Company further explored the cause of deaths in a

non-clinical toxicology study in non-human primates. Second, the Company has made substantial advances in RNA chemistry and targeting resulting in large potency gains for subcutaneous administered and extra-hepatic RNAi-based development programs. In preclinical studies with the subcutaneous platform, the Company has obtained depth and duration of target gene knockdown approaching that of intravenously administered EX1-containing candidates, at lower doses and with good safety margins. ARO-HBV and ARO-AAT are the Company's subcutaneous administered preclinical candidates for chronic hepatitis B virus and liver disease associated with AATD, respectively. Because of the discontinuation of its existing clinical programs, the Company has also reduced its workforce by approximately 30%, while maintaining resources necessary to support current and potential future partner-based programs and the Company's pipeline.

The Company also continued progressing with its preclinical candidates including ARO-F12, ARO-HIF2 and ARO-LPA. The Company's most significant development for its preclinical candidates was for ARO-LPA. On September 28, 2016, the Company entered into two Collaboration and License agreements and a Common Stock Purchase Agreement with Amgen. Under one of the license agreements (the "First Collaboration and License Agreement" or "ARO-AMG1 Agreement"), Amgen has received an option to a worldwide, exclusive license for an RNAi therapy for ARO-AMG1, an undisclosed genetically validated cardiovascular target. Under the other license agreement (the "Second Collaboration and License Agreement" or "ARO-LPA 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. In both agreements, Amgen is wholly responsible for clinical development and commercialization. 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 agreement. Regarding ARO-F12, in November 2016, the Company presented data showing that its developed triggers gave greater than 95% reduction of serum F12 levels after a single subcutaneous administration with no increased bleeding risk in its preclinical studies. This data illustrates the Company's advancements in its subcutaneous delivery systems. The Company is conducting relevant disease models and is considering other potential studies to support advancement of ARO-F12 into clinical trials. Regarding ARO-HIF2, in April 2016, the Company presented data showing that ARO-HIF2 inhibited renal cell carcinoma growth and promoted tumor cell death in its preclinical studies. ARO-HIF2 is the Company's first RNAi therapeutic to target tissues outside the liver.

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 $12.1 million and $19.3 million during the three months ended December 31, 2016 and 2015, respectively. Diluted losses per share were $0.17 and $0.32 during the three months ended December 31, 2016 and 2015, respectively.

The Company strengthened its liquidity and financial position through an equity offering completed in August 2016, which generated approximately $43.2 million of net cash proceeds for the Company. Additionally, the Company received $56.5 million in upfront payments and equity investments from Amgen. These cash proceeds secured the funding needed to continue to advance our preclinical candidates. The Company had $102.1 million of cash and cash equivalents and $144.3 million of total assets as of December 31, 2016, as compared to $85.4 million and $128.2 million as of September 30, 2016, 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 control of the vendor.

The Company recognizes upfront license payments as revenue upon delivery of the license only if the license has standalone value from any undelivered performance obligations and that value can be determined. The undelivered performance obligations typically include manufacturing or development services or research and/or steering committee services. If the fair value of the undelivered performance obligations can be determined, then these obligations would be accounted for separately. 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 in-process research and development, 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 recognize stock-based compensation expense for stock options based on the grant date fair value using the Black-Scholes options pricing model, which requires us to make assumptions regarding certain variables including the risk-free interest rate, expected stock price volatility, assumed forfeitures, and the expected life of the award. The grant date fair value of restricted stock units granted is based upon the quoted closing market price per share on the date of grant, adjusted for assumed forfeitures. For performance-based stock awards, the value of the award is measured at the grant date. Expense for stock options and restricted stock units is recognized over the requisite service period. The assumptions used in calculating stock-based compensation expense represent management's best estimates, but these estimates involve inherent uncertainties, and if factors change or the Company used different assumptions, its stock-based compensation expense could be materially different in the future.

Derivative Assets and Liabilities

We account for warrants and other derivative financial instruments as either equity or assets/liabilities based upon the characteristics and provisions of each instrument. Warrants classified as equity are recorded as additional paid-in capital on our Consolidated Balance Sheet and no further adjustments to their valuation are made. Some of our warrants were determined to be ineligible for equity classification because of provisions that may result in an adjustment to their exercise price. Warrants classified as derivative liabilities and other derivative financial instruments that require separate accounting as assets or liabilities are recorded on our Consolidated Balance Sheet at their fair value on the date of issuance and are revalued on each subsequent balance sheet date until such instruments are exercised or expire, with any changes in the fair value between reporting periods recorded as other income or expense. We estimate the fair value of these assets/liabilities 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 our derivatives liabilities is the Company's stock price.

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 December 31, 2016 | Three Months Ended December 31, 2015 |
|---|---|---|
| Revenue | $4,365,496 | $43,750 |
| Operating Loss | (14,901,887) | (19,341,270) |
| Net Loss | (12,086,108) | (19,264,414) |
| Loss per Share (Basic and Diluted) | $(0.17) | $(0.32) |

The increase in our Revenue during the three months ended December 31, 2016 was driven by the upfront payments received from Amgen that we are beginning to recognize in the period as performance is completed for the ARO-LPA and ARO-AMG1 agreements. This was also the key driver of the decrease in our Operating Loss, Net Loss and Loss per Share.

Revenue

Total revenue was $4,365,496 and $43,750 for the three months ended December 31, 2016 and 2015, respectively. Revenue in the current period is primarily related to the upfront payments received from Amgen that we are beginning to recognize as performance is completed for the ARO-LPA and ARO-AMG1 agreements.

Under the terms of the ARO-LPA Agreement, the Company has granted a worldwide, exclusive license to ARO-LPA. 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 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 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 will recognize 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 are anticipated to be completed. The Company received the upfront payment of $30 million due under this agreement in November 2016. The initial $30 million payment was recorded as Deferred Revenue, and $3.7 million of this was amortized into Revenue in the current period.

Under the terms of the ARO-AMG1 Agreement, the Company has granted 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 initial $5 million payment was recorded as Deferred Revenue, and $0.6 million of this was amortized into Revenue in the current period.

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 months ended December 31, 2016 and 2015 are shown in the tables below.

Research and Development Expenses – Three months ended December 31, 2016 compared to the three months ended December 31, 2015

R&D expenses are related to the Company's on-going 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. The following table provides details of research and development expense for the periods indicated:

(in thousands, except percentages)

| | Three Months Ended December 31, 2016 | % of Expense Category | Three Months Ended December 31, 2015 | % of Expense Category | Increase (Decrease) $ | Increase (Decrease) % |
|---|---|---|---|---|---|---|
| Laboratory supplies & services | $ 837 | 9 % | $ 602 | 6 % | $ 235 | 39 % |
| In vivo studies | 461 | 5 % | 289 | 3 % | 172 | 60 % |
| Outside labs & contract services | 132 | 1 % | 65 | 1 % | 67 | 103 % |
| Toxicity/efficacy studies | 515 | 5 % | 3,099 | 30 % | (2,584) | -83 % |
| Drug manufacturing | 2,225 | 23 % | 3,100 | 30 % | (875) | -28 % |
| Clinical trials | 4,679 | 49 % | 2,835 | 27 % | 1,844 | 65 % |
| License, royalty & milestones | - | 0 % | 21 | 0 % | (21) | -100 % |
| Facilities and related | 592 | 6 % | 281 | 3 % | 311 | 111 % |
| Other research expenses | 86 | 2 % | 47 | 0 % | 39 | 83 % |
| Total | $ 9,527 | 100 % | $ 10,339 | 100 % | $ (812) | -8 % |

Laboratory supplies and services expense increased by $235,000 from $602,000 during the three months ended December 31, 2015 to $837,000 during the current period. The increase in laboratory supplies and services is a result of additional supply purchases necessary to support the expansion of the Company's preclinical pipeline as well as the development of the subcutaneous versions of its drug candidates.

In vivo studies expense increased by $172,000 from $289,000 during the three months ended December 31, 2015 to $461,000 during the current period. In vivo 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 in the current period is a result of additional discovery studies being conducted for the Company's subcutaneous candidates.

Outside labs and contract services expense increased by $67,000 from $65,000 during the three months ended December 31, 2015 to $132,000 during the current period. The increase in outside labs and contract services in the current period is a result of additional discovery work being conducted for the Company's subcutaneous candidates

Toxicity/efficacy studies expense decreased by $2,584,000 from $3,099,000 during the three months ended December 31, 2015 to $515,000 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 decrease primarily

relates to toxicology studies related to one of our discontinued drug candidates, ARC-521. We anticipate this expense to remain lower in the near term due to the discontinuation of our clinical candidates.

Drug manufacturing expense decreased by $875,000 from $3,100,000 during the three months ended December 31, 2015 to $2,225,000 during the current period. The decrease is primarily due to the timing of a manufacturing batch that was completed in fiscal 2016 for one of our preclinical candidates. We anticipate this expense to decrease in the near term due to the discontinuation of our clinical candidates.

Clinical trials expense increased by $1,844,000 from $2,835,000 during the three months ended December 31, 2015 to $4,679,000 during the current period. The increase is primarily driven by the fact that our ARC-521 study was initiated in fiscal 2015, so minimal expenses had been incurred during the three months ended December 31, 2015 for this study as compared to the current period. We anticipate this expense to decrease in the near term due to the discontinuation of our clinical candidates.

License, royalty and milestones expense decreased by $21,000 from $21,000 during the three months ended December 31, 2015 to $0 during the current period. This category can include 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 increased by $311,000 from $281,000 during the three months ended December 31, 2015 to $592,000 during the current period. The increase relates to increased rental costs for our new lease and larger facility in Madison, Wisconsin, which was entered into in October 2016.

Other research expense increased by $39,000 from $47,000 during the three months ended December 31, 2015 to $86,000 during the current period. The increase primarily relates to additional miscellaneous supplies purchased to support increased efforts at our larger facility in Madison, Wisconsin.

Salaries – Three months ended December 31, 2016 compared to the three months ended December 31, 2015

The Company employs scientific, technical and administrative staff at its corporate offices and its research facility. Salaries and payroll-related expense consists of salary, bonuses, payroll taxes and related benefits. Salary and payroll-related expenses include two major categories: general and administrative (G&A) compensation expense, and research and development (R&D) compensation expense, based on the primary activities of each employee. The following table provides details of salary and payroll-related expenses for the periods indicated:

(in thousands, except percentages)

| | Three Months Ended December 31, 2016 | % of Expense Category | Three Months Ended December 31, 2015 | % of Expense Category | Increase (Decrease) $ | Increase (Decrease) % |
|---|---|---|---|---|---|---|
| R&D - compensation-related | $ 3,249 | 76 % | $ 2,946 | 75 % | $ 303 | 10 % |
| G&A - compensation-related | 1,027 | 24 % | 974 | 25 % | 53 | 5 % |
| Total | $ 4,276 | 100 % | $ 3,920 | 100 % | $ 356 | 9 % |

R&D compensation expense increased by $303,000 from $2,946,000 during the three months ended December 31, 2015 to $3,249,000 during the current period. Annual merit increases accounted for the majority of the change in compensation-related expense.

G&A compensation expense increased by $53,000 from $974,000 during the three months ended December 31, 2015 to $1,027,000 during the current period. Annual merit increases accounted for the majority of the change in the current period.

General & Administrative Expenses – Three months ended December 31, 2016 compared to the three months ended December 31, 2015

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

(in thousands, except percentages)

| | Three Months Ended December 31, 2016 | % of Expense Category | Three Months Ended December 31, 2015 | % of Expense Category | Increase (Decrease) $ | Increase (Decrease) % |
|---|---|---|---|---|---|---|
| Professional/outside services | $ 695 | 38 % | $ 850 | 44 % | $ (155) | -18 % |
| Patent expense | 287 | 16 % | 281 | 14 % | 6 | 2 % |
| Facilities and related | 81 | 4 % | 76 | 4 % | 5 | 7 % |
| Travel | 180 | 10 % | 250 | 13 % | (70) | -28 % |
| Business insurance | 148 | 8 % | 138 | 7 % | 10 | 7 % |
| Communication and Technology | 134 | 7 % | 149 | 8 % | (15) | -10 % |
| Office expenses | 314 | 17 % | 94 | 5 % | 220 | 234 % |
| Other | 15 | 0 % | 113 | 5 % | (98) | -87 % |
| Total | $ 1,854 | 100 % | $ 1,951 | 100 % | $ (97) | -5 % |

Professional/outside services include legal, accounting, consulting and other outside services retained by the Company. All periods include normally recurring legal and audit expenses related to SEC compliance and other corporate matters. Professional/outside services expense decreased by $155,000 from $850,000 during the three months ended December 31, 2015 to $695,000 during the current period. The decrease primarily related to higher legal fees in 2015 related to litigation cases.

Patent expense remained consistent at $281,000 during the three months ended December 31, 2015 and $287,000 during the current period. The Company continues to invest in patent protection for its product candidates and other RNAi technology through patent filings in numerous countries. The Company expects to extend and maintain protection for its current portfolios, as appropriate, and file new patent applications as technologies are developed and improved. Expenses can vary from period to period as patents proceed through their prosecution life cycle.

Facilities-related expense remained consistent at $76,000 and $81,000 in the three months ended December 31, 2015 and 2016, respectively. Facilities expense relates to recurring expenses associated with our corporate headquarters in Pasadena.

Travel expense decreased by $70,000 from $250,000 during the three months ended December 31, 2015 to $180,000 during the current period. Travel expense decreased due to the discontinuation of our clinical trials in November 2016 and reduction in R&D headcount. We anticipate this expense to decrease in the near term.

Business insurance expense increased by $10,000 from $138,000 during the three months ended December 31, 2015 to $148,000 during the current period. Business insurance costs increased primarily due to increases in corporate liability insurance.

Communication and technology decreased by $15,000 from $149,000 during the three months ended December 31, 2015 to $134,000 during the current period. This category includes costs associated with the Company’s IT infrastructure. The decrease was primarily due to several IT consulting projects completed during fiscal 2016.

Office expense increased by $220,000 from $94,000 during the three months ended December 31, 2015 to $314,000 during the current period. These expenses relate to conferences/training, office supplies, miscellaneous administrative expenses, and expenses related to office expansions at our R&D facility in Madison and our corporate headquarters in Pasadena. The increase is primarily related to moving expenses for the Company’s move to its new facility in Madison, Wisconsin.

Other expense decreased by $98,000 from $113,000 during the three months ended December 31, 2015 to $15,000 during the current period. This category consists primarily of conference attendance fees, franchise and property tax expenses and marketing expenses. The decrease in other expense is primarily related to conference attendance fees recorded during the three months ended December 31, 2015.

Stock-based compensation expense

Stock-based compensation expense, a noncash expense, was $2,424,442 and $2,380,343 during the three months ended December 31, 2016 and 2015, respectively. Stock-based 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. Due to additional options and restricted stock units granted to new and existing employees, compensation expense has increased from the prior year.

Depreciation and amortization expense

Depreciation and amortization expense, a noncash expense, was $1,185,611 and $794,349 during the three months ended December 31, 2016 and 2015, respectively. 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 and its Pasadena corporate headquarters. The increase in depreciation and amortization expense is primarily due to the depreciation on leasehold improvements at the Company's Madison research facility in the current period.

Other income / expense

Other income / expense was income of $2,815,779 and $76,856 during the three months ended December 31, 2016 and 2015, respectively. The primary component of other income during the three months ended December 31, 2016 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 one of the Company's recent litigation cases. The settlement amount was received during the current period.

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 December 31, 2016, the Company had cash on hand of approximately $102.1 million as compared to $85.4 million at September 30, 2016. 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 three months ended December 31, 2016 and 2015 is as follows:

| | Three Months Ended December 31, 2016 | Three Months Ended December 31, 2015 |
|---|---|---|
| Cash Flow from Continuing Operations: | | |
| Operating Activities | $ 10,000,191 | $ (21,148,069) |
| Investing Activities | (5,296,653) | 2,593,388 |
| Financing Activities | 12,035,583 | (494,585) |
| Net Increase (Decrease) in Cash | 16,739,121 | (19,049,266) |
| Cash at Beginning of Period | 85,366,448 | 81,214,354 |
| Cash at End of Period | $ 102,105,569 | $ 62,165,088 |

During the three months ended December 31, 2016, the Company generated $10.0 million in cash from operating activities, primarily driven by the $30 million upfront payment received from Amgen. This was partially offset by cash used for on-going expenses of its research and development programs and corporate overhead. Cash used in investing activities was $5.3 million, which was primarily related to capital expenditures for leasehold improvements on the Company's Madison research facility and lab equipment purchases. Cash generated by financing activities of $12.0 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.

During the three months ended December 31, 2015, the Company used $21.1 million in cash for operating activities, which represents the on-going expenses of its research and development programs and corporate overhead. Cash provided by investing activities was $2.6 million, primarily related to maturities on fixed income securities of $3.0 million, partially offset by capital expenditures of $0.4 million. Cash used by financing activities of $0.5 million was driven 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, 2016, filed with the Securities and Exchange Commission on December 14, 2016.

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. We believe there is no litigation pending that, individually or in the aggregate, will have a material adverse effect on our results of operations or financial condition. The information contained in Note 6 to the Consolidated Financial Statements under the heading “Litigation” in Part I, Item 1 is incorporated herein by reference.

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, 2016. 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, 2016, 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 December 31, 2016, 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: February 6, 2017

ARROWHEAD
PHARMACEUTICALS, INC.

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