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 June 30, 2014

☐ **TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission file number 000-21898

ARROWHEAD RESEARCH CORPORATION

(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 August 11, 2014 was 52,908,567.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Arrowhead Research Corporation and Subsidiaries
Consolidated Balance Sheets

	(Unaudited) June 30, 2014	September 30, 2013
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 138,349,733	$ 19,114,444
Trade receivable	-	75,000
Prepaid expenses	700,063	532,354
Other current assets	538,742	91,660
Short term investments	23,834,408	9,030,261
TOTAL CURRENT ASSETS	163,422,946	28,843,719
Property and equipment, net	3,674,131	3,513,235
Patents and other intangible assets, net	3,199,523	3,240,513
Investments	26,284,862	1,702,153
Other assets	41,414	30,011
TOTAL ASSETS	**$ 196,622,876**	**$ 37,329,631**
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	$ 2,158,133	$ 1,199,632
Accrued expenses	1,068,667	638,884
Accrued payroll and benefits	611,092	905,771
Deferred revenue	71,875	103,125
Derivative liabilities	4,018,719	4,096,363
Capital lease obligation	213,110	221,345
Notes payable	50,000	971,557
Other current liabilities	58,500	588,343
TOTAL CURRENT LIABILITIES	8,250,096	8,725,020
LONG-TERM LIABILITIES		
Notes payable, net of current portion	-	50,000
Capital lease obligation, net of current portion	812,169	1,061,113
Other non-current liabilities	1,752,822	1,758,709
TOTAL LONG-TERM LIABILITIES	2,564,991	2,869,822
Commitments and contingencies		
STOCKHOLDERS' EQUITY		
Arrowhead Research Corporation stockholders' equity:		
Preferred stock, $0.001 par value; 5,000,000 shares authorized; 21,291 and 9,900 shares issued and outstanding as of June 30, 2014 and September 30, 2013, respectively	21	10
Common stock, $0.001 par value; 145,000,000 shares authorized; 52,908,567 and 32,489,444 shares issued and outstanding as of June 30, 2014 and September 30, 2013, respectively	145,278	124,859
Additional paid-in capital	388,558,305	193,514,766
Accumulated deficit	(202,340,717)	(166,140,969)
Total Arrowhead Research Corporation stockholders' equity	186,362,887	27,498,666
Non-controlling interest	(555,098)	(1,763,877)
TOTAL STOCKHOLDERS' EQUITY	185,807,789	25,734,789
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	**$ 196,622,876**	**$ 37,329,631**

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

Arrowhead Research Corporation and Subsidiaries
Consolidated Statements of Operations
(unaudited)

	Three Months ended June 30, 2014	Three Months ended June 30, 2013	Nine Months ended June 30, 2014	Nine Months ended June 30, 2013
REVENUE	**$ 43,750**	**$ 43,750**	**$ 131,250**	**$ 246,516**
OPERATING EXPENSES				
Salaries and payroll-related costs	2,454,449	1,651,729	7,634,142	5,006,328
General and administrative expenses	1,582,465	899,633	3,865,845	2,597,279
Research and development	6,392,200	1,756,527	14,719,739	5,458,212
Stock-based compensation	2,038,682	363,593	3,758,264	1,114,375
Depreciation and amortization	276,054	454,086	1,075,238	1,352,448
Impairment expense	-	1,308,047	-	1,308,047
TOTAL OPERATING EXPENSES	**12,743,850**	**6,433,615**	**31,053,228**	**16,836,689**
OPERATING LOSS	(12,700,100)	(6,389,865)	(30,921,978)	(16,590,173)
OTHER INCOME (EXPENSE)				
Equity in income (loss) of unconsolidated affiliates	78,702	(159,530)	(69,350)	(380,699)
Gain (loss) on sale of fixed assets, net	-	(39,949)	(58,878)	(76,388)
Interest income (expense), net	226,424	(48,252)	386,392	(68,403)
Change in value of derivatives	758,469	200,747	(5,712,335)	215,620
Other income (expense)	10,054	259,221	81,269	(997,976)
TOTAL OTHER INCOME (EXPENSE)	**1,073,649**	**212,237**	**(5,372,902)**	**(1,307,846)**
LOSS FROM CONTINUING OPERATIONS BEFORE INCOME TAXES	**(11,626,451)**	**(6,177,628)**	**(36,294,880)**	**(17,898,019)**
Provision for income taxes	-	-	-	-
LOSS FROM CONTINUING OPERATIONS	**(11,626,451)**	**(6,177,628)**	**(36,294,880)**	**(17,898,019)**
Income (loss) from discontinued operations	-	-	-	(354)
NET INCOME (LOSS) FROM DISCONTINUED OPERATIONS	-	-	-	**(354)**
NET LOSS	**(11,626,451)**	**(6,177,628)**	**(36,294,880)**	**(17,898,373)**
Net (gain) loss attributable to non-controlling interests	(2,468)	98,618	95,132	447,268
NET LOSS ATTRIBUTABLE TO ARROWHEAD	**$ (11,628,919)**	**$ (6,079,010)**	**$ (36,199,748)**	**$ (17,451,105)**
NET LOSS PER SHARE ATTRIBUTABLE TO ARROWHEAD SHAREHOLDERS - BASIC & DILUTED:	$ (0.22)	$ (0.23)	$ (0.81)	$ (0.92)
Weighted average shares outstanding - basic and diluted	51,931,989	26,134,183	44,565,008	18,893,197

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

Arrowhead Research Corporation and Subsidiaries
Consolidated Statement of Stockholders' Equity
(unaudited)

	Common Stock		Preferred Stock		Additional Paid-in Capital	Accumulated Deficit	Non-controlling interest	Totals
	Shares	Amount	Shares	Amount				
Balance at September 30, 2013	**32,489,444**	**$ 124,859**	**9,900**	**$ 10**	**193,514,766**	**$ (166,140,969)**	**$ (1,763,877)**	**$ 25,734,789**
Exercise of warrants	2,875,727	2,875	-	-	10,001,918	-	-	10,004,793
Exercise of stock options	377,112	377	-	-	2,368,885	-	-	2,369,262
Stock-based compensation	-	-	-	-	3,758,264	-	-	3,758,264
Common stock issued @ $5.86	3,071,672	3,072	-	-	14,057,040	-	-	14,060,112
Common stock issued @ $18.95	6,325,000	6,325	-	-	112,575,234	-	-	112,581,559
Preferred stock issued @ $1,000 per share	-	-	46,000	46	45,999,954	-	-	46,000,000
Common stock issued to Galloway	131,579	132	-	-	499,868	-	-	500,000
Settlements related to derivative liability	-	-	-	-	5,789,979	-	-	5,789,979
Preferred stock converted to common stock	7,638,033	7,638	(34,609)	(35)	(7,603)	-	-	-
Deconsolidation of Calando Pharmaceuticals, Inc.	-	-	-	-	-	-	1,303,911	1,303,911
Net loss for the nine months ended June 30, 2014	-	-	-	-	-	(36,199,748)	(95,132)	(36,294,880)
Balance at June 30, 2014	**52,908,567**	**$ 145,278**	**21,291**	**$ 21**	**$ 388,558,305**	**$ (202,340,717)**	**$ (555,098)**	**$ 185,807,789**

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

Arrowhead Research Corporation and Subsidiaries
Consolidated Statements of Cash Flows
(unaudited)

	Nine months ended June 30, 2014	Nine months ended June 30, 2013
CASH FLOWS FROM OPERATING ACTIVITIES OF CONTINUING OPERATIONS:		
Net loss	$ (36,294,880)	$ (17,898,373)
Net (income) loss attributable to non-controlling interests	95,132	447,268
Net income (loss) attributable to Arrowhead	(36,199,748)	(17,451,105)
(Income) loss from discontinued operations	-	354
(Gain) loss on disposal of fixed assets	58,878	76,388
Change in value of derivatives	5,712,335	(215,620)
Stock-based compensation	3,758,264	1,114,375
Depreciation and amortization	1,075,238	1,352,448
Amortization (accretion) of note discounts, net	416,292	82,341
Non-cash gain in equity investment	(87,197)	-
Non-cash impairment expense	-	2,315,721
Non-controlling interest	(95,132)	(447,268)
Changes in operating assets and liabilities:		
Receivables	75,000	9,375
Other receivables	(517,986)	1,080
Prepaid expenses	(127,248)	(441,373)
Other assets	(11,402)	(1,813)
Accounts payable	990,929	183,959
Accrued expenses	459,690	95,132
Other liabilities	(4,480)	(313,354)
NET CASH USED IN OPERATING ACTIVITIES OF CONTINUING OPERATIONS	(24,496,567)	(13,639,360)
CASH FLOWS FROM INVESTING ACTIVITIES OF CONTINUING OPERATIONS:		
Purchases of property and equipment	(1,251,987)	(191,656)
Proceeds from sale of fixed assets	-	89,505
Purchase of marketable securities	(46,365,528)	(4,058,003)
Proceeds from sale of marketable securities	6,590,824	1,160,181
NET CASH PROVIDED BY (USED IN) INVESTING ACTIVITIES OF CONTINUING OPERATIONS	(41,026,691)	(2,999,973)
CASH FLOWS FROM FINANCING ACTIVITIES OF CONTINUING OPERATIONS:		
Principal payments on capital leases	(257,178)	(160,495)
Proceeds from issuance of common stock and preferred stock, net	172,641,720	42,448,824
Proceeds from the exercise of warrants and stock options	12,374,005	-
NET CASH PROVIDED BY FINANCING ACTIVITIES OF CONTINUING OPERATIONS	184,758,547	42,288,329
Cash flows from discontinued operations:		
Operating cash flows	-	(354)
Investing cash flows	-	-
Financing cash flows	-	-
Net cash provided by (used in) discontinued operations:	-	(354)
NET INCREASE IN CASH	119,235,289	25,648,642
CASH AT BEGINNING OF PERIOD	19,114,444	3,377,288
CASH AT END OF PERIOD	$ 138,349,733	$ 29,025,930
Supplementary disclosures:		
Interest paid	$ 21,478	$ 32,139

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

SUPPLEMENTARY NON CASH TRANSACTIONS

On February 18, 2014, Arrowhead issued 131,579 shares of Common Stock valued at $500,000 to Galloway Limited, in settlement of a services agreement dated September 30, 2011.

On October 21, 2012, Arrowhead issued 239,894 shares of Common Stock to Roche in accordance with the terms of the Stock and Asset Purchase Agreement for Roche Madison Inc., to settle a liability of $986,049, which the Company had recorded upon the acquisition.

Unless otherwise noted: (1) the term "Arrowhead" refers to Arrowhead Research Corporation, a Delaware corporation, (2) the terms the "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. ("Madison"), Ablaris Therapeutics, Inc. ("Ablaris"), and Tego Biosciences Corporation ("Tego"), as well as our former subsidiaries, Alvos Therapeutics, Inc. ("Alvos") and Agonn Systems, Inc. ("Agonn"),which were merged into Arrowhead during 2013, and Calando Pharmaceuticals, Inc. ("Calando"), which was deconsolidated as of June 30, 2014, (4) the term "Minority Investments" refers collectively to Nanotope, Inc. ("Nanotope"), which was dissolved during 2013, and Leonardo Biosystems, Inc. ("Leonardo") in which the company holds a less than majority ownership position, (5) the term "Common Stock" refers to Arrowhead's Common Stock, (6) the term "Preferred Stock" refers to Arrowhead's Preferred Stock and the term "Stockholder(s)" refers to the holders of Arrowhead Common Stock.

NOTE 1. *ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES*

Nature of Business

Arrowhead Research Corporation is a biopharmaceutical company developing targeted RNAi therapeutics. The Company is leveraging its proprietary Dynamic Polyconjugate (DPC) delivery platform to develop targeted drugs based on the RNA interference mechanism that efficiently silences disease-causing genes. Arrowhead's pipeline includes ARC-520 for chronic hepatitis B virus, ARC-AAT for liver disease associated with Alpha-1 antitrypsin deficiency, and partner-based programs in obesity and oncology.

Liquidity

Historically, the Company's primary source of financing has been through the sale of equity securities. Research and development activities have required significant capital investment since the Company's inception and the Company expects its operations to continue to require cash investment in fiscal 2014 and beyond as the Company advances its research and development efforts, including clinical trials, and related drug manufacturing costs.

At June 30, 2014, the Company had $138.3 million in cash to fund operations. In addition to its cash resources, the Company has invested excess cash in investment grade commercial bonds maturing in less than 27 months. These bonds provide a source of liquidity, though the Company plans to hold them until maturity. At June 30, 2014, the Company had invested $50.1 million in bonds. During the nine months ended June 30, 2014, the Company's cash position increased by $119.2 million, which was the result of the receipt of cash from the issuance of equity of $172.6 million and cash from the exercise of warrants and options of $12.4 million, partially offset by net cash invested in fixed income investments of $39.8 million, cash outflows of $24.5 million related to continuing operating activities and capital expenditures of $1.3 million.

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 facilities are located. All significant intercompany accounts and transactions are eliminated in consolidation, and non-controlling interests are accounted for in the Company's financial statements.

Basis of Presentation—The accompanying unaudited consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP") for interim financial information and in accordance with the instructions to Form 10-Q and Article 8 of Regulation S-X. Accordingly, the financial statements do not include all of the information and notes required by GAAP for complete financial statements. In the opinion of management, all adjustments, including normal recurring accruals, considered necessary for a fair presentation have been included. Interim results are not necessarily indicative of results for a full year. The September 30, 2013 Consolidated Balance Sheet was derived from audited financial statements, but does not include all disclosures required by GAAP. This financial information should be read in conjunction with the consolidated financial statements and notes included in the Company's Annual Report on Form 10-K for the year ended September 30, 2013. Certain reclassifications have been made to prior period financial statements to conform to the current period presentation.

Use of Estimates—The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the accompanying financial statements. Actual results could differ from those estimates.

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 June 30, 2014 and September 30, 2013.

Concentration of Credit Risk—The Company maintains several checking accounts for its operations at two financial institutions. These accounts are insured by the Federal Deposit Insurance Corporation (FDIC) for up to $250,000 per account. 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 invests 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. At June 30, 2014, the Company classified all of its investments as held-to-maturity.

Held-to-maturity investments are measured and recorded at amortized cost on the Company's Consolidated Balance Sheet. Discounts and premiums to par value of the debt securities are amortized to interest income/expense over the term of the security. No gains or losses on investment securities are realized until they are sold or a decline in fair value is determined to be other-than-temporary. See further information regarding the Company's short and long term investments in Note 2 – Investments.

See further information regarding fair market value of marketable debt securities in Note 10 – Fair Value Measurements, such fair market data is obtained from independent pricing services.

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 included certain license agreements acquired through business combinations. 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.

In-Process Research & Development (IPR&D)—IPR&D assets represent capitalized on-going research projects that Arrowhead acquired through business combinations. Such assets are initially measured at their acquisition date fair values. The amounts capitalized are being accounted for as indefinite-lived intangible assets, subject to impairment testing until completion or abandonment of R&D efforts associated with the project. Upon successful completion of a project, Arrowhead will make a determination as to the then remaining useful life of the intangible asset and begin amortization. Arrowhead tests its indefinite-lived assets for impairment at least annually, through a two-step process. The first step is a qualitative assessment to determine if it is more likely than not that the indefinite lived assets are impaired. Arrowhead considers relevant events and circumstances that could affect the inputs used to determine the fair value of the intangible assets. If the qualitative assessment indicates that it is more likely than not that the intangible assets are impaired, a second step is performed which is a quantitative test to determine the fair value of the intangible asset. If the carrying amount of the intangible assets exceeds its fair value, an impairment loss is recorded in the amount of that excess. If circumstances determine that it is appropriate, the Company may also elect to bypass step one, and proceed directly to the second step.

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 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 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.

Minority Equity Investments—The Company had a minority equity investment in Leonardo, a privately held biotechnology company. Based on the status of the development of Leonardo's program, this investment has been fully impaired and the net book value at June 30, 2014 is $0. The operations of Leonardo ceased in December 2013.

Non-controlling Interests in Majority-Owned Subsidiaries—Operating losses applicable to majority-owned Calando, Ablaris and, prior to its disposal, Unidym have periodically exceeded the non-controlling interests in the equity capital of either Subsidiary. Such excess losses applicable to the non-controlling interests have been and are borne by the Company as there is no obligation of the non-controlling interests to fund any losses in excess of their original investment. There is also no obligation or commitment on the part of the Company to fund operating losses of any Subsidiary whether wholly-owned or majority-owned. The Company allocates the non-controlling interests' share of net loss in excess of the non-controlling interests' initial investment in accordance with FASB ASC 810-10.

When there is a change in the Company's proportionate ownership share of a development-stage Subsidiary resulting from additional equity transactions in the Subsidiary, the change is accounted for as an equity transaction in consolidation. To the extent that the increase in the calculated value of the Company's interest in the equity of the Subsidiary exceeds the Company's investment in the transaction, that increase in value is referred to as the Company's "increase in its proportionate share of the Subsidiary's equity" and the amount is recorded as an increase in the Company's Additional Paid-in Capital.

Revenue Recognition—Revenue from license fees are recorded when persuasive evidence of an arrangement exists, title has passed or services have been rendered, a price is fixed and determinable, and collection is reasonably assured. The Company may generate revenue from product sales, technology licenses, collaborative research and development arrangements, and research grants. Revenue under technology licenses and collaborative agreements typically consists of nonrefundable and/or guaranteed technology license fees, collaborative research funding and various milestone and future product royalty or profit-sharing payments.

Payments under collaborative research and development agreements are recognized ratably over the relevant periods specified in the agreement, generally the period during which research and development is conducted. Revenue from up-front license fees, milestones and product royalties are recognized as earned based on the completion of the milestones and product sales, as defined in the respective agreements. Payments received in advance of recognition as revenue are recorded as deferred revenue.

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.

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 issued to employees and consultants and warrants to purchase Common Stock of the Company.

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. The Company uses historical data and other information to estimate the expected price volatility and the expected forfeiture rate.

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 and no further adjustments to their valuation are made. Some of the Company's 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 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.

Recently Issued Accounting Standards

In June 2014, the FASB issued ASU 2014-10, *Development Stage Entities (Topic 915): Elimination of Certain Financial Reporting Requirements, Including an Amendment to Variable Interest Entities Guidance*, which eliminates the distinction and separate requirements for development stage entities and other reporting entities under U.S. GAAP. Specifically the amendment eliminates the requirement for development stage entities to 1) present inception-to-date information in the statements of income, cash flow and shareholders' equity, 2) label the financial statements as those of a development stage entity, 3) disclose a description of the development stage activities in which the entity is engaged and 4) disclose the first year in which the entity is no longer a development stage entity that in prior years it had been in the development stage. ASU 2014-10 is effective for fiscal years beginning after December 15, 2014 with early adoption permitted. The Company has adopted ASU 2014-10 effectively with the filing of this Form 10-Q.

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. The Company is evaluating the potential effects of the adoption of this update on its financial statements.

In July 2013, the FASB issued ASU 2013-11, *Income Taxes (Topic 740): Presentation of an Unrecognized Tax Benefit When a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exists*, which eliminates diversity in practice for the presentation of an unrecognized tax benefit when a net operating loss carryforward, a similar tax loss or a tax credit carryforward is available to reduce the taxable income or tax payable that would result from disallowance of a tax position. ASU 2013-11 affects only the presentation of such amounts in an entity's balance sheet and is effective for fiscal years beginning after December 15, 2013 and interim periods within those years. Early adoption is permitted. The Company is evaluating the impact, if any, of the adoption of ASU 2013-11 on its Consolidated Balance Sheet.

NOTE 2. ***INVESTMENTS***

The Company invests its excess cash balances in short-term and long-term debt securities. Investments at June 30, 2014 consisted of corporate bonds with maturities remaining of less than three years at the time of purchase. The Company may also invest excess cash balances in certificates of deposit, money market accounts, US Treasuries, US government agency obligations, corporate debt securities, and/or commercial paper. The Company accounts for its investments in accordance with FASB ASC 320, Investments – Debt and Equity Securities. At June 30, 2014, all investments were classified as held-to-maturity securities.

The following tables summarize the Company's short and long-term investments as of June 30, 2014, and September 30, 2013.

	As of June 30, 2014			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial notes (due within one year)	$ 23,834,408	$ 1,850	$ (237,181)	$ 23,599,077
Commercial notes (due after one year within three years)	26,284,862	3,899	(152,222)	26,136,599
Total	$ 50,119,270	$ 5,749	$ (389,403)	$ 49,735,616

	As of September 30, 2013			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial notes (due within one year)	$ 9,030,261	$ 7,500	$ (39,281)	$ 8,998,480
Commercial notes (due after one year within three years)	1,702,153	—	(2,362)	1,699,791
Total	$ 10,732,414	$ 7,500	$ (41,643)	$ 10,698,271

NOTE 3. ***FIXED ASSETS***

Property, equipment and other fixed assets 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.

	Balance as of	
	June 30, 2014	September 30, 2013
Computers, office equipment and furniture	$ 334,162	$ 323,376
Research equipment	4,248,606	3,452,013
Software	69,623	69,623
Leasehold improvements	2,955,217	2,749,409
Total gross fixed assets	7,607,608	6,594,421
Less: Accumulated depreciation and amortization	(3,933,477)	(3,081,186)
Property and equipment, net	$ 3,674,131	$ 3,513,235

NOTE 4. ***ACQUISITIONS***

Roche Madison

On October 21, 2011, the Company entered into a Stock and Asset Purchase Agreement (the "RNAi Purchase Agreement") with Hoffmann-La Roche Inc. and F Hoffmann-La Roche Ltd (collectively, "Roche"), pursuant to which the Company purchased from Roche (i) all of the outstanding common stock of Roche Madison Inc. ("Roche Madison", now "Arrowhead Madison") and (ii) the intellectual property rights then held by Roche related to its RNAi business and identified in the RNAi Purchase Agreement (the "Transaction"). In consideration for the purchase of Roche Madison and the Roche RNAi assets, the Company issued to Roche a promissory note with a principal value of $50,000 and 1,288,158 shares of Common Stock.

Pursuant to the RNAi Purchase Agreement, Roche has a right of first negotiation on certain product candidates developed by the Company and its affiliates relating to the purchased assets. If the Company proposes to out-license or enters into substantive negotiations to out-license, any Clinical Candidate or Existing Candidate (as such terms are defined in the RNAi Purchase Agreement), the Company must give notice of the Candidate it proposes to out-license and negotiate exclusively and in good faith with Roche for 90 days regarding the applicable out-license. This right of first negotiation applies to all Existing Candidates (as defined in the RNAi Purchase Agreement) and the first five Clinical Candidates for which the Company delivers notice to Roche and subsequently enters into an out-license.

In addition to the consideration paid by the Company as per the closing terms, the Company is obligated to make certain royalty and milestone payments to Roche upon the occurrence of certain events. For certain product candidates that are developed by the Company that are covered by a valid claim by the patent rights transferred in the Transaction for which the Company and Roche do not enter into a licensing arrangement, the Company will be obligated to pay a 3% royalty on Net Sales (as defined in the RNAi Purchase Agreement), provided that the royalty rate may be reduced or offset in certain circumstances. The obligation to pay royalties on such candidates will last until the later of (i) the expiration of the last to expire patent right related to such product candidate that was transferred in the Transaction and (ii) ten years after the first commercial sale of such product candidate.

The Company will also be obligated to make cash payments to Roche upon the achievement of various milestones for certain clinical candidates, for which the Company and Roche do not enter into a licensing arrangement, including the first regulatory approval in certain jurisdictions, and upon certain annual sales milestones for candidates that receive regulatory approval. The potential payments range from $2,500,000 to $6,000,000 per milestone. At the time of acquisition, the Company's estimate of future payments for potential royalties and milestones had a net present value of $84,935 which was recorded as contingent consideration as a part of other non-current liabilities. Contingent consideration is calculated by modeling research and development activities for clinical candidates, forecasting timelines to market, and using "peak sales" estimate modeling, cash flows and potential milestone and royalty payments are calculated. The modeling assumes certain success rates, and discount factors related to riskiness of projects and the time value of money to calculate a net present value of future consideration payments to Roche. These estimates are based on many unknown variables that are difficult to estimate, and due to the extended process of drug development prior to marketing of drug candidates, the models must extend many years into the future. Such predictions are inherently uncertain. On a quarterly basis, the Company re-evaluates its contingent consideration, and if material, makes adjustments to the recorded liability. Any adjustment to the contingent consideration liability is reflected in the Company's Statement of Operations. During fiscal 2013, the contingent consideration liability was increased by $1.4 million, which is recorded as a part of other non-current liabilities on the Company's Consolidated Balance Sheet. There have been no changes to the liability during the nine months ended June 30, 2014. For additional information related to our valuation of this obligation, see *Note 10, Fair Value Measurements*.

NOTE 5. ***INTANGIBLE ASSETS***

Intangible assets consist of in-process research and development ("IPR&D") not subject to amortization, and other intangible assets subject to amortization, which were capitalized as a part of a business combination.

IPR&D represents projects that have not yet received regulatory approval and are required to be classified as indefinite assets until the successful completion or the abandonment of the associated R&D efforts. Accordingly, during the development period after the date of acquisition, these assets will not be amortized until approval is obtained in one or more jurisdictions which, individually or combined, are expected to generate a significant portion of the total revenue expected to be earned by an IPR&D project. At that time, we will determine the useful life of the asset, reclassify the asset out of IPR&D and begin amortization. If the associated R&D effort is abandoned the related IPR&D assets will likely be written off and we would record an impairment loss.

Intangible assets subject to amortization include patents capitalized as part of a business combination as well as license agreements capitalized as part of a business combination from the acquisition of Roche Madison. The license agreements are being amortized over the estimated life remaining at the time of acquisition which was 4 years, and the accumulated amortization of the assets is approximately $147,800. Patents have been amortized over a period of three years to twenty years, however the patent assets were fully impaired as of September 30, 2013. Amortization expense for the three and nine months ended June 30, 2014 was approximately $13,663 and $40,990, respectively. Amortization expense for the three and nine months ended June 30, 2013 was approximately $74,115 and $222,345, respectively. Amortization of license agreements is expected to be approximately $14,000 for the remainder of fiscal year 2014, $55,000 in 2015, $14,000 in 2016, and zero thereafter.

We review amounts capitalized as IPR&D for impairment at least annually in the fourth quarter, and whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. In the event the carrying value of the assets is not expected to be recovered, the assets are written down to their estimated fair values. We continue to test our indefinite-lived IPR&D assets for potential impairment until the projects are completed or abandoned.

The following table provides details on our intangible asset balances:

	Intangible assets not subject to amortization	Intangible assets subject to amortization	Total Intangible assets
Balance at September 30, 2012	$ 3,117,322	$ 1,667,247	$ 4,784,569
Impairment	-	(1,308,047)	(1,308,047)
Amortization	-	(236,009)	(236,009)
Balance at September 30, 2013	$ 3,117,322	$ 123,191	$ 3,240,513
Amortization	-	(40,990)	(40,990)
Balance at June 30, 2014	$ 3,117,322	$ 82,201	$ 3,199,523

NOTE 6. ***INVESTMENT IN SUBSIDIARIES***

In addition to 100% ownership interest in Arrowhead Madison Inc., Arrowhead also maintains majority ownership in Calando Pharmaceuticals, Ablaris Therapeutics, Inc., and a minority investment in Leonardo Biosystems, Inc.

Calando Pharmaceuticals, Inc.

Calando is a developer of polymer delivery systems for siRNA and small molecule based therapeutics. Calando's current cash resources preclude additional development of its platform technology and therapeutic candidates. Arrowhead has determined that it will not provide substantial further investment to Calando based on Arrowhead evaluation of Calando's development and business prospects and Calando has been unsuccessful in its efforts to obtain capital from other sources. Calando has ceased operations and terminated its technology license with the California Institute of Technology on which its siRNA therapeutic development efforts were based. Further, pursuant to an involuntary petition by an unpaid Noteholder, Calando is undergoing Chapter 7 bankruptcy proceedings.

In 2009, Calando outlicensed its small molecule program to Cerulean Pharma, Inc., a Boston, MA-based biotech company which has continued the development of the program. Under the license, as the development program progresses, Calando could collect partnership, milestone and royalty payments from Cerulean.

Calando has an outstanding promissory note with a balance of principal and interest totaling $1,253,000 as of June 30, 2014. The promissory note became due on November 26, 2013, but was not repaid due to lack of cash resources at Calando. The holder of the Note initiated an involuntary petition of bankruptcy against Calando. A trustee has been appointed and a meeting of Calando creditors has occurred. It is expected that the trustee will dispose of Calando assets, primarily its license agreement with Cerulean. The Company cannot estimate the proceeds from the disposition of Calando's assets, nor how it will be distributed amongst its various creditors, which includes Arrowhead and the holder of the Note. During the nine months ended June 30, 2014, Arrowhead deconsolidated Calando based on the fact that Calando is now subject to the control of the bankruptcy trustee. The deconsolidation of Calando resulted in an approximately $87,000 gain to the Company's Consolidated Statement of Operations.

As of June 30, 2014, Calando owed to Arrowhead $4.5 million under a series of 8% simple interest notes and advances. It is unlikely these notes will be repaid in full. The balance of the notes and advances has been fully reserved.

As of June 30, 2014, Arrowhead owned 79% of the outstanding shares of Calando and 76% on a fully diluted basis. As a result of the ongoing bankruptcy proceeding for Calando, we do not expect our equity ownership to result in any return of capital as part of the liquidation of Calando.

Ablaris Therapeutics, Inc.

Ablaris was formed and began operations in fiscal 2011, based on the license of certain anti-obesity technology developed at the MD Anderson Cancer Center at the University of Texas. During fiscal 2011, Ablaris raised $2.9 million in cash, of which $1.3 million was invested by Arrowhead and $1.6 million was invested by outside investors, through the issuance of Ablaris Series A Preferred stock.

As of June 30, 2014, Arrowhead owned 64% of the outstanding shares of Ablaris and 64% on a fully diluted basis.

Leonardo Biosystems, Inc.

Leonardo, a privately-held drug-delivery company in which Arrowhead has a 3% ownership interest, ceased operations in December 2013. Arrowhead's investment in Leonardo and its receivable from Leonardo have been fully reserved.

NOTE 7. ***STOCKHOLDERS' EQUITY***

At June 30, 2014, 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, and 5,000,000 shares of Preferred Stock, par value $0.001.

At June 30, 2014, 52,908,567 shares of Common Stock were outstanding. Additionally, 21,291 shares of Preferred Stock were outstanding, including 5,291 shares of Series B Preferred Stock, convertible into 2,891,257 shares of Common Stock, and 16,000 shares of Series C Preferred Stock, convertible into 2,730,375 shares of Common Stock, (collectively, the "Outstanding Preferred Stock"). At June 30, 2014, 7,182,925 shares were reserved for issuance upon vesting of restricted stock units and exercise of stock options granted under Arrowhead's 2000 Stock Option Plan, 2004 Equity Incentive Plan, and 2013 Incentive Plan, as well as for inducement grants made to new employees.

The Outstanding Preferred Stock is convertible to Common Stock by each holder at its stated conversion price, subject to a 9.99% beneficial ownership limit for each holder. The holders of Outstanding Preferred Stock are eligible to vote with the Common Stock of the Company on an as-converted basis, but only to the extent they are eligible for conversion without exceeding the 9.99% ownership limitation. The Outstanding Preferred Stock does not carry a coupon, but is entitled to receive dividends on a pari passu basis with the Common Stock, when and if declared. In any liquidation or dissolution of the Company, the holders of Outstanding Preferred Stock are entitled to participate in the distribution of the assets, to the extent legally available for distribution, on a pari passu basis with the Common Stock.

On October 20, 2011, the Company and Lincoln Park Capital Fund, LLC, an Illinois limited liability company ("LPC") entered into a $15 million purchase agreement (the "Purchase Agreement"), whereby LPC agreed to purchase up to $15 million of Common Stock, subject to certain limitations, from time to time during the three-year term of the Purchase Agreement. The Company has the right, in its sole discretion, over a 36-month period to sell up to $15 million of Common Stock (subject to certain limitations) to LPC, depending on certain conditions as set forth in the Purchase Agreement. As of June 30, 2014, the Company had drawn $1 million from the facility.

On October 11, 2013, the Company sold 3,071,672 shares of common stock, at a price of $5.86 per share, and 46,000 shares of Series C Convertible Preferred Stock (the "Preferred Shares"), at a price of $1,000 per share. The Preferred Shares are convertible into shares of common stock at a conversion price of $5.86. The aggregate purchase price paid by the Purchasers for the Shares and Preferred Shares was $64,000,000 and the Company received net proceeds of approximately $60,000,000, after advisory fees and offering expenses.

On February 24, 2014, the Company sold 6,325,000 shares of common stock, at a public offering price of $18.95 per share. Net proceeds were approximately $112.6 million after underwriting commissions and discounts and other offering expense.

The following table summarizes information about warrants outstanding at June 30, 2014:

Exercise prices	Number of Warrants	Remaining Life in Years
$ 70.60	94,897	2.9
$ 5.00	416,225	1.2
$ 5.09	291,204	0.4
$ 1.38	24,324	1.5
$ 4.16	1,000	2.5
$ 3.25	334,347	2.1
$ 2.12	75,000	3.5
$ 1.83	289,784	3.5
Total warrants outstanding	1,526,781	

NOTE 8. ***LEASES***

The Company leases office space for its corporate headquarters in Pasadena, California. In March 2014, the Company signed a lease addendum to expand its corporate headquarters. It is expected the new space will be available in September 2014. The leases for the expansion space and the current space will expire in August 2019. Rental costs, including the expansion space are approximately $22,000 per month, increasing approximately 3% annually.

The Company's research facility in Madison, Wisconsin is leased through February 28, 2019. Monthly rental expense is approximately $25,000. Other monthly rental expenses include common area maintenance and real estate taxes totaling approximately $16,000 per month. Utilities costs are approximately $15,000 per month. Including monthly payments recorded under a capital lease of approximately $19,000, total monthly costs are approximately $75,000 per month.

Facility and equipment rent expense, related to continuing operations, for the three and nine months ended June 30, 2014 was $138,000 and $403,000, respectively. Facility and equipment rent expense, related to continuing operations, for the three and nine months ended June 30, 2013 was $126,000 and $407,000, respectively.

As of June 30, 2014, future minimum lease payments due in fiscal years under capitalized leases are as follows:

2014 (remainder of)	$	57,105
2015		228,420
2016		228,420
2017		228,420
2018		228,420
2019 and thereafter		95,175
Less interest		(40,681)
Principal		1,025,279
Less current portion		(213,110)
Noncurrent portion	$	812,169

As of June 30, 2014, future minimum lease payments due in fiscal years under operating leases are as follows:

2014 (remainder of)	$	134,164
2015		580,626
2016		597,196
2017		613,984
2018		638,217
2019 and thereafter		432,861
Total	$	2,997,048

NOTE 9. ***STOCK-BASED COMPENSATION***

Arrowhead has three plans that provide for equity-based compensation. Under the 2000 Stock Option Plan, 38,000 shares of Arrowhead's Common Stock are reserved for issuance upon exercise of non-qualified stock options. No further grants can be made under the 2000 Stock Option Plan. The 2004 Equity Incentive Plan reserves 2,734,840 shares for the grant of stock options, stock appreciation rights, restricted stock awards and performance unit/share awards to employees, consultants and others. The 2013 Incentive Plan reserves 4,000,000 shares for the grant of stock options, stock appreciation rights, restricted stock awards and performance awards to employees, consultant and others. As of June 30, 2014, there were options granted and outstanding to purchase 38,000, 2,638,652 and 736,875 shares of Common Stock under the 2000 Stock Option Plan, the 2004 Equity Incentive Plan and the 2013 Incentive Plan, respectively. Also, as of June 30, 2014, there were 410,085 shares reserved for options issued outside of equity compensation plans as inducement grants to new employees. During the nine months ended June 30, 2014, no options were granted under the 2004 Equity Incentive Plan, 765,000 were issued under the 2013 Incentive Plan and 165,000 options were granted outside of equity incentive plans as inducement stock options to new employees.

The following tables summarize 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, 2012	1,910,794	$ 6.10		
Granted	1,509,166	$ 2.03		
Cancelled	—	$ —		
Exercised	(675)	$ 3.93		
Balance At September 30, 2013	3,419,285	$ 4.68		
Granted	930,000	$ 14.05		
Cancelled	(148,561)	$ 5.88		
Exercised	(377,112)	$ 6.28		
Balance At June 30, 2014	3,823,612	$ 6.75	8.3 years	$ 30,271,011
Exercisable At June 30, 2014	1,532,180	$ 5.80	7.3 years	$ 13,666,712

Stock-based compensation expense for the three and nine months ended June 30, 2014 was $1,070,631 and $2,186,653, respectively. Stock-based compensation expense for the three and nine months ended June 30, 2013 was $363,593 and $1,114,375, respectively. There is no income tax benefit as the Company is currently operating at a loss and an actual income tax benefit may not be realized. The loss creates a timing difference, resulting in a deferred tax asset, which is fully reserved by a valuation allowance.

The aggregate grant date fair value of the options granted by the Company during the three and nine months ended June 30, 2014 is estimated at $1,176,000 and $8,295,600, respectively. The aggregate grant date fair value of the options granted by the Company during the three and nine months ended June 30, 2013 is estimated at $1,094,295 and $1,197,588, respectively.

The intrinsic value of the options exercised during the three and nine months ended June 30, 2014 was $371,334 and $3,606,061, respectively. No options were exercised during the three and nine months ended June 30, 2013.

As of June 30, 2014, the pre-tax compensation expense for all unvested stock options in the amount of approximately $10,514,619 will be recognized in the Company's results of operations over a weighted average period of 3.2 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:

	Nine months ended June 30,	
	2014	2013
Dividend yield	—	—
Risk-free interest rate	1.8% to 2.5%	0.7% to 1.3%
Volatility	69%	69%
Expected life (in years)	6.25 to 9.72	5.5 to 6.25
Weighted average grant date fair value per share of options granted	$8.92	$1.26

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

The risk-free interest rate is based on 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) are granted under the Company's 2013 Incentive Plan. During the nine months ended June 30, 2014, the Company issued 470,000 restricted stock units to certain members of management and certain members of its Board of Directors. At vesting each RSU will be exchanged for one share of the Company's Common Stock. The RSUs issued to management vest in equal installments on the one and two year anniversary of the date of grant. The RSUs issued to the members of the Board of Directors vest upon the one year anniversary of the date of grant.

The following table summarizes the activity of the Company's Restricted Stock Units:

	Number of RSUs	Weighted-Average Grant Date Fair Value
Unvested at September 30, 2013	-	$ -
Granted	470,000	14.54
Vested	-	-
Forfeited	-	-
Unvested at June 30, 2014	470,000	$ 14.54

The Company recorded $968,051 and $1,571,611 of expense relating to restricted stock units during the three and nine months ended June 30, 2014 respectively, and such expense is included in stock-based compensation expense. There was no expense relating to restricted stock units during the three and nine months ended June 30, 2013.

As of June 30, 2014, the pre-tax compensation expense for all unvested restricted stock units in the amount of approximately $5,291,302 will be recognized in the Company's results of operations over a weighted average period of 1.5 years.

NOTE 10. ***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 June 30, 2014 and September 30, 2013 for assets and liabilities measured at fair value on a recurring basis:

June 30, 2014:

	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	$ 138,349,733	$ —	$ —	$ 138,349,733
Derivative assets	$ —	$ —	$ —	$ —
Derivative liabilities	$ —	$ —	$ 4,018,719	$ 4,018,719
Contingent consideration obligations related to acquisitions	$ —	$ —	$ 1,595,273	$ 1,595,273

September 30, 2013:

	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	$ 19,114,444	$ —	$ —	$ 19,114,444
Derivative assets	$ —	$ —	$ —	$ —
Derivative liabilities	$ —	$ —	$ 4,096,363	$ 4,096,363
Contingent consideration obligations related to acquisitions	$ —	$ —	$ 1,595,273	$ 1,595,273

The Company invests its excess cash balances in short and long-term corporate bonds, generally with remaining maturities of less than two years. At June 30, 2014, the Company had short-term investments of $23,834,408, and long-term investments of $26,284,862, for a total of $50,119,270. The fair value of its investment at June 30, 2014 was $49,735,616. The Company expects to hold such investments until maturity, and thus unrealized gains and losses from the fluctuations in the fair value of the securities are not likely to be realized.

As part of the proceeds from the sale of Unidym in January 2011, Arrowhead received a bond from Wisepower in the face amount of $2.5 million. The bond is convertible to Wisepower common stock at a price of $2.00 per share. The conversion feature is subject to derivative accounting as prescribed under ASC 815. Accordingly, the fair value of the conversion feature on the date of issuance was estimated using an option pricing model and recorded on the Company's Consolidated Balance Sheet as a derivative asset. The fair value of the conversion feature is estimated at the end of each reporting period and the change in the fair value of the conversion feature is recorded as a non-operating gain/loss as change in value of derivatives in Company's Consolidated Statement of Operations. During the quarter ended March 31, 2013, the trading of Wisepower stock was halted. Trading resumed in July 2013, but the trading price is significantly below the conversion price. During fiscal 2013, the Company determined that the probability of realizing value from the conversion feature was remote, and the derivative asset value was reduced to zero.

During the nine months ended June 30, 2014, there was no change in the fair value of the derivative asset.

The assumptions used in valuing the derivative asset were not applicable as the value has been determined to be zero at June 30, 2014 and September 30, 2013.

The following is a reconciliation of the derivative asset:

Value at September 30, 2012	$ 250,250
Receipt of instruments	—
Decrease in value	(250,250)
Net settlements	—
Value at September 30, 2013	$ —
Receipt of instruments	—
Decrease in value	—
Net settlements	—
Value at June 30, 2014	$ —

As part of an equity financing in June 2010, Arrowhead issued warrants to acquire up to 329,649 shares of Common Stock (the "2010 Warrants"), of which 24,324 warrants were outstanding at June 30, 2014. Similarly, as part of a financing in December 2012, Arrowhead issued warrants to acquire up to 912,543 shares of Common Stock (the "2012 Warrants") of which 265,161 warrants were outstanding at June 30, 2014. Further, as part of a financing in January 2013, Arrowhead issued warrants to acquire up to 833,530 shares of Common Stock (the "2013 Warrants") of which 24,623 warrants were outstanding at June 30, 2014. Each of the warrants discussed above 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 2010 Warrants, the 2012 Warrants, and the 2013 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. During the nine months ended June 30, 2014, the Company recorded a non-cash loss from the change in fair value of the derivative liability of $5,680,544.

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

2010 Warrants	June 30, 2014	September 30, 2013
Risk free interest rate	0.11%	0.33%
Expected life	1.5 Years	2.2 Years
Dividend yield	None	None
Volatility	69%	69%
2012 Warrants	June 30, 2014	September 30, 2013
Risk free interest rate	0.88%	1.39%
Expected life	3.5 Years	4.2 Years
Dividend yield	None	None
Volatility	69%	69%
2013 Warrants	June 30, 2014	September 30, 2013
Risk free interest rate	0.88%	1.39%
Expected life	3.6 Years	4.3 Years
Dividend yield	None	None
Volatility	69%	69%

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

Value at September 30, 2012	$	626,195
Issuance of instruments		2,153,819
Change in value		5,066,591
Net settlements		(3,754,808)
Value at September 30, 2013	$	4,091,797
Issuance of instruments		—
Change in value		5,680,544
Net settlements		(5,789,982)
Value at June 30, 2014	$	3,982,359

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 based upon a predefined ratio. The exchange rights have a seven-year term. During the first year, the exchange right allows the holder to exchange one Ablaris share for 0.06 Arrowhead shares (as adjusted for a subsequent reverse stock split). This ratio declines to 0.04 in the second year, 0.03 in the third year and 0.02 in the fourth year. In the fifth year and beyond the exchange ratio is 0.01. Exchange rights for 675,000 Ablaris shares were sold in fiscal 2011, and remain outstanding at June 30, 2014. 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 as change in value of derivatives in the Company's Consolidated Statement of Operations. During the nine months ended June 30, 2014, the Company recorded a non-cash loss from the change in fair value of the derivative liability of $31,791.

	June 30, 2014	**September 30, 2013**
Risk free interest rate	0.88%	1.39%
Expected life	3.5 Years	4.3 Years
Dividend yield	None	None
Volatility	69%	69%

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

Value at September 30, 2012	$	10,375
Issuance of instruments		—
Change in value		(5,806)
Net settlements		—
Value at September 30, 2013	$	4,569
Issuance of instruments		—
Change in value		31,791
Net settlements		—
Value at June 30, 2014	$	36,360

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.

During fiscal 2012, contingent consideration was recorded upon the acquisitions of Roche Madison Inc. and Alvos Therapeutics, Inc., totaling $173,621. The fair value measurement of the contingent consideration obligations is determined using Level 3 inputs. The fair value of contingent consideration obligations is based on a discounted cash flow model using a probability-weighted income approach. The measurement is based upon unobservable inputs supported by little or no market activity based on the Company's own assumptions and experience. Estimating timing to complete the development, and obtain approval of products is difficult, and there are inherent uncertainties in developing a product candidate, such as obtaining U.S. Food and Drug Administration (FDA) and other regulatory approvals. In determining the probability of regulatory approval and commercial success, we utilize data regarding similar milestone events from several sources, including industry studies and the Company's experience. These fair value measurements represent Level 3 measurements as they 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 we record in any given period. Changes in the fair value of the contingent consideration obligations are recorded as operating expenses as contingent consideration – fair value adjustments in the Company's Consolidated Statement of Operations.

The following is a reconciliation of contingent consideration fair value.

Value at September 30, 2012	$	173,621
Purchase price contingent consideration		—
Contingent consideration payments		—
Change in fair value of contingent consideration		1,421,652
Value at September 30, 2013	$	1,595,273
Purchase price contingent consideration		—
Contingent consideration payments		—
Change in fair value of contingent consideration		—
Value at June 30, 2014	$	1,595,273

The fair value of contingent consideration obligations is estimated 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 estimated fair value at the balance sheet date. 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. Each of these assumptions can have a significant impact on the calculation of contingent consideration.

The carrying amounts of the Company's other financial instruments, which include accounts receivable, accounts payable, and accrued expenses approximate their respective fair values due to the relatively short-term nature of these instruments. The carrying value of the Company's debt obligations approximates fair value based on market interest rates.

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 this report 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 our most recent Annual Report on Form 10-K. 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 Research Corporation is a biopharmaceutical company developing targeted RNAi therapeutics. The Company is leveraging its proprietary Dynamic Polyconjugate (DPC) delivery platform to develop targeted drugs based on the RNA interference mechanism that efficiently silences disease-causing genes. Arrowhead's pipeline includes ARC-520 for chronic hepatitis B virus, ARC-AAT for liver disease associated with Alpha-1 antitrypsin deficiency, and partner-based programs in obesity and oncology.

Arrowhead is leveraging its in-house R&D expertise and capabilities, as well as a broad intellectual property portfolio for RNAi therapeutics, and RNAi and peptide delivery vehicles and targeting methods to seek development partnerships with other pharmaceutical and biotech companies committed to bringing RNAi therapeutics to market, as well as continuing the preclinical and clinical development of its own clinical candidates.

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.

Liquidity and Capital Resources

Arrowhead has historically financed its operations primarily through the sale of Arrowhead securities. Research and development activities have required significant capital investment and are expected to continue to require significant cash investment for the foreseeable future, particularly as clinical trials progress with ARC-520, the Company's candidate for the treatment of hepatitis B (HBV), and as the Company expands its existing candidate pipeline.

At June 30, 2014, the Company had $188.5 million in cash and liquid investments to fund operations. During the nine months ended June 30, 2014, the Company's cash position increased significantly primarily due proceeds from the sale of equity securities.

During the nine months ended June 30, 2014, cash used in operating activities was $24.5 million, which represents the on-going expenses for research and development activities, business development, and general and administrative expenses.

Cash used in investing activities during the nine months ended June 30, 2014 was $41.0 million, of which $39.8 million related to net investments in marketable fixed income securities. Capital expenditures were $1.3 million.

Cash provided by financing activities in the nine months ended June 30, 2014 was $184.8 million. The Company completed equity financings in October 2013 and in February 2014 with net proceeds of $172.6 million. Additionally, financing activities included cash inflow from the exercise of warrants and options of $12.4 million. Principal payments on capital leases were $0.3 million.

Recent Financing Activity / Sources of Capital

On February 24, 2014, the Company sold 6,325,000 shares of common stock, at a public offering price of $18.95 per share. Net proceeds were approximately $112.6 million after underwriting commissions and discounts and other offering expenses.

On October 11, 2013, the Company sold 3,071,672 shares of Common Stock, at a price of $5.86 per share, and 46,000 shares of Series C Convertible Preferred Stock (the "Preferred Shares"), at a price of $1,000 per share. The Preferred Shares are convertible into shares of Common Stock at a conversion price of $5.86 per share. The aggregate purchase price paid by the Purchasers for the Common Stock and Preferred Shares was $64,000,000 and the Company received net proceeds of approximately $60,000,000, after advisory fees and offering expenses.

Based upon the Company's current cash resources and operating plan, the Company expects to have sufficient liquidity to fund operations for the next twelve months, and beyond.

Critical Accounting Policies and Estimates

Management makes certain judgments and uses certain estimates and assumptions when applying accounting principles generally accepted in the United States 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 are important to the portrayal of our Consolidated Financial Statements and 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 and new accounting standards.

Revenue Recognition

Revenue from product sales are 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.

We 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 non-refundable and/or guaranteed technology license fees, collaborative research funding, and various milestone and future product royalty or profit-sharing payments.

Revenue associated with payments under collaborative agreements for research and development is recognized ratably over the relevant periods specified in the agreement, generally the period during which research and development is conducted. Revenue from up-front license fees, milestones and product royalties are recognized as earned based on the completion of the milestones and product sales, as defined in the respective agreements. Payments received in advance of recognition as revenue are recorded as deferred revenue.

Business Combinations

In October 2011, we acquired all of the outstanding common stock of Roche Madison, Inc. and certain related intellectual property assets for a $50,000 promissory note and 1,288,158 shares of Arrowhead Common Stock, an estimated consideration value of $5.1 million on the date of the acquisition. We assigned the value of the consideration to the tangible assets and identifiable intangible assets and the liabilities assumed on the basis of their fair values on the date of acquisition. The excess of net assets over the consideration was recorded as a non-operating gain.

In April 2012, we acquired all of the outstanding common stock of Alvos Therapeutics, Inc. in exchange for the issuance of 315,457 shares of Arrowhead Common Stock, valued at $2.0 million at the time of acquisition. The consideration was assigned to its tangible and intangible assets, and liabilities based on estimated fair values at the time of acquisition.

The allocation of value to certain items, including property and equipment, intangible assets and certain liabilities require management judgment, and is based upon the information available at the time of acquisition.

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 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, patents and license agreements acquired in conjunction with a business 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 ASC 350, 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 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, and the expected life of the award. 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.

Overview of recent research and development activity

In July 2013, the Company began a Phase 1 clinical trial in Australia in healthy volunteers to characterize the safety profile of ARC-520, its candidate for the treatment of hepatitis B (HBV). No dose-limiting toxicities and no serious adverse events have been noted to date. This trial completed anticipated enrollment in October 2013. The Company began a Phase 2a pilot efficacy study in Hong Kong for chronically infected HBV patients in March 2014. The study is ongoing. In June 2014, the Company announced its next clinical candidate, ARC-AAT, an RNAi therapeutic designed to treat liver disease associated with Alpha-1 antitrypsin deficiency (AATD). The Company continues to develop other clinical candidates for future clinical trials, focusing on intravenously-administered therapeutics targeting gene knockdown in the liver, as well as formulations for administering siRNA-based therapeutics by subcutaneous administration.

Results of Operations

The Company had a consolidated loss attributable to Arrowhead of $11,628,919 and $36,199,748 for the three and nine months ended June 30, 2014, respectively, compared to a consolidated loss attributable to Arrowhead of $6,079,010 and $17,451,105 for the three and nine months ended June 30, 2013, respectively. Details of the results of operations are presented below.

Revenue

The Company recorded revenue of $43,750 and $131,250 during the three and nine months ended June 30, 2014, respectively, compared to $43,750 and $246,516 during the three and nine months ended June 30, 2013, respectively. The revenue in fiscal 2014 was related to three license agreements for a research method acquired through the acquisition of Roche Madison, Inc. The revenue in fiscal 2013 also included $115,266 in non-recurring services revenue.

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. The following tables provide details of operating expenses for the three and nine months ended June 30, 2014 and 2013.

Salaries – Three and Nine months ended June 30, 2014 compared to the three and nine months ended June 30, 2013

The Company employs management, administrative, and scientific and technical staff at its corporate offices and its research facility. Salaries expense consists of salary and related benefits. Salary and benefits include two major categories: general and administrative compensation expense, and research and development compensation expense, depending on the primary activities of each employee. The following table provides detail of salary and wage expenses for the three and nine months ended June 30, 2014 as compared to the three and nine months ended June 30, 2013.

(in thousands, except percentages)

	Three months Ended June 30, 2014	% of Expense Category	Three months Ended June 30, 2013	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
G&A - compensation-related	$ 692	28%	$ 638	39%	$ 54	8%
R&D - compensation-related	1,762	72%	1,014	61%	748	74%
Total	$ 2,454	100%	$ 1,652	100%	$ 802	49%

	Nine months Ended June 30, 2014	% of Expense Category	Nine months Ended June 30, 2013	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
G&A - compensation-related	$ 3,067	40%	$ 1,875	37%	$ 1,192	64%
R&D - compensation-related	4,567	60%	3,131	63%	1,436	46%
Total	$ 7,634	100%	$ 5,006	100%	$ 2,628	52%

G&A compensation expense increased $54,000 from $638,000 during the three months ended June 30, 2013 to $692,000 during the current period. The majority of this change was due to salary increases and headcount changes.

G&A compensation expense increased $1,192,000 from $1,875,000 during the nine months ended June 30, 2013 to $3,067,000 during the current period. The majority of this change was also due to annual performance bonuses paid during the period, none were paid in the previous period. Additionally, a portion of the increase is due to salary increases. G&A headcount remained fairly consistent during the past twelve months.

R&D compensation expense increased $748,000 from $1,014,000 during the three months ended June 30, 2013 to $1,762,000 during the current period. R&D headcount, higher by 24 people at June 30, 2014 versus June 30, 2013, and salary increases accounted for the change in salary expense.

R&D compensation expense increased $1,436,000 from $3,131,000 during the nine months ended June 30, 2013 to $4,567,000 during the current period. Increased headcount and salary increases accounted for the change in salary expense. Annual performance bonuses were paid to certain employees during the nine months ended June 30, 2014 totaling $356,000 in expense; none were paid in the prior period.

General & Administrative Expenses – Three and nine months ended June 30, 2014 compared to the three and nine months ended June 30, 2013

The following table provides detail of G&A expenses for the three and nine months ended June 30, 2014 as compared to the three and nine months ended June 30, 2013.

(in thousands, except percentages)

	Three Ended June 30, 2014	% of Expense Category	Three Ended June 30, 2013	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Professional/outside services	$ 759	48%	$ 323	36%	$ 436	135%
Patent expense	139	9%	257	29%	(118)	-46%
Facilities and related	43	3%	41	5%	2	5%
Travel	234	15%	141	16%	93	66%
Business insurance	97	6%	49	6%	48	98%
Communication and Technology	88	6%	26	3%	62	238%
Office expenses	139	9%	22	2%	117	532%
Other	83	5%	40	4%	43	108%
Total	$ 1,582	100%	$ 899	100%	$ 683	76%

	Nine Ended June 30, 2014	% of Expense Category	Nine Ended June 30, 2013	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Professional/outside services	$ 1,778	46%	$ 992	38%	$ 786	79%
Patent expense	540	14%	707	27%	(167)	-24%
Facilities and related	137	4%	127	5%	10	8%
Travel	473	12%	333	13%	140	42%
Business insurance	209	5%	148	6%	61	41%
Communication and Technology	252	7%	113	4%	139	123%
Office expenses	293	8%	81	3%	212	262%
Other	184	5%	96	4%	88	92%
Total	$ 3,866	100%	$ 2,597	100%	$ 1,269	49%

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 increased $436,000 from $323,000 during the three months ended June 30, 2013 to $759,000 during the current period. Professional/outside services expense increased $786,000 from $992,000 during the nine months ended June 30, 2013 to $1,778,000 during the current period. The increase in professional fees primarily related to professional recruiting fees for the hiring of new R&D personnel to support and expand its clinical pipeline. Additionally, the Company incurred higher SEC filing fees associated with financing in February 2014 and higher NASDAQ fees based on a higher number of shares outstanding.

Patent expense decreased $118,000 from $257,000 during the three months ended June 30, 2013 to $139,000 during the current period. Patent expense decreased $167,000 from $707,000 during the nine months ended June 30, 2013 to $540,000 during the current period. Patent expenses related to Calando declined by $145,000 in the nine month period, and $31,000 in the three month period. Calando reduced its patent expense cost by terminating its license agreement with Caltech in August 2013, which had obligated Calando to pay certain related patent costs, and by curtailing prosecution of other non-strategic patents. Accordingly, patent expense related to Calando is expected to be negligible going forward. Additionally, during the nine months ended June 30, 2014, Arrowhead deconsolidated Calando based on the fact that Calando is now subject to the control of a bankruptcy trustee. During the three and nine months ended June 30, 2014, patent costs related to our DPC platform increased which partially offset the decrease in the Calando costs. This is due timing of patent filings. The Company continues to invest in patent protection for its DPC technology, related product candidates and other RNAi technology through patent filings in multiple countries internationally. 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.

Facilities-related expense remained consistent at $41,000 during the three months ended June 30, 2013, compared to $43,000 in the current period. Facilities-related expense increased $10,000 from $127,000 during the nine months ended June 30, 2013 to $137,000 during the current period. Facilities expense increased due to routine increases in ancillary lease charges.

Travel expense increased $93,000 from $141,000 during the three months ended June 30, 2013 to $234,000 during the current period. Travel expense increased $140,000 from $333,000 during the nine months ended June 30, 2013 to $473,000 during the current period. Travel expense increased due to travel in support of our R&D function, primarily our GMP manufacturing campaign.

Business insurance expense increased $48,000 from $49,000 during the three months ended June 30, 2013 to $97,000 during the current period. Business insurance expense increased $61,000 from $148,000 during the nine months ended June 30, 2013 to $209,000 during the current period. Business insurance costs increased slightly primarily related to added coverage related to the Company's clinical trials.

Communication and technology expense increased $62,000 from $26,000 during the three months ended June 30, 2013 to $88,000 during the current period. Communication and technology expense increased $139,000 from $113,000 during the nine months ended June 30, 2013 to $252,000 during the current period. The increase was related to equipment purchases to replace outdated equipment and to outfit new employees.

Office expense increased $117,000 from $22,000 during the three months ended June 30, 2013 to $139,000 during the current period. Office expense increased $212,000 from $81,000 during the nine months ended June 30, 2013 to $293,000 during the current period. The increase was related to conferences/training, office supplies, miscellaneous administrative expenses, and expenses related to an office expansion at our R&D facility in Madison.

Other expense increased $43,000 from $40,000 during the three months ended June 30, 2013 to $83,000 during the current period. Other expense increased $88,000 from $96,000 during the nine months ended June 30, 2013 to $184,000 during the current period. The increase was related to trade shows, conferences and marketing materials.

Research and Development Expenses – Three and nine months ended June 30, 2014 compared to the three and nine months ended June 30, 2013

R&D expenses are related to the Company's on-going research and development efforts, primarily its laboratory research efforts based in Madison, Wisconsin, and also include outsourced R&D services. The following table provides detail of R&D expenses for the three and nine months ended June 30, 2014, as compared to the three and nine months ended June 30, 2013.

(in thousands, except percentages)

	Three Months Ended June 30, 2014	% of Expense Category	Three Months Ended June 30, 2013	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Laboratory supplies & services	$ 613	10%	$ 219	13%	$ 394	180%
In vivo studies	64	1%	99	6%	(35)	-35%
Outside labs & contract services	329	5%	87	5%	242	278%
Toxicity/efficacy studies	2,109	33%	495	28%	1,614	326%
Drug Manufacturing	2,371	37%	386	22%	1,985	514%
Clinical trials	555	9%	205	12%	350	171%
Consulting	102	2%	61	4%	41	67%
License, royalty & milestones	12	0%	13	1%	(1)	-8%
Facilities and related	206	3%	178	10%	28	16%
Other research expenses	31	1%	13	1%	18	138%
Total	$ 6,392	100%	$ 1,756	100%	$ 4,636	264%

	Nine Months Ended June 30, 2014	% of Expense Category	Nine Months Ended June 30, 2013	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Laboratory supplies & services	$ 1,469	10%	$ 755	14%	$ 714	95%
In vivo studies	236	2%	548	10%	(312)	-57%
Outside labs & contract services	775	5%	377	7%	398	106%
Toxicity/efficacy studies	3,651	25%	879	16%	2,772	315%
Drug Manufacturing	5,630	38%	1,309	24%	4,321	330%
Clinical trials	1,978	13%	483	9%	1,495	310%
Consulting	193	1%	193	4%	-	0%
License, royalty & milestones	32	0%	175	3%	(143)	-82%
Facilities and related	685	5%	542	10%	143	26%
Other research expenses	71	1%	197	4%	(126)	-64%
Total	$ 14,720	100%	$ 5,458	100%	$ 9,262	170%

Laboratory supplies and services expense increased $394,000 from $219,000 during the three months ended June 30, 2013 to $613,000 during the current period. Laboratory supplies and services expense increased $714,000 from $755,000 during the nine months ended June 30, 2013 to $1,469,000 during the current period. The increase is a result of additional supplies necessary to support increased efforts in pre-clinical research as the Company accelerates efforts to identify new clinical candidates as well as to support ongoing clinical efforts.

In vivo studies expense decreased $35,000 from $99,000 during the three months ended June 30, 2013 to $64,000 during the current period. In vivo studies expense decreased $312,000 from $548,000 during the nine months ended June 30, 2013 to $236,000 during the current period. The prior period expense relates to studies related to development of new clinical candidates.

Outside labs and contract services expense increased $242,000 from $87,000 during the three months ended June 30, 2013 to $329,000 during the current period. Outside labs and contract services expense increased $398,000 from $377,000 during the nine months ended June 30, 2013 to $775,000 during the current period. The increase was primarily related to oligonucleotide synthesis related to development of new clinical candidates.

Toxicity/efficacy studies expense increased $1,614,000 from $495,000 during the three months ended June 30, 2013 to $2,109,000 during the current period. Toxicity studies expense increased $2,772,000 from $879,000 during the nine months ended June 30, 2013 to $3,651,000 during the current period. This category includes IND-enabling toxicology studies as well as non-clinical toxicology studies, such as long-term toxicology studies, and other efficacy studies. The current period expense primarily relates to toxicology studies related to ARC-520, our clinical candidate for HBV, specifically toxicology studies to support our anticipated phase 2b clinical trial.

Drug Manufacturing expense increased $1,985,000 from $386,000 during the three months ended June 30, 2013 to $2,371,000 during the current period. Drug Manufacturing expense increased $4,321,000 from $1,309,000 during the nine months ended June 30, 2013 to $5,630,000 during the current period. The current period expense relates to drug manufacturing to supply toxicology studies for our anticipated HBV Phase 2b clinical trial, as well as to supply the Phase 2b clinical trial anticipated for 2015. The Phase 2b clinical trial will be a much larger study than previous clinical trials, and as such, the Company anticipates increased Drug Manufacturing expenses in future periods.

Clinical trials expense increased $350,000 from $205,000 during the three months ended June 30, 2013 to $555,000 during the current period. Clinical trials expense increased $1,495,000 from $483,000 during the nine months ended June 30, 2013 to $1,978,000 during the current period. Clinical trial expenses are increasing as the Company advances ARC-520, its drug candidate for Hepatitis B.

Consulting expense increased $41,000 from $61,000 during the three months ended June 30, 2013 to $102,000 during the current period. Consulting expense was consistent at $193,000 during each of the nine months ended June 30, 2013 and 2014 respectively. The majority of consulting expense during the current period relates to regulatory and clinical efforts.

License, royalty and milestones expense was consistent at $13,000 and $12,000 during the three months ended June 30, 2013 and 2014 respectively. License, royalty and milestones expense decreased $143,000 from $175,000 during the nine months ended June 30, 2013 to $32,000 during the current period. Licensing fees, royalty and milestones expenses in the prior year were primarily related to a one-time fee of $120,000 related to access to certain targeting technology.

Facilities expense increased $28,000 from $178,000 during the three months ended June 30, 2013 to $206,000 during the current period. Facilities expense increased $143,000 from $542,000 during the nine months ended June 30, 2013 to $685,000 during the current period. Facilities expenses were higher in the current period primarily due to repairs and maintenance costs on lab equipment. Although much of our equipment is under maintenance contracts, certain additional expenses were incurred during the current quarter.

Other research expense increased $18,000 from $13,000 during the three months ended June 30, 2013 to $31,000 during the current period. Other research expense decreased $126,000 from $197,000 during the nine months ended June 30, 2013 to $71,000 during the current period. Other research expense in the prior period relates to work at the University of Cincinnati related to our obesity program, which studies have been completed, and no further studies are currently planned.

Stock-based compensation expense

Stock-based compensation expense, a non-cash expense, increased $1,675,000 from $364,000 during the three months ended June 30, 2013 to $2,039,000 in the current period. Stock-based compensation expense increased $2,644,000 from $1,114,000 during the nine months ended June 30, 2013 to $3,758,000 during the current period. Stock-based compensation expense is based upon the valuation of stock options granted to employees, directors, and certain consultants. Many variables affect the amount expensed, including the Company's stock price on the date of the grant, as well as other assumptions. The increase in this expense is primarily due to new options granted in 2013, including grants of restricted stock units.

Depreciation and amortization expense

Depreciation and amortization expense, a non-cash expense, decreased $178,000 from $454,000 during the three months ended June 30, 2013 to $276,000 in the current period. Depreciation and amortization expense decreased $277,000 from $1,352,000 during the nine months ended June 30, 2013 to $1,075,000 during the current period. The decrease is primarily related to amortization of capitalized patents related to Calando, which were fully written off in fiscal 2013, thus no further amortization will be recorded.

Other income / expense

Other income increased $861,000 from $212,000 during the three months ended June 30, 2013 to $1,074,000 during the current period. This increase is primarily related to the change in the value of derivative liabilities related to certain warrants with a price adjustment feature, which requires derivative accounting. Other expense increased $4,065,000 from $1,308,000 during the nine months ended June 30, 2013 to $5,373,000 during the current period, also primarily related to the change in the value of the derivative liabilities discussed above.

Off-Balance Sheet Arrangements

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

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not applicable.

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.

In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Accordingly, our disclosure controls and procedures have been designed to provide reasonable assurance of achieving their objectives.

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 could, individually or in the aggregate, have a material adverse effect on our results of operations or financial condition.

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, 2013. 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, 2013, 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

None.

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
10.1	License Agreement by and between Alnylam Pharmaceuticals, Inc., Arrowhead Research Corporation and Arrowhead Madison, Inc.†
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 June 30, 2014, 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. *

† Confidential treatment has been requested with respect to certain information contained in this exhibit. Such information has been omitted and furnished separately to the SEC.

* 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: August 12, 2014

ARROWHEAD RESEARCH CORPORATION

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

Exhibit 10.1

Execution

LICENSE AGREEMENT

This License Agreement (this "Agreement") is entered into by and between ALNYLAM PHARMACEUTICALS, INC., a corporation organized under the laws of the State of Delaware having offices located at 300 Third Street, Cambridge MA 02142 U.S.A. ("ALNYLAM"), and ARROWHEAD RESEARCH CORPORATION, a corporation organized under the laws of the State of Delaware having offices located at 225 South Lake Avenue, Suite 300, Pasadena, CA 91101 and ARROWHEAD MADISON INC., a corporation organized under the laws of the State of Delaware having offices located at 465 Science Drive, Madison, WI 53711 (collectively "ARROWHEAD").

INTRODUCTION

ALNYLAM owns or has rights to certain intellectual property covering technology useful for the discovery, development, manufacture, characterization, or use of therapeutic products that function through RNA interference ("RNAi").

ARROWHEAD desires to research and potentially develop and commercialize siRNA based products that target messenger RNAs encoded by the genome of human hepatitis B virus ("HBV"), and for such purpose ARROWHEAD desires a license under certain of the aforementioned intellectual property of ALNYLAM to use the technology covered by such intellectual property to research, develop and commercialize any such product.

ALNYLAM is willing to grant ARROWHEAD a license to research, develop and commercialize products as described above under the terms and conditions of this Agreement.

In consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, ALNYLAM and ARROWHEAD agree as follows:

TABLE OF CONTENTS

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

ARTICLE I - DEFINITIONS

General. When used in this Agreement, each of the following terms, whether used in the singular or plural, will have the meanings set forth in this Article I.

1.1 Act means the United States Federal Food, Drug, and Cosmetic Act of 1938, 21 U.S.C. §§ 301 et seq., as such may be amended from time to time, and its implementing regulations.

1.2 Affiliate means with respect to a Person, any other Person which controls, is controlled by, or is under common control with the applicable Person. For purposes of this definition, "control" shall mean: (a) in the case of corporate entities, direct or indirect ownership of more than fifty percent (50%) of the stock or shares (or such lesser percentage which is the maximum allowed to be owned by a foreign corporation in a particular jurisdiction) entitled to vote for the election of directors, or otherwise having the power to control or direct the affairs of such Person; and (b) in the case of non-corporate entities, direct or indirect ownership of more than fifty percent (50%) of the equity interest or the power to direct the management and policies of such non-corporate entities. For purposes of this Agreement, Regulus Therapeutics, LLC, 3545 John Hopkins Ct., San Diego, California 92121, shall be deemed not to be an Affiliate of ALNYLAM.

1.3 ALNYLAM CRT Additional Patent Rights means the patents and patent applications listed on Exhibit E, and all continuations, continuations-in-part, divisionals, and other substitute applications with respect thereto; any patents issued with respect to any of the foregoing; and all reissues, substitutions, confirmations, re-examinations, supplementary protection certificates, certificates of invention and patents of addition with respect to any of the foregoing; and all counterparts to any of the foregoing in any country of the Territory.

1.4 ALNYLAM Broad RNAi Intellectual Property means ALNYLAM Broad RNAi Know-How and ALNYLAM Broad RNAi Patent Rights.

1.5 ALNYLAM Broad RNAi Know-How means Know-How, Controlled by ALNYLAM as of the Effective Date or during the Research Collaboration Term to the extent that such Know-How is necessary or useful for the Research, Development, Commercialization or manufacture of Licensed RNAi Products.

1.6 ALNYLAM Broad RNAi Patent Rights means Patent Rights that are Controlled by ALNYLAM as of the Effective Date or during the Research Collaboration Term and that Cover Alnylam Broad RNAi Know-How, but specifically excluding any ALNYLAM CRT Additional Patent Rights, ALNYLAM Stanford Additional Patent Rights and ALNYLAM Target-Specific Patent Rights. The ALNYLAM Broad RNAi Patent Rights as of the Effective Date are listed in Exhibit A.

1.7 ALNYLAM Intellectual Property means the ALNYLAM Broad RNAi Intellectual Property and the ALNYLAM Target-Specific Patent Rights.

1.8 ALNYLAM Patent Rights means the ALNYLAM Broad RNAi Patent Rights and the ALNYLAM Target-Specific Patent Rights.

1.9 ALNYLAM Stanford Additional Patent Rights means the patents and patent applications listed on Exhibit F, and all continuations, continuations-in-part, divisionals, and other substitute applications with respect thereto; any patents issued with respect to any of the foregoing; and all reissues, substitutions, confirmations, re-examinations, supplementary protection certificates, certificates of invention and patents of addition with respect to any of the foregoing; and all counterparts to any of the foregoing in any country of the Territory.

1.10 ALNYLAM Target-Specific Patent Rights means such claim or claims contained in Patent Rights Controlled by ALNYLAM as of the Effective Date or during the Research Collaboration Term and that are specifically directed to particular sequences of Licensed RNAi Products against the Target. The ALNYLAM Target-Specific Patent Rights as of the Effective Date are listed in Exhibit A.

1.11 Approval means, with respect to each Licensed RNAi Product Developed and Commercialized, the receipt of sufficient authorization from the appropriate Regulatory Authority to market such Licensed RNAi Product in a country, including (where legally required in a particular country prior to marketing a Licensed RNAi Product) all separate pricing and/or reimbursement approvals that may be required for marketing.

1.12 Calendar Quarter means, in any calendar year, one of the following three-month calendar quarters: January 1 through March 31, inclusive; April 1 through June 30, inclusive; July 1 through September 30, inclusive; or October 1 through December 31, inclusive.

1.13 Clinical Trial means any human clinical trial.

1.14 Commercialize or Commercialization means any and all activities directed to manufacturing (including, without limitation, by means of contract manufacturers), marketing, promoting, distributing, importing, exporting and selling a Licensed RNAi Product, in each case for commercial purposes, and activities directed to obtaining pricing and reimbursement approvals, as applicable.

1.15 Confidential Information means all proprietary, confidential information and materials, patentable or otherwise, of a Party which are disclosed by or on behalf of such Party to the other Party hereunder, including, without limitation, chemical substances, formulations, techniques, methodology, equipment, data, reports, know how, sources of supply, patent positioning, business plans, and also including without limitation proprietary and confidential information of Third Parties in possession of such Party under an obligation of confidentiality, whether or not related to making, using or selling Licensed RNAi Products.

1.16 Control or Controlled means, with respect to any item of or right under an intellectual property right, the possession (whether by ownership or license, other than pursuant to this Agreement) of the ability of a Party to grant access to, or a license or sublicense of, such items or right as provided for herein without violating the terms of any agreement or other arrangement with any Third Party existing at the time such Party would be required hereunder to grant the other Party such access or license or sublicense; provided that any intellectual property right that is licensed or acquired by a Party after the Effective Date and that would otherwise be considered to be under the Control of such Party shall not be deemed to be under the Control of such Party if the application of such definition in the context of any licenses or sublicenses granted to the other Party under this Agreement would require the granting Party to make any additional payments or royalties to a Third Party in connection with such license or sublicense grants, unless the other Party agrees to pay the additional payments or royalties to the Third Party.

1.17 Cover or Covered means with respect to the applicable country, but for the license granted under a Valid Claim of a Patent Right, the manufacture, use or sale, or offer for sale in such country of the subject matter at issue would infringe such Valid Claim, or in the case of a Patent Right that is a patent application, would infringe a Valid Claim in such patent application if it were to issue as a patent.

1.18 Develop, Developing or Development means with respect to a Licensed RNAi Product, preclinical and clinical drug development activities, including without limitation: test method development and stability testing, toxicology, formulations, quality assurance/quality control development, statistical analysis and report writing; clinical studies and regulatory affairs; Approval and registration.

1.19 Dynamic Polymeric Conjugate Technology or DPC Technology means an siRNA delivery system including a membrane-active polymer, a masking agent to reversibly mask the activity of the polymer in vivo, and optionally a targeting agent.

1.20 Effective Date means January 4, 2012.

1.21 Executive Officers means the Chief Executive Officer of ALNYLAM (or a senior executive officer of ALNYLAM designated by ALNYLAM's Chief Executive Officer) and the Chief Executive Officer of ARROWHEAD (or a senior executive officer of ARROWHEAD as designated by ARROWHEAD's Chief Executive Officer).

1.22 Existing ALNYLAM Third Party Agreements means the agreements listed on Exhibit B between ALNYLAM and the listed Third Parties.

1.23 FDA means the United States Food and Drug Administration or any successor agency thereto.

1.24 Field means the prevention, treatment and prophylaxis of disease in humans.

1.25 First Commercial Sale means, with respect to each Licensed RNAi Product, the first commercial sale in a country as part of a nationwide introduction after receipt by ARROWHEAD or any of its Affiliates or Sublicensees of Approval in such country, excluding *de minimis* named patient and compassionate use sales.

1.26 FTE means the number of full-time-equivalent person-years (each consisting of a total of 1,840 hours) of scientific, technical, regulatory, marketing or managerial work by each party's personnel on or directly related to the applicable activity conducted hereunder.

1.27 FTE Rate means $*** U.S. Dollars per FTE, increased annually beginning on January 1, 2013 and thereafter on January I of each succeeding year by the percentage increase in the CPI as of December 31 of the then most recently ended calendar year over the level of the CPI on December 31, 2011 e., the first such increase or decrease would occur on January 1, 2013). As used in this definition, "CPI" shall mean the Consumer Price Index — Urban Wage Earners and Clerical Workers, U.S. City Average, All Items, 1982-84 = 100, published by the United States Department of Labor, Bureau of Labor Statistics (or its successor equivalent index) in the United States.

1.28 GAAP means generally accepted accounting principles as practiced in the United States.

1.29 GLP Toxicology Study means a toxicology study that is conducted in compliance with the then-current good laboratory practice standards promulgated or endorsed by the FDA, as defined in U.S. 21 C.F.R. Part 58 (or such other comparable regulatory standards in jurisdictions outside the U.S. to the extent applicable to the relevant toxicology study, as they may be updated from time to time) ("GLP") and is required to meet the requirements for filing an IND.

1.30 IND or Investigational New Drug Application means a United States investigational new drug application or its equivalent or any corresponding foreign application.

1.31 Licensed RNAi Product means a pharmaceutical product (a) containing, comprised or based on siRNAs or siRNA derivatives or other moieties effective in gene function modulation and designed to modulate the function of the Target through RNA interference and (b) incorporating DPC Technology.

1.32 Net Sales means, with respect to Licensed RNAi Products, the gross amount invoiced by ARROWHEAD or its Affiliates or Sublicensees, as the case may be, on sales or other dispositions of such Licensed RNAi Products to Third Parties, less: (A) portions of invoiced amounts written off by ARROWHEAD, its Affiliates or Sublicensees as uncollectible, relating to specific invoices and not a general reserve for uncollectible amounts, in accordance with their normal accounting practices (provided that if any such written-off amounts are subsequently collected, such amounts shall be included in Net Sales when collected); and (B) the following deductions, to the extent standard and customary and incurred in accordance with ARROWHEAD'S usual practices, as generally applied across its business (i) rebates, quantity, trade and cash discounts, and other usual and customary discounts to customers; (ii) charge-back payments and rebates granted to managed health care organizations or to national, state or local governments, their respective agencies, purchasers or reimbursers, adjustments arising from consumer discount programs or other similar programs; (iii) retroactive price reductions, credits or allowances granted upon rejections or returns of Licensed RNAi Products, including for recalls or damaged goods; (iv) compulsory payments and rebates made or granted to government entities with respect to sales of Licensed RNAi Products; (v) freight, postage, shipping and insurance charges for delivery of Licensed RNAi Products; and (viii) sales taxes, excise taxes, use taxes, value-added taxes, import/export duties or other governmental charges with respect to Licensed RNAi Products, excluding income taxes.

Sales between ARROWHEAD and its Affiliates or Sublicensees for resale shall be excluded from the computation of Net Sales, but the subsequent resale of such Product to Third Parties shall be included within the computation of Net Sales. Sales or other dispositions of Licensed RNAi Products used for promotional or advertising purposes or used for research or development purposes (including clinical trials) or for donations, to the extent reasonable and customary and in accordance with ARROWHEAD'S usual practices, as generally applied across its business, shall be excluded from Net Sales.

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

In the event that a Licensed RNAi Product is sold in any country in the form of a combination product containing one or more therapeutically active ingredients in addition to such Licensed RNAi Product in any year, Net Sales of such combination product will be adjusted by multiplying actual Net Sales of such combination product in such country by the fraction A/(A+B), where A is the average Net Sales prices per daily dose during such year of the Licensed RNAi Product in such country, if sold separately in such country, and B is the average Net Sales prices per daily dose of any product containing the other therapeutically active ingredients in the combination product in such country, if sold separately in such country. If, in a specific country, both the Licensed RNAi Product and the product containing the other therapeutically active ingredients in the combination product are not sold separately in such country, the fraction of actual Net Sales of the combination product that will be deemed to be Net Sales of the Licensed RNAi Product will be determined based upon the commercial values of the Licensed RNAi Product and the other therapeutically active ingredients in such combination product. If the Parties are not able to agree on any such allocation, the matter may be submitted by either Party for resolution by arbitration pursuant to Section 12.3.

In the event ARROWHEAD or any of its Affiliates or Sublicensees receive non-monetary consideration in exchange for the sale or other disposition of Licensed RNAi Products to Third Parties, Net Sales for such sale or other disposition shall include the fair market value of the non-cash consideration received as a result of such sale or other disposition. If such sale or other disposition occurred in a country where ARROWHEAD or such Affiliate or Sublicensee sold the same Licensed RNAi Product in commercial quantities solely for monetary consideration, the fair market value of the non-cash consideration received for such Licensed RNAi Product shall be determined on the basis of the value received in such solely monetary transactions. If ARROWHEAD or its Affiliate or Sublicensee did not have sales or other dispositions of Licensed RNAi Product in such country solely for monetary consideration, then the fair market value of such Licensed RNAi Product shall be determined on the basis of all relevant facts and circumstances.

Net Sales shall be determined from books and records maintained in accordance with GAAP, consistently applied throughout the organization and across all products of the entity whose sales of Licensed RNAi Product are giving rise to Net Sales.

1.33 Party means either ALNYLAM or ARROWHEAD; Parties means both ALNYLAM and ARROWHEAD.

1.34 Patent Rights means patents, patent applications and/or provisional patent applications, utility models and utility model applications, design patents or registered industrial designs and design applications or applications for registration of industrial designs, and all substitutions, divisionals, continuations, continuation-in-part applications, continued prosecution applications, requests for continued examinations, reissues, reexaminations and extensions thereof, in any country of the world. For clarity, any Patent Rights shall include any future Patent Rights that claim priority to or common priority with such Patent Rights.

1.35 Person shall mean any natural person, corporation, unincorporated organization, partnership, association, joint stock company, joint venture, limited liability company, trust or government, or any agency or political subdivision of any government, or any other entity.

1.36 Pivotal Trial means a prospective, randomized, controlled Clinical Trial that is designed to confirm or that does confirm with statistical significance the efficacy and safety of a drug in a given patient population, the results of which are intended, either alone or with other pivotal human clinical studies, to form the basis for Approval.

1.37 Regulatory Authority means the FDA in the United States or any health regulatory authority in another country that is a counterpart to the FDA and holds responsibility for allowing development of Licensed RNAi Products and/or granting Approval for a Licensed RNAi Product in such country.

1.38 Research or Researching means identifying, evaluating, validating and optimizing Licensed RNAi Products.

1.39 Research Collaboration Term means the period commencing on the Effective Date and ending on the date on which ARROWHEAD or its Affiliates or Sublicensees initiates the first GLP Toxicology Study for a Licensed RNAi Product.

1.40 siRNA means a double-stranded ribonucleic acid (RNA) composition designed to act primarily through an RNA interference mechanism that consists of either (a) two separate oligomers of native or chemically modified RNA that are hybridized to one another along a substantial portion of their lengths, or (b) a single oligomer of native or chemically modified RNA that is hybridized to itself by self-complementary base-pairing along a substantial portion of its length to form a hairpin.

1.41 Sublicensee means any Third Party to whom ARROWHEAD, pursuant to a written agreement, has granted a sublicense of all or a portion of the rights granted hereunder, *provided* that such Third Party has the responsibility for the Commercialization of such Licensed RNAi Product in a licensed territory and has the right to record sales of such Licensed RNAi Product for its account. For clarity, "Sublicensee" shall exclude any wholesaler or reseller of Licensed RNAi Product that purchases Licensed RNAi Product from ARROWHEAD, its Affiliates and Sublicensees and that is not responsible for marketing or promotion of such Licensed RNAi Product, any contract manufacturer or service provider (e.g., a clinical research organization or its equivalent) or other Third Party acting solely on behalf of ARROWHEAD or its Affiliates and not on its own behalf

1.42 Target means HBV, or a single alternative messenger RNA target selected by ARROWHEAD and designated in accordance with Section 2.1.

1.43 Territory means worldwide. For clarity, at any time the Territory will not include any country to which the exportation or re-exportation of materials, products and related technical data covered by this Agreement is restricted under U.S. export laws, which restriction has not been removed or waived.

1.44 Third Party means any person, corporation, joint venture or other entity, other than ALNYLAM, ARROWHEAD and their respective Affiliates.

1.45 Valid Claim shall mean (a) a claim of an issued and unexpired patent within the ALNYLAM Patent Rights that (i) has not been rejected, cancelled, revoked or held to be invalid or unenforceable by a court or other authority of competent jurisdiction, from which decision no appeal can be further taken, and (ii) has not been finally abandoned, disclaimed or admitted to be invalid or unenforceable through reissue or disclaimer; or (b) a claim included in a patent application that has not been pending for more than *** (***) years from the earliest priority date for such patent application, cancelled, withdrawn or abandoned or finally determined to be unallowable by the applicable governmental authority (from which no appeal is or can be taken).

ARTICLE II - RESEARCH AND DEVELOPMENT

2.1 Target Selection. ARROWHEAD has selected HBV as the Target as of the Effective Date. At any time during the Research Collaboration Term but prior the start of the first study of a Licensed RNAi Product in a non-rodent efficacy animal model, ARROWHEAD may provide ALNYLAM written notice designating one (1) alternative target that ARROWHEAD desires to Research, Develop and Commercialize in accordance with this Agreement. Within ten (10) business days of receipt of such alternative target from ARROWHEAD, ALNYLAM shall provide ARROWHEAD written notice confirming whether such alternative target is available to be licensed by ALNYLAM to ARROWHEAD hereunder; provided that such alternative target shall be deemed available unless prior to the date of such request from ARROWHEAD (a) ALNYLAM has entered into a bona fide collaboration agreement or license agreement with a Third Party pursuant to which ALNYLAM has granted such Third Party license rights with respect to such proposed target or (b) ALNYLAM or its Affiliates have previously initiated a bona fide, active research program with respect to such proposed target and/or are in active discussions with a Third Party concerning a research or business collaboration around such target. In the event that such alternative target is available to be licensed hereunder, (i) such alternative target shall thereafter be deemed the Target (and HBV shall thereafter be deemed not to be the Target) and (ii) ARROWHEAD shall thereafter have no further right to replace the Target with an alternative target except as mutually agreed by the Parties.

2.2 Research Collaboration.

(a) Research Collaboration Plan. Within ninety (90) days after the Effective Date, the ARROWHEAD shall develop a research collaboration plan, which plan if necessary shall set forth each Party's obligations and responsibilities during the Research Collaboration Term in connection with the Research and Development of Licensed RNAi Products ("Research Collaboration Plan"), which shall be attached as Exhibit C. Each Party shall use commercially reasonable efforts to conduct the activities that may be allocated to such Party in the Research Collaboration Plan.

(b) Final Authority. ARROWHEAD shall have the final authority with respect to all details of the Research Collaboration Plan, except that ARROWHEAD shall not have any authority either (i) to cause ALNYLAM to conduct any activities other than with ALNYLAM's agreement; or (ii) to materially change the scope of ALNYLAM's obligations under the Research Collaboration Plan without ALNYLAM's written consent.

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

2.3 Research Collaboration FTEs. During the Research Collaboration Term, subject to Section 2.2(b), the Parties shall prepare annual updates to the Research Collaboration Plan setting forth the number of FTEs each Party will commit to the activities under the Research Collaboration Plan during the next calendar year. Such annual updates will be completed and agreed upon at least thirty (30) days prior to the beginning of the next calendar year. During the Research Collaboration Term, ALNYLAM shall provide such number of FTEs as may be specified in the Research Collaboration Plan to perform the activities that may be allocated to ALNYLAM under the Research Collaboration Plan. ARROWHEAD shall reimburse ALNYLAM its FTE costs (at the FTE Rate) with respect to the FTEs provided by ALNYLAM to conduct activities under the Research Collaboration Plan ("FTE Costs"). ALNYLAM shall invoice ARROWHEAD quarterly for such FTE Costs and payment shall be due and payable within thirty (30) days after receipt of invoice.

2.4 Status Reports. ARROWHEAD and ALNYLAM shall each provide the JRDC a semi-annual written report summarizing in reasonable detail such Party's activities under the Research Collaboration Plan. Such semi-annual reports will reflect all material work done and results achieved in carrying out activities under the Research Collaboration Plan in the prior six (6) month period.

2.5 Research, Development, Manufacture and Commercialization following Research Collaboration Term. Following the Research Collaboration Term, ARROWHEAD (or its Affiliates or Sublicensees, as applicable) shall be solely responsible for the Research, Development, manufacture and Commercialization of Licensed RNAi Products in the Field in the Territory, including all costs associated with such activities. ARROWHEAD shall use commercially reasonable efforts to Research, Develop, manufacture and Commercialize Licensed RNAi Products in the Field in the Territory.

ARTICLE III - GOVERNANCE

3.1 JRDC. The Parties shall establish a joint Research and Development committee (the "JRDC") as more fully described in this Section 3.1. The JRDC shall comprise two (2) representatives from each of ALNYLAM and ARROWHEAD. Each Party may replace its representatives at any time upon written notice to the other Party. The JRDC shall meet twice per calendar year, or as otherwise mutually agreed by the Parties. The JRDC shall perform the following functions:

(a) oversee, review and monitor progress of activities under the Research Collaboration Plan;

(b) review the Research Collaboration Plan and any amendments to such plan;

(c) evaluate reports submitted to the JRDC by the Parties;

(d) discuss and attempt to resolve any deadlock issues submitted to it by the Parties; and

(e) such other responsibilities as may be assigned to the JRDC pursuant to this Agreement or as may be mutually agreed upon by the Parties from time to time.

3.2 Decision Making; Limits on Authority.

(a) Subject to Section 2.5, in the event of any disagreement as to a matter within the JRDC's responsibilities, ARROWHEAD shall have the final decision-making authority; provided that ARROWHEAD may not exercise its final decision-making authority to: (i) impose additional obligations on ALNYLAM without ALNYLAM's written consent; or (ii) resolve any dispute between the Parties as to their respective rights and obligations under this Agreement.

(b) The JRDC shall not have any authority beyond the specific matters set forth in this Article III, and in particular shall not have any power to amend or modify the terms of this Agreement.

ARTICLE IV - LICENSE GRANTS

4.1 Licenses. Subject to the terms and conditions of this Agreement, ALNYLAM hereby grants to ARROWHEAD:

(a) A worldwide, non-exclusive, royalty-bearing right and license under the ALNYLAM Broad RNAi Intellectual Property for the sole and exclusive purposes of Researching, Developing and Commercializing Licensed RNAi Products in the Field in the Territory.

(b) A worldwide, exclusive, royalty-bearing right and license under the ALNYLAM Target-Specific Patent Rights for the sole and exclusive purposes of Researching, Developing, manufacturing and Commercializing Licensed RNAi Products in the Field in the Territory.

(c) The licenses granted to ARROWHEAD under Sections 4.1(a) and (b) include the right to grant sublicenses with respect to Licensed RNAi Products which ARROWHEAD or its Affiliates have identified in good faith as clinical candidate(s) and for which they have previously commenced GLP Toxicology Studies or intend to commence GLP Toxicology Studies within the subsequent six (6) months.

4.2 Sublicensing.

(a) In the event that ARROWHEAD sublicenses the rights granted under Section 4.1, ARROWHEAD will notify ALNYLAM within thirty (30) days after such sublicense becomes effective and provide a copy of the fully executed sublicense agreement to ALNYLAM within the same time frame (which copy may be redacted, provided that information relevant to ARROWHEAD's obligations to ALNYLAM hereunder shall not be redacted), which shall be treated as Confidential Information of ARROWHEAD, provided that ALNYLAM may disclose such sublicense agreement(s) to Third Parties under confidence if and to the extent required in order to comply with ALNYLAM's contractual obligations related to ALNYLAM Patent Rights; and provided, further, that such Third Parties are bound in writing by confidentiality obligations consistent with those set forth herein. Should this Agreement or the rights granted to ARROWHEAD hereunder terminate for any reason, any sublicense(s) granted by ARROWHEAD to an ARROWHEAD Sublicensee shall survive such termination, provided that, as to each such ARROWHEAD Sublicensee, the ARROWHEAD Sublicensee is not then in material breach of the sublicense, all financial obligations to ALNYLAM under this Agreement through the date of termination with respect to the, sublicensed rights have been satisfied, all obligations (including without limitation all financial obligations) to ALNYLAM under this Agreement with respect to the sublicensed rights continue to be satisfied by or on behalf of the ARROWHEAD Sublicensee and ALNYLAM shall have no responsibility for ARROWHEAD' s obligations to the ARROWHEAD Sublicensee under the sublicense.

(b) Without limiting the foregoing, all sublicenses granted shall be subject to the following conditions:

(i) Such sublicense shall be consistent with the requirements of this Agreement;

(ii) ARROWHEAD shall be primarily liable for any failure by its sublicensees to comply with all relevant restrictions, limitations and obligations in this Agreement;

(iii) Any such sublicense to a Third Party shall be in writing; and

(iv) In the event that the Sublicensee initiates any legal action seeking a determination that any of the ALNYLAM Patent Rights in any country are invalid, unenforceable, and/or not infringed (including a request for reexamination or opposition of any such ALNYLAM Patent Rights), ARROWHEAD shall terminate the sublicense at the request of ALNYLAM.

4.3 Retained Rights of ALNYLAM. Any rights of ALNYLAM not expressly granted to ARROWHEAD under this Agreement will be retained by ALNYLAM.

4.4 Additional Patents Option. ALNYLAM further grants to ARROWHEAD an option (the "Additional Patents Option") to expand the ALNYLAM Broad RNAi Patent Rights to include either the ALNYLAM CRT Additional Patent Rights or the ALNYLAM Stanford Additional Patent Rights, or both, for the sole and exclusive purposes of Researching, Developing, manufacturing and Commercializing Licensed RNAi Products in the Field in the Territory. The Additional Patents Option shall be exercisable by ARROWHEAD by written notice to ALNYLAM of such exercise given by ARROWHEAD anytime during the Term specifying the family or families of additional patent rights to which such exercise applies. Following exercise of the Additional Patents Option, the Parties shall negotiate and enter into a supplemental agreement containing terms and conditions for such license expansion, which shall include terms that pass through ALNYLAM's costs of granting such expansion as well as terms that ALNYLAM is required to impose on sublicensees under ALNYLAM's applicable agreement(s) with Third Party(ies), but which terms shall not impose burdens on ARROWHEAD beyond the foregoing costs and pass-through terms and the applicable terms of this Agreement.

4.5 Exclusivity. During the Term, neither ALNYLAM nor any of its Affiliates shall, directly or indirectly, Develop, manufacture commercial quantities of or Commercialize, any Licensed RNAi Product in the Field in the Territory, or collaborate with or assist any Third Party with respect to any of the foregoing, except as provided in this Agreement.

ARTICLE V - FEES AND ROYALTIES

5.1 FTE Costs. ARROWHEAD shall reimburse ALNYLAM in accordance with Section 2.3 its FTE Costs with respect to the FTEs provided by ALNYLAM to conduct activities under Research Collaboration Plan.

5.2 Milestone Payments. Upon the achievement by ARROWHEAD, its Affiliates or Sublicensees of each of the milestone events in the table below with respect to a Licensed RNAi Product, ARROWHEAD will provide written notice to ALNYLAM of the occurrence of such milestone event within five (5) days after such event and ARROWHEAD will make the indicated milestone payment to ALNYLAM within thirty (30) days after the occurrence of such event. Milestone payments will be due only once for the first Licensed RNAi Product to achieve the relevant milestone event and not for any subsequent Licensed RNAi Product or second generation of the same.

Milestone Event	Payment
Initiation of first Clinical Trial	$ ***
Dosing of the first patient in a Pivotal Trial	$ ***
First Approval granted by a Regulatory Authority	$ ***
First Commercial Sale of a Licensed RNAi Product	$ ***

In the event one or more milestone events set out above are skipped for any reason, the payment for such skipped milestone events(s) will be due upon the earlier of (a) achievement of the next achieved milestone event or (b) First Commercial Sale of a Licensed RNAi Product. In addition, if a Clinical Trial becomes a Pivotal Trial after the dosing of the first patient in such Clinical Trial, the Milestone payment above for dosing of the first patient in a Pivotal Trial (if not previously paid) shall become payable when such Clinical Trial is determined to be a Pivotal Trial.

5.3 Royalties.

(a) Royalties on worldwide Net Sales, whether such sales are made by ARROWHEAD or through its Affiliates or Sublicensees, will be due and payable by ARROWHEAD to ALNYLAM on a Licensed RNAi Product-by-Licensed RNAi Product and country-by-country basis in the Territory commencing on the First Commercial Sale of such Licensed RNAi Product until the later of (i) ten (10) years following the First Commercial Sale of such Licensed RNAi Product in such country; or (ii) the expiration of the last Valid Claim Covering such Licensed RNAi Product in the country of sale or in the country of manufacture (the "Royalty Term").

(b) Subject to subsection (a) of this Section 5.3, the following royalties will be payable by ARROWHEAD to ALNYLAM (all references are to U.S. dollars) on aggregate worldwide Net Sales that fall within the indicated ranges of Net Sales for each calendar year.

Royalty Rate for annual worldwide Net Sales of Licensed RNAi Products up to and including $***	*** %
Royalty Rate for annual worldwide Net Sales of Licensed RNAi Products greater than $*** up to and including $***	*** %
Royalty Rate for annual worldwide Net Sales of Licensed RNAi Products greater than $***	*** %

(c) If, during any period within the Royalty Term for a given Licensed RNAi Product in a given country, neither (i) any Valid Claim in such country Covers the manufacture or Commercialization of the Licensed Product in the country of sale, nor (ii) any Valid Claim Covers the manufacture of the Licensed RNAi Product in the country or countries where such Licensed RNAi Product was manufactured, then the royalty rates applicable to such Licensed RNAi Product in such country shall be reduced to *** percent (***%) of the rates set forth in Section 5.3(b) for such portion of the Royalty Term during which such condition exists.

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

5.4 Sales Milestone Payment. For the milestone listed in the table below, ARROWHEAD shall pay, or cause to be paid, to ALNYLAM the following payments concurrently with ARROWHEAD's payment of royalties pursuant to Section 6.1 for the Calendar Quarter during which the achievement of the event set forth below occurs:

Milestone Event	Payment
First calendar year in which aggregate annual Net Sales of Licensed RNAi Products in the Territory exceed $***	$ ***

For the avoidance of doubt, the foregoing milestone payment set forth in this Section 5.4 shall be payable no more than once.

5.5 Third Party License Fees. ARROWHEAD shall be solely responsible for all licensee fees, milestone payments, royalties, sublicense income and other amounts payable (a) by ALNYLAM pursuant to the applicable Existing ALNYLAM Third Party Agreement identified on Exhibit B that become payable as a result of any license granted by ALNYLAM to ARROWHEAD hereunder with respect to Licensed RNAi Products, and (b) by ARROWHEAD and its Affiliates and Sublicensees to Third Parties for licenses or other rights under patents and intellectual property rights of Third Parties with respect to Licensed RNAi Products Researched, Developed and Commercialized hereunder. ARROWHEAD shall pay to ALNYLAM the amounts payable by ALNYLAM to third parties as described in the foregoing clause (a) within thirty (30) days after any invoice therefor from ALNYLAM to ARROWHEAD. ARROWHEAD shall be entitled to deduct from royalty payments payable hereunder for a given Licensed RNAi Product *** percent (***%) of any Third Party License Fees Payments paid by ARROWHEAD with respect to such Licensed RNAi Product during the applicable reporting period; provided that in no event shall a deduction under this Section 5.5 reduce any royalty payment with respect to any such Licensed RNAi Product payable by ARROWHEAD hereunder to less than *** percent (***%) of the royalty payment amount otherwise payable pursuant to

Section 5.4. In addition, ARROWHEAD shall be entitled to deduct from milestones payable hereunder for any given Licensed RNAi Product *** percent (***%) of any milestone payment actually paid by ARROWHEAD to any Third Party for such Licensed RNAi Product pursuant to an Existing ALNYLAM Third Party Agreement as set forth in the foregoing clause (a).

ARTICLE VI- REPORTS, TAXES AND PAYMENTS

6.1 Reports. As to each Calendar Quarter commencing with the Calendar Quarter during which the First Commercial Sale occurs, within seventy five (75) days after the end of such Calendar Quarter, ARROWHEAD will deliver to ALNYLAM a written report showing, on a Licensed RNAi Product-by-Licensed RNAi Product and country-by-country basis, the Net Sales of Licensed RNAi Products calculated under GAAP and its royalty obligation for such Calendar Quarter with respect to such Net Sales under this Agreement together with wire transfer of an amount equal to such royalty obligation. In addition, if the sales milestone set forth in Section 5.4 is achieved during such Calendar Quarter, ARROWHEAD shall also pay to ALNYLAM the sales milestone payment set forth in Section 5.4 with such wire transfer. All Net Sales will be segmented in each such report according to sales by ARROWHEAD and each Affiliate and Sublicensee, including the rates of exchange used to convert Net Sales to United States dollars from the currency in which such sales were made. For the purposes of this Agreement, the rates of exchange to be used for converting Net Sales to United States dollars will be the simple average of the selling and buying rates of Dollars published in *The Wall Street Journal East Coast Edition* for the last business day of the Calendar Quarter covered by the report.

6.2 Tax Withholding. ARROWHEAD will use commercially reasonable efforts to reduce tax withholding with respect to payments to be made to ALNYLAM, provided that ALNYLAM will reasonably cooperate with ARROWHEAD for said purposes. Notwithstanding such efforts, if ARROWHEAD concludes that tax withholdings under the laws of any country are required with respect to payments to ALNYLAM, ARROWHEAD will, subject to Section 12.6(c), make the full amount of the required payment to ALNYLAM after any tax withholding. In any such case, ARROWHEAD shall provide ALNYLAM with a written explanation of such withholding and original receipts or other evidence reasonably desirable and sufficient to allow ALNYLAM to document such tax withholdings for purposes of claiming foreign tax credits and similar benefits.

6.3 Payments. Unless otherwise agreed by the Parties, all payments required to be made under this Agreement will be made in United States dollars via wire transfer to an account designated in advance by the receiving Party.

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

6.4 Audits. At any given point in time, ARROWHEAD will have on file and will require its Affiliates and Sublicensees to have on file complete and accurate records for the last three (3) years of all Net Sales (including associated data). ALNYLAM will have the right, once during each twelve (12) month period, to retain at its own expense an independent qualified certified public accountant reasonably acceptable to ARROWHEAD to review such records upon reasonable notice, during regular business hours. If the audit demonstrates that the payments owed under this Agreement have been understated, ARROWHEAD will pay the balance to ALNYLAM together with interest on such amounts in accordance with Section 6.5. If the underpayment is greater than five percent (5%) of the amount owed for any calendar year, then ARROWHEAD will reimburse ALNYLAM for its reasonable out-of-pocket costs of the audit.

6.5 Late Payments. ARROWHEAD shall pay interest to ALNYLAM on the aggregate amount of any payments (except for those payments which are the subject of a reasonable, good faith dispute) that are not paid on or before the date such payments are due under this Agreement at a rate equal to the then current 30-day United States dollar LIBOR rate plus two percent per annum.

ARTICLE VII- INTELLECTUAL PROPERTY

7.1 Prosecution and Maintenance of Patent Rights.

(a) ALNYLAM will have the sole and exclusive right to file, prosecute and maintain patent protection (or to decline to do so) in the Territory for all ALNYLAM RNAi Patent Rights in its discretion and the first right to file, prosecute and maintain patent protection (or to decline to do so) in the Territory for all ALNYLAM Target-Specific Patent Rights. ALNYLAM covenants that it will not abandon, sell or exclusively license any portion of the ALNYLAM Patent Rights in any manner that would adversely affect ARROWHEAD' s rights hereunder.

(b) ALNYLAM shall keep ARROWHEAD informed as to material developments with respect to the filing, prosecution and maintenance of the ALNYLAM Target-Specific Patent Rights, including by providing copies of all substantive office actions or any other substantive documents that ALNYLAM receives from any patent office. ALNYLAM shall provide ARROWHEAD with reasonable opportunities to substantively comment on the filing, prosecution and maintenance of the ALNYLAM Target-Specific Patent Rights prior to taking material actions, and will in good faith consider any actions recommended by ARROWHEAD; provided that ARROWHEAD provides such comments promptly and consistent with any applicable filing deadlines. If ALNYLAM decides not to file an ALNYLAM Target-Specific Patent Right or intends to allow an ALNYLAM Target-Specific Patent Right to lapse or become abandoned without filing a substitute, ALNYLAM shall, notify and consult with ARROWHEAD regarding such decision or intention at least thirty (30) days prior to the date upon which the subject matter of such ALNYLAM Target-Specific Patent Right shall become unpatentable or such ALNYLAM Target-Specific Patent Right shall lapse or become abandoned, and ARROWHEAD shall thereupon have the right, but not the obligation, to assume responsibility for the filing, prosecution and maintenance thereof at its own expense with counsel of its own choice.

7.2 Infringement of ALNYLAM Rights.

(a) Each Party will promptly report in writing to the other Party during the Term any known or suspected infringement by a Third Party with respect to any ALNYLAM Patent Right by the Research, Development or Commercialization by such Third Party of a product that is or would be competitive with a Licensed RNAi Product being researched, Developed or Commercialized by ARROWHEAD, its Affiliates or Sublicensees ("Competitive Infringement") and will provide the other Party with all available evidence supporting such Competitive Infringement.

(b) ALNYLAM shall have the sole and exclusive right to initiate and control any infringement or other appropriate suit in the Territory against any Third Party who at any time has infringed, or is suspected of infringing, any of the ALNYLAM RNAi Patent Rights in its discretion.

(c) ARROWHEAD shall have the first right to initiate and control any infringement or other appropriate suit in the Territory with respect to a Competitive Infringement of an ALNYLAM Target-Specific Patent Right. ALNYLAM shall, at ARROWHEAD's expense, cooperate with ARROWHEAD in any such suit and shall have the right, at its own expense, to be represented in such action by counsel of its own choice. If ARROWHEAD fails to bring any such action or proceeding within a period of ninety (90) days after first being notified of a Competitive Infringement of an ALNYLAM Target-Specific Patent Right, then ALNYLAM shall have the right to bring and control such an action with respect to such Competitive Infringement of an ALNYLAM Target-Specific Patent Right by counsel of its own choice. ARROWHEAD shall, at ALNYLAM's expense, cooperate with ALNYLAM in any such suit and have the right to be represented in such action by counsel of its own choice at its own expense. Any recoveries resulting from such an action brought in accordance with this clause (c) shall be applied as follows: (i) first, to reimburse each Party for all out-of-pocket costs incurred in connection with such proceeding (on a pro rata basis, based on each Party's respective litigation costs, to the extent the recovery was less than all such litigation costs); and (ii) the remainder of any such recovery shall be shared between the Parties with the Party that initiated such action retaining *** of the remainder of such recovery and the other Party receiving *** of the remainder of such recovery.

7.3 Claimed Infringement of Third Party Rights, and Third Party Intellectual Property Obligations.

(a) In the event that a Third Party at any time provides written notice of a claim to, or brings an action, suit or proceeding against, either Party, or any of their respective Affiliates or Sublicensees, claiming infringement of its patent rights based upon an assertion or claim arising out of the development, use, manufacture, distribution, importation or sale of Licensed RNAi Products ("Third Party Claim"), such Party will promptly notify the other Party of the claim or the commencement of such action, suit or proceeding, enclosing a copy of the claim and all papers served. Each Party agrees to make available to the other Party its advice and counsel regarding the technical merits of any such claim at no cost to the other Party and, if requested by the other Party, to provide reasonable assistance to the other Party at no cost to the other Party other than out-of-pocket expenses incurred in connection with such assistance.

(b) EACH PARTY DISCLAIMS ALL REPRESENTATIONS AND WARRANTIES, EXPRESS OR IMPLIED, OF NONINFRINGEMENT WITH RESPECT TO ANY LICENSED RNAi PRODUCT.

ARTICLE VIII - CONFIDENTIAL INFORMATION

8.1 Non-Use and Non-Disclosure of Confidential Information. Each Party agrees that all Confidential Information of a Party that is disclosed by a Party to the other Party (a) will not be used by the receiving Party except in connection with the activities contemplated by this Agreement or in order to further the purposes of this Agreement, (b) will be maintained in confidence by the receiving Party and (c) will not be disclosed by the receiving Party to any Third Party who is not a consultant or advisor under an obligation of confidentiality to, the receiving Party or an Affiliate or Sublicensee of the receiving Party, without the prior written consent of the disclosing Party. The disclosing Party is liable for any breach of the non-disclosure obligation of its consultants, advisors, Affiliates and Sublicensees as applicable. Notwithstanding the foregoing, Confidential Information shall not include information which (i) was known by the receiving Party or its Affiliates prior to its date of disclosure by the disclosing Party to the receiving Party as demonstrated by legally admissible evidence available to the receiving Party or its Affiliates, (ii) either before or after the date of the disclosure such Confidential Information is lawfully disclosed to the receiving Party or its Affiliates by sources other than the disclosing Party rightfully in possession of such Confidential Information or other information and not bound by confidentiality obligations to the disclosing Party, (iii) either before or after the date of the disclosure by the disclosing Party to the receiving Party such Confidential Information becomes published or otherwise part of the public domain through no fault or omission on the part of the receiving Party or its Affiliates, or (iv) is independently developed by or for the receiving Party or its Affiliates without reference to or in reliance upon the Confidential Information as demonstrated by legally admissible evidence available to the receiving Party or its Affiliates.

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8.2 Permitted Disclosures. Notwithstanding the foregoing provisions of Section 8.1, each Party may disclose Confidential Information belonging to the other Party to the extent: (a) reasonably necessary to Research, Develop, manufacture and Commercialize Licensed RNAi Products, including to obtain Approval of Licensed RNAi Products, (b) to its employees, consultants and advisors, and the employees, consultants and advisors of its Affiliates or Sublicensees as applicable, who have a legitimate business need to know and an obligation to maintain in confidence the Confidential Information of the disclosing Party, (c) reasonably necessary for the prosecution and maintenance of Patent Rights, (d) reasonably required in order for a Party to obtain financing or conduct discussions with Development or Commercialization partners so long as such Third Party recipients are bound by an obligation of confidentiality consistent with that set forth herein, (e) reasonably necessary in connection with prosecuting or defending litigation as permitted by this Agreement, (f) reasonably necessary to enforce its rights under this Agreement or (g) required to be disclosed by the receiving Party to comply with applicable laws or regulations or legal process, including without limitation by the rules or regulations of the United States Securities and Exchange Commission or similar regulatory agency in a country other than the United States or of any stock exchange or NASDAQ, provided that the receiving Party provides prior written notice of such disclosure to the disclosing Party and takes reasonable and lawful actions to avoid or minimize the extent of such disclosure.

8.3 Publicity. No disclosure of the existence of, or the terms of, this Agreement may be made by either Party, and no Party shall use the name, trademark, trade name or logo of the other Party or its employees in any publicity, news release or disclosure relating to this Agreement or its subject matter, without the prior express written permission of the other Party, except as may be required by law or as set forth in this Section 8.3. The Parties acknowledge and agree that, upon and following the Effective Date, the Parties shall jointly issue a press release announcing the execution of this Agreement in form and substance substantially as attached hereto as Exhibit D. Either Party may issue such other press releases or otherwise make such public statements or disclosures (such as in annual reports to stockholders or filings with the Securities and Exchange Commission) as it determines, based on advice of counsel, are reasonably necessary to comply with applicable laws and regulations. In addition, following any initial press release(s) announcing this Agreement or other public disclosure approved by both Parties, either Party shall be free to disclose, without the other Party's prior written consent, the existence of this Agreement, the identity of the other Party and those terms of the Agreement which have already been publicly disclosed in accordance herewith.

ARTICLE IX - INDEMNIFICATION AND INSURANCE

9.1 ARROWHEAD Indemnification. ARROWHEAD agrees to indemnify and hold harmless ALNYLAM and its Affiliates, and their respective agents, directors, officers and employees and their respective successors and assigns (the "ALNYLAM Indemnitees") from and against any and all losses, costs, damages, fees or expenses ("Losses") incurred by an ALNYLAM Indemnitee arising out of or in connection with any claim, suit, demand, investigation or proceeding brought by a Third Party ("Claim") based on (a) the development, use, manufacture, distribution or sale of any Licensed RNAi Product by ARROWHEAD or any of its Affiliates or Sublicensees, including, but not limited to, any claims made against ALNYLAM by Third Parties alleging infringement, injury, damage, death or other consequence occurring to any person claimed to result, directly or indirectly, from the possession, use or consumption of, or treatment with, any Licensed RNAi Product, whether claimed by reason of breach of warranty, negligence, product defect or otherwise, and regardless of the form or forum in which any such claim is made, (b) any breach of any representation, warranty or covenant of ARROWHEAD in this Agreement, or (c) any act or omission by ARROWHEAD or an ARROWHEAD Indemnitee, which constitutes recklessness, gross negligence, or willful misconduct on the part of ARROWHEAD or an ARROWHEAD Indemnitee in connection with this Agreement. The above indemnification shall not apply to the extent that any Losses are due to (i) a material breach of any of ALNYLAM's representations, warranties, covenants and/or obligations under this Agreement; or (ii) any act or omission by ALNYLAM, or an ALNYLAM Indemnitee, which constitutes recklessness, gross negligence, or willful misconduct on the part of ALNYLAM, or an ALNYLAM Indemnitee.

9.2 ALNYLAM Indemnification. ALNYLAM agrees to indemnify and hold harmless ARROWHEAD and its Affiliates, and their respective agents, directors, officers and employees and their respective successors and assigns (the "ARROWHEAD Indemnitees") from and against any and all Losses incurred by an ARROWHEAD Indemnitee arising out of or in connection with any Claim based on (a) any breach of any representation, warranty or covenant of ALNYLAM in this Agreement, or (b) any act or omission by ALNYLAM or an ALNYLAM Indemnitee, which constitutes recklessness, gross negligence, or willful misconduct on the part of ALNYLAM or an ALNYLAM Indemnitee in connection with this Agreement. The above indemnification shall not apply to the extent that any Losses are due to (i) a material breach of any of ARROWHEAD' s representations, warranties, covenants and/or obligations under this Agreement, or (ii) any act or omission by ARROWHEAD, or an ARROWHEAD Indemnitee, which constitutes recklessness, gross negligence, or willful misconduct on the part of ARROWHEAD, or an ARROWHEAD Indemnitee.

9.3 Indemnification Procedures.

(a) Each indemnified party shall notify the indemnifying party in writing (and in reasonable detail) of the Claim within ten (10) business days after receipt by such indemnified party of notice of a Claim or otherwise becoming aware of the existence or threatened existence thereof. Failure to give such notice shall not constitute a defense, in whole or in part, to any claim by an indemnified party hereunder except to the extent the rights of the indemnifying party are materially prejudiced by such failure to give notice. The indemnifying party shall notify the indemnified party of its intentions as to defense of the Claim or potential Claim in writing within ten (10) business days after receipt of notice of the Claim. If the indemnifying party assumes the defense of a Claim against an indemnified party, an indemnifying party shall have no obligation or liability under this Article IX as to any Claim for which settlement or compromise of such Claim or an offer of settlement or compromise of such Claim is made by an indemnified party without the prior written consent of the indemnifying party, which consent shall not be unreasonably withheld, conditioned or delayed.

(b) The indemnifying party shall assume exclusive control of the defense and settlement (including all decisions relating to litigation, defense and appeal) of any such Claim (so long as it has confirmed its indemnification obligation responsibility to such indemnified party under this Section 9.3(b) with respect to a given Claim); provided, however, that the indemnifying party may not settle such Claim in any manner that would require payment by the indemnified party, or would materially adversely affect the rights granted to the indemnified party hereunder, or would materially conflict with the terms of this Agreement, or adversely affect other products of the indemnified party, without first obtaining the indemnified party's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

(c) The indemnified party shall reasonably cooperate with the indemnifying party in its defense of the Claim (including making documents and records available for review and copying and making persons within its control available for pertinent testimony in accordance with the confidentiality provisions of Article VII, and neither party shall be required to divulge privileged material to the other) at the indemnifying party's expense. If the indemnifying party assumes defense of the Claim, an indemnified party may participate in, but not control, the defense of such Claim using attorneys of its choice and at its sole cost and expense, with such cost and expense not being covered by the indemnifying party. If an indemnifying party does not agree to assume the defense of the Claim asserted against the indemnified party (or does not give notice that it is assuming such defense), or if the indemnifying party assumes the defense of the Claim in accordance with Section 9.3(b) yet fails to defend or take other reasonable, timely action, in response to such Claim asserted against the indemnified party, the indemnified party shall have the right to defend or take other reasonable action to defend its interests in such proceedings, and shall have the right to litigate, settle or otherwise dispose of any such Claim; provided, however, that the indemnified party shall not have the right to settle such Claim in any manner that would adversely affect the rights granted to the other party hereunder, or would materially conflict with this Agreement, or would require a payment by the other party, or adversely affect the products of the other party, without the prior written consent of the other party, which consent shall not be unreasonably withheld, conditioned or delayed.

ARTICLE X - EXPORT

10.1 General. The Parties acknowledge that the exportation from the United States of materials, products and related technical data (and the re-export from elsewhere of United States origin items) may be subject to compliance with United States export laws, including without limitation the United States Bureau of Export Administration's Export Administration Regulations, the Act and regulations of the FDA issued thereunder, and the United States Department of State's International Traffic and Arms Regulations which restrict export, re-export, and release of materials, products and their related technical data, and the direct products of such technical data. The Parties agree to comply with all applicable exports laws and to commit no act that, directly or indirectly, would violate any United States law, regulation, or treaty, or any other international treaty or agreement, relating to the export, re-export, or release of any materials, products or their related technical data to which the United States adheres or with which the United States complies.

10.2 Delays. The Parties acknowledge that they cannot be responsible for any delays attributable to export controls which are beyond the reasonable control of either Party.

10.3 Assistance. The Parties agree to provide assistance to one another in connection with each Party's efforts to fulfill its obligations under this Article X.

ARTICLE XI - TERM AND TERMINATION

11.1 Term. This Agreement will remain in effect until the end of the last-to-expire Royalty Term with respect to all Licensed RNAi Products (the "Term") unless terminated in accordance with this Article XI.

11.2 Material Breach. Either Party (the "Non-Breaching Party") will have the right to terminate this Agreement, upon written notice to the other Party (the "Breaching Party"), in the event the latter materially breaches its obligations under this Agreement and does not remedy such breach within sixty (60) days (thirty (30) days for payment breaches) after receipt of written notice from the Non-Breaching Party specifically identifying the breach and stating it intends to terminate the Agreement if the Breaching Party fails to remedy the breach within the sixty (60)-day (or thirty (30)-day for payment breaches) notice period.

11.3 Termination by ARROWHEAD. ARROWHEAD will have the right to terminate this Agreement for any reason upon thirty (30) days' prior written notice to ALNYLAM.

11.4 Termination Due to Patent Challenge. If ARROWHEAD or any of its Affiliates or Sublicensees initiates, or assists any Third Party in initiating, any legal action seeking a determination that any of the ALNYLAM Patent Rights in any country are invalid, unenforceable, and/or not infringed (including a request for reexamination or opposition of any such ALNYLAM Patent Rights), to the extent permitted by the applicable law of such country, ALNYLAM may terminate this Agreement upon thirty (30) days' prior written notice to ARROWHEAD, provided, however, that if, prior to the end of such thirty (30)-day period ARROWHEAD is able to obtain a full and complete withdrawal of such action and ARROWHEAD shall pay all of ALNYLAM's costs associated therewith, the termination shall not become effective and this Agreement shall remain in full force and effect.

11.5 Consequences of Termination; Survival.

(a) In the event this Agreement is terminated under Section 11.2, 11.3 or 11.4, all licenses and other rights granted by ALNYLAM to ARROWHEAD under this Agreement will terminate.

(b) Expiration or termination of this Agreement shall not relieve the Parties of any obligation accruing prior to such expiration or termination or any rights of the Parties that accrued prior to such expiration or termination. Termination of this Agreement, for whatever reason in accordance with the provisions hereof, shall not limit remedies that may be otherwise available in law or equity.

(c) The provisions of Article VIII shall survive the expiration or termination of this Agreement for any cause and shall continue in effect as applicable for ten (10) years from the date of initial disclosure. In addition, the provisions of Articles V, VI, IX and XII (other than 12.1 and 12.2), and this Section 11.5 shall survive any expiration or termination of this Agreement.

ARTICLE XII - MISCELLANEOUS

12.1 Representations by ARROWHEAD and ALNYLAM.

(a) Each Party hereby represents and warrants to the other Party, as of the Effective Date, that:

(i) Such Party is duly organized under the laws of the state or country of its formation, and has all necessary power and authority to conduct its business in the manner in which it is currently being conducted, to own and use its assets in the manner in which its assets are currently owned and used, and to enter into and perform its obligations under this Agreement.

(ii) The execution, delivery and performance of this Agreement (A) has been duly authorized by all necessary action on the part of such Party and its Board of Directors (or comparable governance body) and (B) does not and will not conflict with, or constitute a default under, any agreement, instrument or understanding, oral or written, to which such Party is a party or by which it is bound. Further, no consent, approval, order or authorization of, or registration, declaration or filing with any Third Party or governmental authority is necessary for the execution, delivery or performance of this Agreement.

(iii) This Agreement constitutes the legal, valid and binding obligation of such Party, enforceable against it in accordance with its terms, subject to (A) laws of general application relating to bankruptcy, insolvency and the relief of debtors, and (B) rules of law governing specific performance, injunctive relief and other equitable remedies.

(iv) Neither such Party nor any of its Affiliates has been found in breach of any laws or regulations governing the production of medicinal products in the United States or any other jurisdiction within the Territory.

(v) Neither such Party nor any of its Affiliates has been debarred (nor is such Party or any of its Affiliates using in any capacity in connection with its activities under this Agreement any person who has been debarred) by the FDA from working for or providing services to any pharmaceutical or biotechnology company under Section 306 of the Act.

(vi) Such Party has never approved or commenced any proceeding, or made any election contemplating, the winding up or cessation of such Party's business or affairs or the assignment of such Party's material assets for the benefit of creditors. To such Party's knowledge, no such proceeding is pending or threatened.

(b) ALNYLAM represents and warrants to ARROWHEAD that as of the Effective Date:

(i) ALNYLAM has the right to grant ARROWHEAD the licenses granted hereunder and has not granted any conflicting rights to any other person or entity.

(ii) ALNYLAM has not previously granted any right, license or interest in or to the ALNYLAM Patent Rights, or any portion thereof, that is in conflict with the rights or licenses granted to ARROWHEAD under this Agreement.

(iii) ALNYLAM and its Affiliates have taken reasonable measures to protect the ALNYLAM Intellectual Property, consistent with prudent commercial practices in the biotechnology industry.

(c) EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS ARTICLE XII, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, TO THE OTHER PARTY, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

12.2 Mutual Covenants. Each Party hereby covenants to the other Party that:

(a) Such Party shall comply with all applicable laws, rules and regulations in connection with this Agreement and the transactions contemplated hereby and will perform its activities pursuant to this Agreement in compliance in all material respects with GLP and GCP; and

(b) All employees of such Party or its Affiliates working under this Agreement will be under the obligation to assign all right, title and interest in and to their inventions and discoveries, whether or not patentable, to such Party as the sole owner thereof

12.3 Dispute Resolution; Arbitration Procedures.

(a) In the event of any dispute, controversy or claim arising out of or relating to this Agreement or the breach thereof, the Parties will try to settle such dispute, controversy or claim amicably between themselves, including referring such dispute, controversy or claim to the Executive Officers. In the event that after forty-five (45) days the designated officers of both Parties fail to resolve the matter, either Party may submit such dispute, controversy or claim that is not an "Excluded Claim" for resolution by binding arbitration under the Rules of Arbitration of the American Arbitration Association. Judgment on the arbitration award may be entered in any court of competent jurisdiction. The arbitration will be conducted in New York, New York and the language of all communications and proceedings relating to the arbitration will be English.

(b) The arbitration shall be conducted by a panel of three persons experienced in the pharmaceutical business. Within thirty (30) days after initiation of arbitration, each Party shall select one person to act as arbitrator and the two Party-selected arbitrators shall select a third arbitrator within thirty (30) days of their appointment. If the arbitrators selected by the Parties are unable or fail to agree upon the third arbitrator, the Parties shall select two replacement arbitrators to replace the arbitrators originally selected, which replacement arbitrators shall select a third arbitrator within thirty (30) days of their appointment. The Parties agree (a) to meet with the arbitrator(s) within thirty (30) days of selection and (b) to agree at that meeting or before as to the conduct of the hearing which will result in the hearing being concluded within no more than six (6) months after selection of the arbitrator(s) and in the award being rendered within thirty (30) days of any post-hearing briefing, which briefing will be completed by both sides within thirty (30) days after the conclusion of the hearings, or within sixty (60) days of the conclusion of the hearings if there is no post-hearing briefing. In no event will the arbitrator(s), absent agreement of the Parties, allow more than three (3) days per side for the hearing or more than a total of six (6) days for the hearing. Multiple hearing days will be scheduled consecutively to the greatest extent possible.

(c) Either Party may apply to the arbitrators for interim injunctive relief until the arbitration award is rendered or the controversy is otherwise resolved. Either Party also may, without waiving any remedy under this Agreement, seek from any court having jurisdiction any injunctive or provisional relief necessary to protect the rights or property of that Party pending the arbitration award. The arbitrators shall have no authority to award punitive or any other type of damages not measured by a Party's compensatory damages. The costs, expenses, attorneys' fees and arbitrators' fees and any administrative fees of arbitration of both Parties shall be borne by the Parties as determined by the arbitrators, who shall take into account the nature of the dispute and reasonableness of the Parties' positions with respect to the dispute in making such determination.

(d) Except to the extent necessary to confirm an award or as may be required by law, neither a Party nor an arbitrator may disclose the existence, content, or results of an arbitration without the prior written consent of both Parties. In no event shall an arbitration be initiated after the date when commencement of a legal or equitable proceeding based on the dispute, controversy or claim would be barred by the applicable Massachusetts statute of limitations.

(e) Notwithstanding anything in this Agreement to the contrary, a Party may seek a temporary restraining order or a preliminary injunction from any court of competent jurisdiction in order to prevent immediate and irreparable injury, loss, or damage on a provisional basis, pending an award of the arbitrators on the ultimate merits of any dispute.

(f) As used in this Section 12.3, the term "Excluded Claim" shall mean a dispute, controversy or claim that concerns (i) the validity or infringement of a patent, trademark or copyright; or (ii) any antitrust, anti-monopoly or competition law or regulation, whether or not statutory. Excluded Claims shall be resolved in a court of competent jurisdiction.

12.4 Force Majeure. No failure or omission by the Parties in the performance of any obligation of this Agreement will be deemed a breach of this Agreement or create any liability if the same will arise from any cause or causes beyond the control of the Parties, including, but not limited to, the following: acts of God; acts or omissions of any government; any rules, regulations or orders issued by any governmental authority or by any officer, department, agency or instrumentality thereof; fire; flood; storm; earthquake; accident; war; rebellion; insurrection; riot; and invasion. The affected Party shall notify the other Party of such force majeure circumstances as soon as reasonably practical, and shall promptly undertake all reasonable efforts necessary to cure such force majeure circumstances.

12.5 Consequential Damages. NEITHER PARTY (INCLUDING ITS AFFILIATES AND SUBLICENSEES) SHALL BE LIABLE UNDER THIS AGREEMENT FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR FOR LOSS OF PROFIT OR LOST REVENUE, EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION 12.5 IS INTENDED TO OR SHALL LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OF A PARTY OR DAMAGES AVAILABLE FOR A PARTY'S BREACH OF CONFIDENTIALITY OBLIGATIONS IN ARTICLE VIII.

12.6 Assignment.

(a) This Agreement and any of its rights and obligations may not be assigned or otherwise transferred by either Party without the prior written consent of the other Party, which consent may not be unreasonably withheld, delayed or conditioned; provided, however, that either Party may assign this Agreement, without the consent of the other Party, in connection with such Party's merger, consolidation or transfer or sale of all or substantially all of the business or assets of such Party relating to the subject matter of this Agreement; provided further that the successor, surviving entity, purchaser of assets, or transferee, as applicable, expressly assumes in writing such Party's obligations under this Agreement. Any purported assignment in contravention of this Section 12.6 shall, at the option of the non-assigning Party, be null and void and of no effect.

(b) Each Party agrees that, notwithstanding any provisions of this Agreement to the contrary, if this Agreement is assigned by a Party in connection with such Party's merger, consolidation or transfer or sale of all or substantially all of the business or assets of such Party relating to the subject matter of this Agreement, such assignment shall not provide the non-assigning Party with rights or access to any intellectual property or technology of the acquirer of the assigning Party.

(c) If ARROWHEAD assigns its rights and obligations hereunder to an Affiliate or Third Party outside the United States pursuant to this Section 12.6, and if such Affiliate or Third Party shall be required by applicable Law to withhold any additional taxes from or in respect of any amount payable under this Agreement as a result of such assignment, then any such amount payable under this Agreement shall be increased to take into account the additional taxes withheld as may be necessary so that, after making all required withholdings, ALNYLAM receives an amount equal to the sum it would have received had no such assignment been made.

(d) This Agreement will be binding upon and inure to the benefit of the Parties and their permitted successors and assigns.

12.7 Notices.

Notices to ALNYLAM will be addressed to:

Alnylam Pharmaceuticals, Inc.
300 Third Street
Cambridge, Massachusetts 02142
U.S.A.
Attention: Chief Business Officer
Facsimile No.: (617) 551-8101

With copy to:

Wilmer Cutler Pickering Hale and Don LLP
60 State Street
Boston, Massachusetts 02109
U.S.A.
Attention: Steven D. Barrett, Esq.
Facsimile No.: (617) 526-5000

Notices to ARROWHEAD will be addressed to:

Attention: Brendan Rae, Ph.D., J.D.
Arrowhead Research Corporation
225 South Lake Avenue, 3rd Floor
Pasadena, CA 91101
Telephone: (626) 304-3400
Fax: (626) 304-3401

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

With copy to:

Attention: Thomas Haag, Ph.D., Esq.
Fanelli Haag PLLC
1909 K St. NW, Suite 1120
Washington, DC 20006
Telephone: 202.706.7910
Fax: 202.706.7920

Any Party may change its address by giving notice to the other Party in the manner provided in this Section 12.7. Any notice required or provided for by the terms of this Agreement will be in writing and will be (a) sent by certified mail, return receipt requested, postage prepaid, (b) sent via a reputable national express courier service, or (c) sent by facsimile transmission, with a copy by regular mail. The effective date of the notice will be the actual date of receipt by the receiving Party.

12.8 Independent Contractors. It is understood and agreed that the relationship between the Parties is that of independent contractors and that nothing in this Agreement will be construed as authorization for either Party to act as the agent for the other Party.

12.9 Governing Law; Jurisdiction. This Agreement will be governed and interpreted in accordance with the substantive laws of the State of New York of the U.S.A., notwithstanding the provisions governing conflict of laws under such law of the State of New York to the contrary, provided that matters of intellectual property law will be determined in accordance with the national intellectual property laws relevant to the intellectual property in question.

12.10 Severability. In the event that any provision of this Agreement is held by a court of competent jurisdiction to be unenforceable because it is invalid or in conflict with any law of the relevant jurisdiction, the validity of the remaining provisions will not be affected and the rights and obligations of the Parties will be construed and enforced as if the Agreement did not contain the particular provisions held to be unenforceable, provided that the Parties will negotiate in good faith a modification of this Agreement with a view to revising this Agreement in a manner which reflects, as closely as is reasonably practicable, the commercial terms of this Agreement as originally signed.

12.11 No Implied Waivers. The waiver by either Party of a breach or default of any provision of this Agreement by the other Party will not be construed as a waiver of any succeeding breach of the same or any other provision, nor will any delay or omission on the part of either Party to exercise or avail itself of any right, power or privilege that it has or may have hereunder operate as a waiver of any right, power or privilege by such Party.

12.12 Entire Agreement. This Agreement, along with that certain Confidential Disclosure Agreement by and between the Parties dated as of October 28, 2011, constitutes the entire agreement between the Parties with respect to its subject matter and supersedes all previous written or oral representations, agreements and understandings between the Parties. This Agreement may be amended only in a writing signed by both Parties.

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

12.13 Headings; Construction; Interpretation. Headings used herein are for convenience only and shall not in any way affect the construction of or be taken into consideration in interpreting this Agreement. The terms of this Agreement represent the results of negotiations between the Parties and their representatives, each of which has been represented by counsel of its own choosing, and neither of which has acted under duress or compulsion, whether legal, economic or otherwise. Accordingly, the terms of this Agreement shall be interpreted and construed in accordance with their usual and customary meanings, and each of the Parties hereto hereby waives the application in connection with the interpretation and construction of this Agreement of any rule of law to the effect that ambiguous or conflicting terms or provisions contained in this Agreement shall be interpreted or construed against the Party whose attorney prepared the executed draft or any earlier draft of this Agreement. Any reference in this Agreement to an Article, Section, subsection, paragraph, clause, Schedule or Exhibit shall be deemed to be a reference to any Article, Section, subsection, paragraph, clause, Schedule or Exhibit, of or to, as the case may be, this Agreement. Except where the context otherwise requires, (a) any definition of or reference to any agreement, instrument or other document refers to such agreement, instrument other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein or therein), (b) any reference to any law, rule or regulation refers to such law, rule or regulation as from time to time enacted, repealed or amended, (c) the words "herein," "hereof' and "hereunder," and words of similar import, refer to this Agreement in its entirety and not to any particular provision hereof, (d) the words "include," "includes," "including," "exclude," "excludes," and "excluding," shall be deemed to be followed by the phrase "but not limited to," "without limitation" or words of similar import, (e) except where the context otherwise requires, the word "or" is used in the inclusive sense, and (f) all references to "dollars" or "$" herein shall mean US Dollars.

12.14 Counterparts. This Agreement may be signed in counterparts, each and every one of which shall be deemed an original, notwithstanding variations in format or file designation which may result from the electronic transmission, storage and printing of copies from separate computers or printers. Facsimile signatures and signatures transmitted via portable document format (PDF) shall be treated as original signatures.

IN WITNESS WHEREOF, the Parties hereto have set their hand as of the Effective Date.

ALNYLAM PHARMACEUTICALS, INC.

By: /s/ Laurence E. Reid
Name: L.E. Reid
Title: CBO

ARROWHEAD RESEARCH CORPORATION

By: /s/ Chris Anzalone
Name: Chris Anzalone
Title: President & CEO

ARROWHEAD MADISON INC.

By: /s/ Chris Anzalone
Name: Chris Anzalone
Title: President & CEO

***** Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.**

EXHIBIT A

ALNYLAM Patent Rights

Our Ref. No.	Country	Application No.	Patent No.	Status	Application Title
RIB-001.3AT1	Austria	EP 02003683	E297.463	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AT2	Austria	05002454.6-2107	E418.60	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AU	Australia	2000032713	778474	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AU1	Australia	2005201044	2005201044	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AUD2	Australia	2008202208		Opposed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CA	Canada	2,359,180	2,359,180	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CH1	Switzerland	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CH2	Switzerland	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CY1	Cyprus	EP 02003683	CY05/1101016	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CY2	Cyprus	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE0	Germany	50000414.5-08	1144623	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE1	Belgium	EP 02003683	EP 1214945 B1	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE1	Germany	50010528.6-08	1214945	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE2	Belgium	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE2	Germany	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DED1	Germany	10066235.8	10066235.8	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DED2	Germany	10066344.3		Pending	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DED3	Germany	10066382.6		Pending	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DEUTM	Germany	20023125.1	DE20023125 U1	RegUtilMode	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DK1	Denmark	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DK2	Denmark	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE

RIB-001.3EPD1	Europe	02003683.6	1214945	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3EPD2	Europe	05002454.6	1550719	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3EPD3	Europe	06025389.5		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3EPD4	Europe	10011217.6		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3ES1	Spain	EP 02003683	ES2243608	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3ES2	Spain	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FI1	Finland	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FI2	Finland	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FR1	France	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FR2	France	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GB1	United Kingdom	EP 02003683	EP1214945	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GB2	United Kingdom	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GR1	Greece	EP 02003683	3054579	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GR2	Greece	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IE	Ireland	EP 00910510	1144623 B9	Revoked	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IE1	Ireland	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IE2	Ireland	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IT1	Italy	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IT2	Italy	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD10	Japan	2009-285706		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD3	Japan	2007-186341		Appealed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD4	Japan	2007-186340		Appealed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE

RIB-001.3JPD5	Japan	2007-186339		ExamReq	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD7	Japan	2009-002825		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD9	Japan	2009-285705		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LI1	Liechtenstein	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LI2	Liechtenstein	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LU1	Luxembourg	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LU2	Luxembourg	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3MC1	Monaco	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3MC2	Monaco	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3NL1	Netherlands	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3NL2	Netherlands	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3PT1	Portugal	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3PT2	Portugal	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3SE1	Sweden	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3SE2	Sweden	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON1	US	11/982325		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON2	US	11/982305		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON3	US	11/982425		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON4	US	11/982441		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON5	US	11/982345		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON6	US	11/982434		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USD1	US	10/382395		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE

RIB-001.3USD2	US	10/383099		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USD3	US	10/382768		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USD4	US	10/612179		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3WO	PCT	PCT/DE00/00244		CompletedNt	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3ZA	South Africa	ZA 20015909	2001/5909	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-002.1DE	Germany	10100586.5-09	DE10100586 C1	Granted	INHIBITING GENE EXPRESSION IN CELLS, USEFUL FOR e.g., TREATING TUMORS, BY INTRODUCING DOUBLE-STRANDED COMPLEMENTARY OLIGORNA HAVING
RIB-002.4	US	12/894018		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4AT	Austria	02710786.1	E328.075	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4AU	Australia	2002229701	2002229701	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4CH	Switzerland	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4CY	Cyprus	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4DE	Germany	50206993.7-08	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4EP	Europe	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4GB	United Kingdom	EP 02710786	EP 1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4IE	Ireland	02710786.1	1352061	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4JP	Japan	2002-556740	4210116	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4JPD1	Japan	2002-556739	4209678	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4LI	Liechtenstein	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4LU	Luxembourg	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4TR	Turkey	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4US	US	10/384,339	7,829,693	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE

RIB-002.4WO	PCT	PCT/EP02/00152		CompletedNt	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-006.1DE	Germany	02702247.4-2405/1349	50214866.9-08	Allowed	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1EP	Europe	02702247.4	EP1349927	GrantedInOp	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1EPD1	Europe	10002422.3		Pending	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1EPD2	Europe	10011812.4		Published	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1ES	Spain	02702247	ES2204360	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1FR	France	EP 02702247	EP1349927	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1GB	United Kingdom	02702247.4-2405/1349	EP1349927	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1HKD1	Hong Kong	11100629.6		Published	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1HKD2	Hong Kong	11111936.1		Pending	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1NL	Netherlands	EP 02702247	EP1349927	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1WO	PCT	PCT/EP02/00151		CompletedNt	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.2US	US	10/384,260	7,473,525	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.2US	US	12/276,270		Pending	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4AU	Australia	2005284729		Allowed	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4CA	Canada	2580560		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4EP	Europe	05797892.6		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4EPD1	Europe	11004902.0		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4HK	Hong Kong	07114036.0		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4US	US	10/941663	7767802	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4USCIP2	US	11/229183	7423142	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4USCON2	US	12/961337		Allowed	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES

RIB-006.4USD1	US	12/175,938	7,868,160	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4WO	PCT	PCT/US2005/033 309		CompletedNt	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-008.2DE	Germany	DE 10163098	DE10163098	Granted	METHOD FOR INHIBITING THE REPLICATION OF VIRUSES
RIB-008.3USCIP	US	10/384,512	7,348,314	Issued	METHOD TO INHIBIT THE REPLICATION OF VIRUSES
RIB-008.3USCON	US	11/959,936	7,745,418	Issued	METHOD TO INHIBIT THE REPLICATION OF VIRUSES
RIB-008.3USCON1	US	12/631689		Published	METHOD TO INHIBIT THE REPLICATION OF VIRUSES
RIB-011.2WO	PCT	PCT/EP02/11973		CompletedNt	USE OF DOUBLE STRAND RIBONUCLEIC ACID FOR TREATING AN INFECTION WITH A POSTIVE-STRAND RNA-VIRUS
RIB-012.2EP	Europe	02779511.1		Appealed	USE OF A DOUBLE-STRANDED RIBONUCLEIC ACID FOR SPECIFICALLY INHIBITING THE EXPRESSION OF A GIVEN TARGET GENE
RIB-012.2EPD1	Europe	10011813.2		Published	USE OF A DOUBLE-STRANDED RIBONUCLEIC ACID FOR SPECIFICALLY INHIBITING THE EXPRESSION OF A GIVEN TARGET GENE
RIB-012.2WO	PCT	PCT/EP02/11969		CompletedNt	USE OF A DOUBLE-STRANDED RIBONUCLEIC ACID FOR SPECIFICALLY INHIBITING THE EXPRESSION OF A GIVEN TARGET GENE
RIB-012.3US	US	10/384,463	7,763,590	Issued	COMPOSITIONS AND METHODS FOR INHIBITING THE EXPRESSION OF A MUTANT GENE
RIB-012.3USCON1	US	13/177316		Published	COMPOSITIONS AND METHODS FOR INHIBITING THE EXPRESSION OF A MUTANT GENE
RIB-012.3USD1	US	12/817009	7994309	Allowed	COMPOSITIONS AND METHODS FOR INHIBITING THE EXPRESSION OF A MUTANT GENE
RIB-013.1WO	PCT	PCT/EP02/11972		CompletedNt	DRUG FOR TREATING A FIBROTIC DISEASE THROUGH RNA INTERFERENCE
RIB-014.1WO	PCT	PCT/EP02/12221		Expired	SMAD7 INHIBITORS FOR THE TREATMENT OF CNS DISEASES
RIB-015.2US	US	10/349,320	7,196,184	Issued	DOUBLE-STRANDED RNA (dsRNA) AND METHOD FOR USE FOR INHIBITING EXPRESSION OF A FUSION GENE
RIB-015.2USCON1	US	12/912616		Published	DOUBLE-STRANDED RNA (dsRNA) AND METHOD FOR USE FOR INHIBITING EXPRESSION OF A FUSION GENE
RIB-015.2USD1	US	11/656,349	7,846,907	Allowed	DOUBLE-STRANDED RNA (dsRNA) AND METHOD FOR USE FOR INHIBITING EXPRESSION OF A FUSION GENE
RIB-015.3WO	PCT	PCT/EP03/00604		Expired	METHOD FOR INCREASING THE EFFICIENCY OF AN INHIBITOR OF TYROSINE KINASE ACTIVITY
RIB-016.1DE	Germany	10302421.2-41		Published	DOUBLE-STRANDED RIBONUCLEIC ACID WITH IMPROVED ACTIVITY
RIB-016.2AT	Austria	E367441	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2AU	Australia	2004206255	2004206255	Issued	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2AUD1	Australia	2008203538		Pending	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID

RIB-016.2BE	Belgium	04704041.5	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2CA	Canada	2513809	2513809	Allowed	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2CH	Switzerland	04704041.5	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2CY	Cyprus	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2DE	Germany	602004007620.1- 08	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2DK	Denmark	04704041.5	DK/EP 1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2EP	Europe	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2EPD1	Europe	07010839.4		Published	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2ES	Spain	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2FR	France	04704041.5-1521	EP1587926B1	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2GB	United Kingdom	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2HK	Hong Kong	08105048.3		Published	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2HU	Hungary	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2IE	Ireland	04704041.5	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2IT	Italy	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2LI	Liechtenstein	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2LU	Luxembourg	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2NL	Netherlands	04704041.5-1521	EP1587926B1	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2PT	Portugal	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2SE	Sweden	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2SI	Slovenia	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2TR	Turkey	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID

RIB-016.2US	US	10/543048	Appealed	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2WO	PCT	PCT/US2004/001461	CompletedNt	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-017.1EPUS	US	60/479,354	Converted	SiRNA WITH INCREASED STABILITY IN SERUM

Isis Docket No.	Country	Status	Patent No.	Title
GLIS-0129	AT	Granted	ATE190981T1	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0130	CH	Granted	497875	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0131	DE	Granted	690 33 495.8	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0132	DK	Granted	497875	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0133	FR	Granted	497875	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0134	GB	Granted	497875	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0135	LX	Granted	497875	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0136	SE	Granted	497875	2’ MODIFIED NUCEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0041	AU	Granted	658562	2’ MODIFIED NUCLEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0042	CA	Pending		2’ MODIFIED NUCLEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0043	EP	Granted	497875	2’ MODIFIED NUCLEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0045	US	Granted	5792847	2’ MODIFIED NUCLEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0047	US	Granted	5466786	2’ MODIFIED NUCLEOSIDE AND NUCLEOTIDE COMPOUNDS
GLIS-0046	US	Granted	6476205	2’ MODIFIED OLIGONUCLEOTIDES
GLIS-0126	EP	Pending		2’ MODIFIED OLIGONUCLEOTIDES
GLIS-0148	US	Pending		2’ MODIFIED OLIGONUCLEOTIDES
ISIS-4178	JP	Pending		2’-O-ALKYLATED GUANOSINE 3’o-PHOSPHORAMIDITES
GLIS-0146	US	Pending		2-AMINOPYRIDINE AND 2-PYRIDONE C-NUCLEOSIDES
GLIS-0113	US	Granted	6447998	2-AMINOPYRIDINE AND 2-PYRIDONE C-NUCLEOSIDES
ISIS-5017	JP	Pending		2’-GUANIDINYL-SUBSTITUTED OLIGONUCLEOTIDES AND GENE EXPRESSION MODULATION THEREWITH
ISIS-4997	EP	Pending		2’-GUANIDINYL-SUBSTITUTED OLIGONUCLEOTIDES AND GENE EXPRESSION MODULATION THEREWITH
ISIS-2004	US	Granted	5859221	2’-MODIFIED OLIGONUCLEOTIDES
ISIS-2826	US	Granted	6005087	2’-MODIFIED OLIGONUCLEOTIDES
ISIS-4099	US	Granted	6531584	2’-MODIFIED OLIGONUCLEOTIDES
ISIS-5137	US	Pending		2’-MODIFIED OLIGONUCLEOTIDES
ISIS-4071	US	Granted	6147200	2’-O-ACETAMIDO MODIFIED MONOMERS AND OLIGOMERS
ISIS-4477	EP	Pending		2’-O-ACETAMIDO MODIFIED MONOMERS AND OLIGOMERS
ISIS-4496	JP	Pending		2’-O-ACETAMIDO MODIFIED MONOMERS AND OLIGOMERS
ISIS-4044	US	Granted	6600032	2’-O-AMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-5036	US	Granted	6673912	2’-O-AMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-2824	US	Granted	6127533	2’-O-AMINOOXY-MODIFIED OLIGONUCLEOTIDES (as amended)
ISIS-3156	US	Granted	6043352	2’-O-DIMETHYLAMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-4047	AU	Granted	750469	2’-O-DIMETHYLAMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-4048	CA	Pending		2’-O-DIMETHYLAMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-4049	EP	Pending		2’-O-DIMETHYLAMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-4068	JP	Pending		2’-O-DIMETHYLAMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-5018	US	Pending		2’-O-DIMETHYLAMINOETHYLOXYETHYL-MODIFIED OLIGONUCLEOTIDES
ISIS-1082	US	Granted	5914396	2’-O-MODIFIED NUCLEOSIDES AND PHOSPHORAMIDITES
ISIS-2005	US	Granted	5872232	2’-O-MODIFIED OLIGONUCLEOTIDES
ISIS-0780	US	Granted	5457191	3-DEAZAPURINES

ISIS-2044	US	Granted	5587470	3-DEAZAPURINES
ISIS-0002	US	Granted	5223618	4’-DESMETHYL NUCLEOSIDE ANALOG COMPOUNDS
ISIS-4260	US	Granted	6320040	4’-DESMETHYL NUCLEOSIDE ANALOGS, AND OLIGOMERS THEREOF
ISIS-2090	US	Granted	5998603	4’-DESMETHYL NUCLEOSIDE ANALOGS, AND OLIGOMERS THEREOF
HYBN-221.0US	US	Granted	5912332	AFFINITY-BASED PURIFICATION OF OLIGONUCLEOTIDES USING SOLUBLE MULTIMERIC OLIGONUCLEOTIDES
ISIS-1692	AU	Granted	679566	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1693	CA	Granted	2170869	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1694	EP	Granted	694 33 036.1	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1698	FR	Granted	728139	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1699	GB	Granted	728139	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1700	DE	Granted	728139	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1702	IE	Granted	728139	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1710	CH	Granted	728139	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1711	JP	Granted	3484197	AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1712	US	Pending		AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-2000	US	Pending		AMINE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1788	US	Granted	5834607	AMINES AND METHODS OF MAKING AND USING THE SAME
ISIS-3508	US	Granted	6576752	AMINOOXY FUNCTIONALIZED OLIGOMERS
ISIS-5089	US	Pending		AMINOOXY FUNCTIONALIZED OLIGOMERS, OLIGOMER ARRAYS AND METHODS OF USING THEM
ISIS-3993	US	Granted	6639062	AMINOOXY-MODIFIED NUCLEOSIDIC COMPOUNDS AND OLIGOMERIC COMPOUNDS PREPARED THEREFROM
ISIS-2829	AU	Granted	740799	AMINOOXY-MODIFIED OLIGONUCLEOTIDES
ISIS-2830	CA	Pending		AMINOOXY-MODIFIED OLIGONUCLEOTIDES
ISIS-2831	EP	Pending		AMINOOXY-MODIFIED OLIGONUCLEOTIDES
ISIS-2849	JP	Pending		AMINOOXY-MODIFIED OLIGONUCLEOTIDES
ISIS-2850	KR	Granted	399743	AMINOOXY-MODIFIED OLIGONUCLEOTIDES
ISIS-2955	US	Granted	6172209	AMINOOXY-MODIFIED OLIGONUCLEOTIDES AND METHODS FOR MAKING SAME
ISIS-3996	AU	Granted	752878	AMINOOXY-MODIFIED OLIGONUCLEOTIDES AND METHODS FOR MAKING SAME
ISIS-3997	CA	Pending		AMINOOXY-MODIFIED OLIGONUCLEOTIDES AND METHODS FOR MAKING SAME
ISIS-3998	EP	Pending		AMINOOXY-MODIFIED OLIGONUCLEOTIDES AND METHODS FOR MAKING SAME
ISIS-4017	JP	Pending		AMINOOXY-MODIFIED OLIGONUCLEOTIDES AND METHODS FOR MAKING SAME
ISIS-4309	US	Granted	6194598	AMINOOXY-MODIFIED OLIGONUCLEOTIDES SYNTHETIC INTERMDIATES
GLIS-0054	US	Granted	5214136	ANTHRAQUINONE-DERIVATIVES OLIGONUCLEOTIDES
HYBN-116.0USC1	US	Granted	5929226	ANTISENSE OLIGONUCLEOTIDE ALKYLPHOSPHONOTHIOATES AND ARYLPOSPOHONOTHIOATES
ISIS-0718	US	Granted	5386023	BACKBONE MODIFIED OLIGNUCLEOTIDE ANALOGS AND PREPARATION THEREOF THROUGH REDUCTIVE COUPLING

ISIS-0031	US	Granted	5378825	BACKBONE MODIFIED OLIGONUCLEOTIDE ANALOGS
NVIS-0026	US	Granted	5602240	BACKBONE MODIFIED OLIGONUCLEOTIDE ANALOGS
ISIS-3293	US	Granted	6025482	BACKBONE MODIFIED OLIGONUCLEOTIDE ANALOGS AND PERPARATION THEREOF THROUGH REDUCTIVE COUPLING
ISIS-2420	US	Granted	5969118	BACKBONE MODIFIED OLIGONUCLEOTIDE ANALOGS AND PREPARATION THEREOF THROUGH RADICAL COUPLING
ISIS-0716	US	Granted	5541307	BACKBONE MODIFIED OLIGONUCLEOTIDE ANALOGS AND SOLID PHASE SYNTHESIS THEREOF
ISIS-0543	AU	Granted	666121	BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0545	CA	Pending		BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0550	FR	Granted	586570	BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0551	DE	Granted	692 31 441.5	BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0552	GB	Granted	586570	BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0560	CH	Granted	586570	BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0564	JP	Granted	2711180	BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0565	KR	Granted	155574	BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-4293	EP	Pending		BACKBONE MODIFIED OLIGONUCLEOTIDES
ISIS-0567	US	Granted	5610289	BACKBONE MODIFIED OLIGONUCLEOTIDES ANALOGS
ISIS-0546	EP	Granted	586570	BACKBONE MODIFIED OLIGONUCLEOTIDES ANALOGUES
ISIS-2404	US	Granted	5965721	BACKBONE MODIFIED OLIGONUCLEOTIDES ANALOGUES
ISIS-5061	US	Pending		BACKBONE-MODIFIED OLIGONUCLEOTIDE ANALOGS
ISIS-1713	US	Granted	5618704	BACKBONE-MODIFIED OLIGONUCLEOTIDE ANALOGS AND PREPARATION TH EREOF THROUGH RADICAL COUPLING
GLIS-0097	EP	Granted	643720	BINDING COMPETENT OLIGOMERS CONTAINING 2', 5' LINKAGES
GLIS-0122	GB	Granted	643720	BINDING COMPETENT OLIGOMERS CONTAINING 2', 5' LINKAGES
GLIS-0123	DE	Granted	693 22 640	BINDING COMPETENT OLIGOMERS CONTAINING 2', 5' LINKAGES
GLIS-0124	FR	Granted	643720	BINDING COMPETENT OLIGOMERS CONTAINING 2', 5' LINKAGES
GLIS-0125	CH	Granted	643720	BINDING COMPETENT OLIGOMERS CONTAINING 2', 5' LINKAGES
GLIS-0099	US	Granted	5434257	BINDING COMPETENT OLIGOMERS CONTAINING UNSATURATED 3',5' AND 2',5' LINKAGES
HYBN-132.0AT	AT	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0AU	AU	Granted	2604995	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0BE	BE	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0CA	CA	Pending		BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0CH	CH	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0CN	CN	Pending		BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0DE	DE	Granted	69514351	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0EP	EP	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0FR	FR	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0GB	GB	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0IE	IE	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0JP	JP	Pending		BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0NL	NL	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0SE	SE	Granted	763050	BRANCHED OLIGONUCLEOTIDE AS PATHOGEN-INHIBITORY AGENTS

HYBN-132.0US	US	Pending		BRANCHED OLIGONUCLEOTIDES AS PATHOGEN-INHIBITORY AGENTS
HYBN-132.0USC1	US	Granted	6489464	BRANCHED OLIGONUCLEOTIDES AS PATHOGEN-INHIBITORY AGENTS
HYBN-128.0US	US	Pending		BUILDING BLOCKS WITH CARBAMATE INTERNUCLEOSIDE LINKAGES AND NOVEL OLIGONUCLEOTIDES DERIVED THEREFROM
ISIS-2350	US	Granted	6111085	CARBAMATE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-4070	US	Granted	6166188	CARBAMATE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-4507	US	Granted	6322987	CARBAMATE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-4802	US	Pending		CARBAMATE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-5239	US	Pending		CARBAMATE-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-2951	US	Granted	6277967	CARBOHYDRATE OR 2’-MODIFIED OLIGONUCLEOTIDES HAVING ALTERNATING INTERNUCLEOSIDE LINKAGES
ISIS-3863	US	Granted	6326358	CARBOHYDRATE OR 2’-MODIFIED OLIGONUCLEOTIDES HAVING ALTERNATING INTERNUCLEOSIDE LINKAGES
ISIS-3868	EP	Pending		CARBOHYDRATE OR 2’-MODIFIED OLIGONUCLEOTIDES HAVING ALTERNATING INTERNUCLEOSIDE LINKAGES
ISIS-4847	US	Pending		CARBOHYDRATE OR 2’-MODIFIED OLIGONUCLEOTIDES HAVING ALTERNATING INTERNUCLEOSIDE LINKAGES
ISIS-5300	US	Pending		CHIMERIC OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
ISIS-0060	AU	Granted	651569	COMPOSITIONS AND METHODS FOR DETECTING AND MODULATING RNA ACTIVITY AND GENE EXPRESSION
ISIS-0062	CA	Pending		COMPOSITIONS AND METHODS FOR DETECTING AND MODULATING RNA ACTIVITY AND GENE EXPRESSION
ISIS-0063	EP	Pending		COMPOSITIONS AND METHODS FOR DETECTING AND MODULATING RNA ACTIVITY AND GENE EXPRESSION
ISIS-0079	JP	Granted	2580091	COMPOSITIONS AND METHODS FOR DETECTING AND MODULATING RNA ACTIVITY AND GENE EXPRESSION
ISIS-0080	KR	Pending		COMPOSITIONS AND METHODS FOR DETECTING AND MODULATING RNA ACTIVITY AND GENE EXPRESSION
ISIS-5093	EP	Pending		COMPOSITIONS AND METHODS FOR DETECTING AND MODULATION RNA ACTIVITY AND GENE EXPRESSION
ISIS-0979	US	Granted	6358931	COMPOSITIONS AND METHODS FOR MODULATING RNA
ISIS-4919	US	Granted	6610663	COMPOSITIONS AND METHODS FOR MODULATING RNA
ISIS-0707	US	Granted	5514786	COMPOSITIONS FOR INHIBITING RNA ACTIVITY
ISIS-1787	US	Granted	6262241	COMPOUND FOR DETECTING AND MODULATING RNA ACTIVITY AND GENE EXPRESSION
ISIS-5055	US	Pending		COMPOUNDS AND OLIGOMERIC COMPOUNDS COMPRISING NOVEL NUCLEOBASES
ISIS-0282	US	Granted	5359051	COMPOUNDS USEFUL IN THE SYNTHESIS OF NUCLEIC ACIDS CAPABLE OF CLEAVING RNA
ISIS-4319	EP	Pending		COMPOUNDS, PROCESSES AND INTERMEDIATES FOR SYNTHESIS OF MIXED BACKBONE OLIGOMERIC COMPOUNDS
ISIS-4338	JP	Pending		COMPOUNDS, PROCESSES AND INTERMEDIATES FOR SYNTHESIS OF MIXED BACKBONE OLIGOMERIC COMPOUNDS

ISIS-3299	US	Granted	6207819	COMPOUNDS, PROCESSES AND INTERMEDIATES FOR SYNTHESIS OF MIXED BACKBONE OLIGOMERIC COMPOUNDS
ISIS-4528	US	Granted	6462184	COMPOUNDS, PROCESSES AND INTERMEDIATES FOR SYNTHESIS OF MIXED BACKBONE OLIGOMERIC COMPOUNDS
ISIS-5039	US	Pending		COMPOUNDS, PROCESSES AND INTERMEDIATES FOR SYNTHESIS OF MIXED BACKBONE OLIGOMERIC COMPOUNDS
ISIS-1715	US	Granted	5608046	CONJUGATED 4’-DESMETHYL NUCLEOSIDE ANALOG COMPOUNDS
HYBN-175.0US	US	Granted	6372427	COOPERATIVE OLIGONUCLEOTIDES
HYBN-175.1US	US	Pending		COOPERATIVE OLIGONUCLEOTIDES
HYBN-175.1WO	WO	Pending		COOPERATIVE OLIGONUCLEOTIDES
ISIS-0984	CA	Pending		COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-0985	EP	Granted	635023	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-0989	FR	Granted	635023	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-0990	GB	Granted	635023	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-0991	DE	Granted	693 31 543.1	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-0993	IE	Granted	635023	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-1000	CH	Granted	635023	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-1003	JP	Pending		COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-1006	US	Granted	5719271	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-1007	IL	Granted	104965	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-1304	US	Granted	5543507	COVALENTLY CROSS-LINKED OLIGONUCLEOTIDES
ISIS-0462	US	Granted	5359044	CYCLOBUTYL OLIGONUCLEOTIDE SURROGATES
ISIS-1450	US	Granted	6001841	CYCLOBUTYL OLIGONUCLEOTIDE SURROGATES
ISIS-0628	CA	Granted	2122030	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-0646	JP	Granted	2823959	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-0629	EP	Granted	724447	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-0633	FR	Granted	724447	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-0634	DE	Granted	692 33 046.1	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-0635	GB	Granted	724447	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-0643	CH	Granted	724447	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-0649	US	Granted	6153737	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-4470	US	Granted	6395492	DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-5024	US	Pending		DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES

ISIS-5060	US	Pending		DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-5109	US	Pending		DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-5166	EP	Pending		DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-5425	US	Pending		DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
ISIS-5426	US	Pending		DERIVATIZED OLIGONUCLEOTIDES HAVING IMPROVED UPTAKE AND OTHER PROPERTIES
GLIS-0073	US	Granted	5484908	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION DIRECTED BY OLIGONUCLEOTIDES CONTAINING MODIFIED PYRIMIDINES
GLIS-0077	US	Granted	6235887	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION DIRECTED BY OLIGONUCLEOTIDES CONTAINING MODIFIED PYRIMIDINES
GLIS-0080	CA	Pending		ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0121	DE	Granted	692 32 816.5	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0072	US	Granted	5594121	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PURINES
GLIS-0076	US	Granted	5645985	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0082	JP	Pending		ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0084	US	Granted	5830653	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0085-CPA2	US	Granted	6380368	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0079	AU	Granted	679508	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0081	EP	Granted	637965	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0083	Taiwan	Granted	116354	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0120	FR	Granted	637965	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0143	US	Pending		ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0145	EP	Pending		ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0152	GB	Granted	637965	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES
GLIS-0153	CH	Granted	637965	ENHANCED TRIPLE-HELIX AND DOUBLE-HELIX FORMATION WITH OLIGOMERS CONTAINING MODIFIED PYRIMIDINES

GLIS-0016	CA	Pending		EXONUCLEASE-RESISTANT OLIGONUCLEOTIDES AND METHODS FOR PREPARING THE SAME
GLIS-0029	US	Granted	5264564	FORMACETAL / KETAL LINKED OLIGONUCLEOTIDE ANALOGS
GLIS-0031	AU	Granted	653504	FORMACETAL / KETAL LINKED OLIGONUCLEOTIDE ANALOGS
GLIS-0033	EP	Granted	498843	FORMACETAL / KETAL LINKED OLIGONUCLEOTIDE ANALOGS
GLIS-0034	DE	Granted	69027443	FORMACETAL / KETAL LINKED OLIGONUCLEOTIDE ANALOGS
GLIS-0035	FR	Granted	498843	FORMACETAL / KETAL LINKED OLIGONUCLEOTIDE ANALOGS
GLIS-0036	GB	Granted	498843	FORMACETAL / KETAL LINKED OLIGONUCLEOTIDE ANALOGS
GLIS-0037	US	Granted	5264562	FORMACETAL / KETAL LINKED OLIGONUCLEOTIDE ANALOGS
ISIS-3811	US	Granted	6593466	FUNCTIONALIZED OLIGOMERS
ISIS-0816	AU	Granted	669353	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-0841	US	Granted	5623065	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-2002	US	Granted	5955589	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-2454	US	Granted	5856455	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-4387	EP	Pending		GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-4852	US	Pending		GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-5213	US	Pending		GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-0818	CA	Granted	2126691	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-0819	EP	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0821	BE	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0822	DK	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0823	FR	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0824	GB	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0825	DE	Granted	69232032	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0827	IE	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0831	NL	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0834	SE	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0835	CH	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0838	JP	Granted	3131222	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-4383	JP	Pending		GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0839	KR	Pending		GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-2825	KR	Granted	188858	GAPPED 2’-MODIFIED MACROMOLECULES
ISIS-4288	US	Pending		GAPPED OLIGOMERS HAVING SITE SPECIFIC PHOSPHOROTHIOATE INTERNUCLEOSIDE LINKAGES
ISIS-2003	US	Pending		GAPPED OLIGONUCLEOTIDES
ISIS-5090	US	Pending		GUANIDINIUM FUNCTIONALIZED OLIGOMERS AND METHODS
ISIS-4406	US	Granted	6534639	GUANIDINIUM FUNCTIONALIZED OLIGOMERS AND METHODS OF SYNTHESIS
ISIS-1058	CA	Pending		HETEROATOMIC OLIGONUCLEOSIDE LINKAGES
ISIS-1059	EP	Pending		HETEROATOMIC OLIGONUCLEOSIDE LINKAGES
ISIS-1078	JP	Granted	2879973	HETEROATOMIC OLIGONUCLEOSIDE LINKAGES
ISIS-1245	US	Granted	6087482	HETEROATOMIC OLIGONUCLEOSIDE LINKAGES
ISIS-1960	US	Granted	5623070	HETEROATOMIC OLIGONUCLEOSIDE LINKAGES
ISIS-2421	US	Granted	5777092	HETEROATOMIC OLIGONUCLEOSIDE LINKAGES

ISIS-1959	US	Granted	5677437	HETEROATOMIC OLIGONUCLEOTIDE LINKAGES
HYBN-118.0AT	AT	Granted	198073	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0AU	AU	Granted	674158	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0BE	BE	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0CA	CA	Pending		HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0CH	CH	Granted	9500143	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0CZ	CZ	Pending		HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0DE	DE	Granted	69329755	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0DK	DK	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0EP	EP	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0ES	ES	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0FR	FR	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0GB	GB	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0IE	IE	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0IT	IT	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0NL	NL	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0SE	SE	Granted	650493	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0US	US	Granted	5652355	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.0USD1	US	Granted	6143881	HYBRID OLIGONUCLEOTIDE PHOSPHOROTHIOATES
HYBN-118.1US	US	Granted	6346614	HYBRID OLIGONUCLEOTIDES PHOSPHOROTHIOATES
HYBN-118.1USC1	US	Pending		HYBRID OLIGONUCLEOTIDES PHOSPHOROTHIOATES
HYBN-224.1US	US	Pending		IMPROVED REAGENTS AND PROCESS FOR SYNTHESIS OF OLIGONUCLEOTIDES CONTAINING PHOSPHORODITHIOATE INTERNUCLEOSIDE LINKAGES
HYBN-123.0USC2	US	Granted	5739308	INTEGRATED OLIGONUCLEOTIDES
ISIS-4723	US	Pending		LABELED OLIGONUCLEOTIDES, METHODS FOR MAKING SAME, AND COMPOUNDS USEFUL THEREFOR
ISIS-5272	AU	Pending		LABELED OLIGONUCLEOTIDES, METHODS FOR MAKING SAME, AND COMPOUNDS USEFUL THEREFOR
ISIS-5273	CA	Pending		LABELED OLIGONUCLEOTIDES, METHODS FOR MAKING SAME, AND COMPOUNDS USEFUL THEREFOR
ISIS-5274	EP	Pending		LABELED OLIGONUCLEOTIDES, METHODS FOR MAKING SAME, AND COMPOUNDS USEFUL THEREFOR
ISIS-1164	US		5554746	LACTAM NUCLEIC ACIDS
ISIS-4390	US	Pending		LIGAND-CONJUGATED OLIGOMERIC COMPOUNDS
GLIS-0061	EP	Pending		LIPOPHILIC OLIGONUCLEOTIDE ANALOGS
HYBN-191.0BE	BE	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0CA	CA	Pending		METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0DE	DE	Granted	96904686	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0DK	DK	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE

HYBN-191.0EP	EP	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0ES	ES	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0FI	FI	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0GR	GR	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0JP	JP	Pending		METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0LU	LX	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0PT	PT	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0SE	SE	Granted	850300	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-191.0US	US	Granted	5968909	METHOD OF MODULATING GENE EXPRESSION WITH REDUCED IMMUNOSTIMULATORY RESPONSE
HYBN-146.0US	US	Granted	5847104	METHOD OF TRITIUM LABELING OLIGONUCLEOTIDE
HYBN-146.0USD1	US	Pending		METHOD OF TRITIUM LABELING OLIGONUCLEOTIDE
HYBN-146.0USD2	US	Granted	5668262	METHOD OF TRITIUM LABELING OLIGONUCLEOTIDE
HYBN-152.0CA	CA	Pending		METHODS AND COMPOUNDS FOR THE STEREOSELECTIVE ENRICHMENT OF OLIGONUCLEOTIDE DIASTEREOMERS AND OLIGONUCLEOTIDES THEREBY PRODUCED
HYBN-152.0EP	EP	Pending		METHODS AND COMPOUNDS FOR THE STEREOSELECTIVE ENRICHMENT OF OLIGONUCLEOTIDE DIASTEREOMERS AND OLIGONUCLEOTIDES THEREBY PRODUCED
HYBN-152.0JP	JP	Pending		METHODS AND COMPOUNDS FOR THE STEREOSELECTIVE ENRICHMENT OF OLIGONUCLEOTIDE DIASTEREOMERS AND OLIGONUCLEOTIDES THEREBY PRODUCED
HYBN-152.0US	US	Granted	5750674	METHODS AND COMPOUNDS FOR THE STEREOSELECTIVE ENRICHMENT OF OLIGONUCLEOTIDE DIASTEREOMERS AND OLIGONUCLEOTIDES THEREBY PRODUCED
ISIS-3073	US	Granted	6335437	METHODS FOR THE PREPARATION OF CONJUGATED OLIGOMERS
ISIS-4101	WO	Pending		METHODS FOR THE PREPARATION OF CONJUGATED OLIGOMERS
ISIS-4105	EP	Pending		METHODS FOR THE PREPARATION OF CONJUGATED OLIGOMERS
HYBN-227.0AT	AT	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0BE	BE	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0CH	CH	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0DE	DE	Granted	697 20 481.2	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES

HYBN-227.0DK	DK	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0EP	EP	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0ES	ES	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0FI	FI	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0FR	FR	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0GB	GB	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0GR	GR	Granted	3043738	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0IE	IE	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0IT	IT	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0LU	LX	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0MC	MC	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0NL	NL	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0PT	PT	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0SE	SE	Granted	928335	METHODS FOR USING OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
ISIS-4853	US	Pending		METHODS OF MODULATING PHARMACOKINETICS OF OLIGONUCLEOTIDES
ISIS-5400	AU	Pending		METHODS OF MODULATING PHARMACOKINETICS OF OLIGONUCLEOTIDES
ISIS-5401	CA	Pending		METHODS OF MODULATING PHARMACOKINETICS OF OLIGONUCLEOTIDES
ISIS-5402	EP	Pending		METHODS OF MODULATING PHARMACOKINETICS OF OLIGONUCLEOTIDES
HYBN-226.0US	US	Granted	5886165	MIXED BACKBONE ANTISENSE OLIGONUCLEOTIDES CONTAINING 2’-5’-RIBONUCLEOTIDE- AND 3’-5’-DEOXYRIBONUCLEOTIDES SEGMENTS
HYBN-259.0US	US	Pending		MIXED-BACKBONE OLIGONUCLEOTIDES CONTAINING POPS BLOCKS TO OBTAIN REDUCED PHOSPHOROTHIOATE CONTENT
HYBN-259.0USC1	US	Pending		MIXED-BACKBONE OLIGONUCLEOTIDES CONTAINING POPS BLOCKS TO OBTAIN REDUCED PHOSPHOROTHIOATE CONTENT
GLIS-0095	US	Granted	5817781	MODIFIED INTERNUCLEOSIDE LINKAGES (H)
GLIS-0098	US	Granted	6410702	MODIFIED INTERNUCLEOSIDE LINKAGES (II)

GLIS-0150	US	Granted	6683166	MODIFIED INTERNUCLEOSIDE LINKAGES (II)
GLIS-0056	US	Granted	5596086	MODIFIED INTERNUCLEOSIDE LINKAGES HAVING ONE NITROGEN AND TWO CARBON ATOMS
ISIS-1724	US	Granted	5808023	MODIFIED OLIGNUCLEOTIDES INCORPORATING THIOL-DERIVATIZED NUC LEOSIDES
ISIS-4289	US	Granted	6653458	MODIFIED OLIGONUCLEOTIDES
ISIS-5110	US	Pending		MODIFIED OLIGONUCLEOTIDES FOR USE IN RNA INTERFERENCE
HYBN-227.2US	US	Granted	6476000	MODULATION OF OLIGONUCLEOTIDE CPG-MEDIATED IMMUNE STIMULATION BY POSITIONAL MODIFICATION OF NUCLEOSIDES
ISIS-5054	US	Pending		MONOMERIC AND OLIGOMERIC COMPOUNDS COMPRISING BICYCLIC SUGAR MOIETIES
ISIS-1832	CA	Pending		MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREF ROM
ISIS-1850	JP	Granted	3072127	MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREF ROM
ISIS-1833	EP	Granted	739351	MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREFROM
ISIS-1837	FR	Granted	739351	MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREFROM
ISIS-1838	GB	Granted	739351	MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREFROM
ISIS-1839	DE	Granted	695 26 331.5	MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREFROM
ISIS-1841	IE	Granted	739351	MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREFROM
ISIS-1849	CH	Granted	739351	MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREFROM
ISIS-5046	US	Pending		MONOMERIC DIOLS AND PHOSPHATE LINKED OLIGOMERS FORMED THEREFROM AND PROCESSES FOR PREPARING
ISIS-0284	US	Granted	5212295	MONOMERS FOR PREPARATION OF OLIGONUCLEOTIDES WITH CHIRALPHOSPHORUS LINKAGES
ISIS-1051	US	Granted	5459255	N2 SUBSTITUTED PURINES
ISIS-1767	EP	Granted	731807	N2 SUBSTITUTED PURINES
ISIS-1784	JP	Pending		N-2 SUBSTITUTED PURINES
ISIS-3151	US	Granted	6166199	N-2 SUBSTITUTED PURINES
ISIS-2407	US	Granted	5808027	N-2 SUBSTITUTED PURINES IN OLIGONUCLEOTIDES (as amended)
GLIS-0053	US	Granted	5414077	NON-NUCLEOSIDE LINKERS FOR CONVENIENT ATTACHMENT OF LABELS TO OLIGONUCLEOTIDES USING STANDARD SYNTHETIC METHODS
ISIS-1085	CA	Granted	2140428	NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF
ISIS-1086	EP	Granted	651759	NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF
ISIS-1090	FR	Granted	651759	NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF

ISIS-1091	GB	Granted	651759	NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF
ISIS-1092	DE	Granted	693 33 344.8	NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF
ISIS-1102	CH	Granted	651759	NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF
ISIS-4806	EP	Pending		NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF
ISIS-1105	JP	Granted	3015464	NOVEL 2’-O-ALKYL NUCLEOSIDES & PHOSPHORAMIDITES PROCESSES FOR THE PREPARATION & USES THEREOF
GLIS-0002	US	Granted	5194599	NOVEL HYDROGEN PHOSPHONODITHIOATE COMPOSITIONS
GLIS-0003	AU	Granted	622930	NOVEL HYDROGEN PHOSPHONODITHIOATE COMPOSITIONS
GLIS-0005	US	Granted	5565555	NOVEL HYDROGEN PHOSPHONODITHIOATE COMPOSITIONS
ISIS-2347	US	6000000	5866691	NOVEL LACTAM NUCLEIC ACIDS
ISIS-3297	US	Granted	6084082	NOVEL LACTAM NUCLEIC ACIDS
ISIS-0134	AU	Granted	655937	NOVEL NUCLEOSIDE ANALOGS
ISIS-0136	CA	Granted	2089377	NOVEL NUCLEOSIDE ANALOGS
ISIS-0137	EP	Granted	544792	NOVEL NUCLEOSIDE ANALOGS
ISIS-0141	FR	Granted	544792	NOVEL NUCLEOSIDE ANALOGS
ISIS-0142	DE	Granted	69128250	NOVEL NUCLEOSIDE ANALOGS
ISIS-0143	GB	Granted	544792	NOVEL NUCLEOSIDE ANALOGS
ISIS-5052	US	Pending		NOVEL PEPTIDE-CONJUGATED OLIGOMERIC COMPOUNDS
ISIS-5052WO	WO	Pending		NOVEL PEPTIDE-CONJUGATED OLIGOMERIC COMPOUNDS
ISIS-1917	CA	Granted	2184005	NOVEL PHOSPHORAMIDATE AND PHOSPHOROTHIOAMIDATE OLIGOMERIC CO MPOUNDS
ISIS-1918	EP	Granted	751948	NOVEL PHOSPHORAMIDATE AND PHOSPHOROTHIOAMIDATE OLIGOMERIC COMPOUNDS
ISIS-1923	GB	Granted	751948	NOVEL PHOSPHORAMIDATE AND PHOSPHOROTHIOAMIDATE OLIGOMERIC COMPOUNDS
ISIS-0024	US	Granted	5138045	NOVEL POLYAMINE CONJUGATED OLIGONUCLEOTIDES
ISIS-0290	EP	Granted	544757	NOVEL POLYAMINE CONJUGATED OLIGONUCLEOTIDES
ISIS-0510	US	Granted	5218105	NOVEL POLYAMINE CONJUGATED OLIGONUCLEOTIDES
ISIS-4804	US	Pending		NUCLEASE RESISTANT CHIMERIC OLIGONUCLEOTIDES
ISIS-4948	US	Pending		NUCLEASE RESISTANT CHIMERIC OLIGONUCLEOTIDES
ISIS-5377	AU	Pending		NUCLEASE RESISTANT CHIMERIC OLIGONUCLEOTIDES
ISIS-5378	CA	Pending		NUCLEASE RESISTANT CHIMERIC OLIGONUCLEOTIDES
ISIS-5379	EP	Pending		NUCLEASE RESISTANT CHIMERIC OLIGONUCLEOTIDES
ISIS-5399	JP	Docketed		NUCLEASE RESISTANT CHIMERIC OLIGONUCLEOTIDES
ISIS-0311	AU	Granted	641565	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0314	EP	Granted	544824	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0318	FR	Granted	544824	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION

ISIS-0319	DE	Granted	691 26 530.5	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0320	GB	Granted	544824	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0327	CH	Granted	544824	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0333	US	Granted	5614617	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0330	JP	Granted	2089377	NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT AND MODULATE GENE EXPRESSION
ISIS-0313	CA	Pending		NUCLEASE RESISTANT PYRIMIDINE MODIFIED OLIGONUCLEOTIDES THAT DETECT AND MODULATE GENE EXPRESSION
GLIS-0094	US	Granted	5792608	NUCLEASE STABLE AND BINDING COMPETENT OLIGOMERS AND METHODS FOR THEIR USE
GLIS-0128	US	Pending		NUCLEOSIDE 5’-METHYLENE PHOSPHONATES
GLIS-0007	US	Pending		NUCLEOSIDE HYDROGEN PHOSPHONODITHIOATE DIESTERS AND ACTIVATED PHOSPHONODITHIOATE ANALOGUES
ISIS-4803	US	Pending		NUCLEOSIDIC AND NON-NUCLEOSIDIC FOLATE CONJUGATES
ISIS-3453	US	Granted	6335434	NUCLEOSIDIC AND NON-NUCLEOSIDIC FOLATE CONJUGATES
ISIS-4732	US	Granted	6500945	NUCLEOTIDES HAVING CHIRAL PHOSPHORUS LINKAGES
ISIS-1872	US	Granted	6121433	OLIGOMERIC COMPOUNDS HAVING NITROGEN-CONTAINING LINKAGES
ISIS-5214	WO	Pending		OLIGOMERIC COMPOUNDS THAT INCLUDE CARBOCYCLIC NUCLEOSIDES AND THEIR USE IN GENE MODULATION
ISIS-1720	US	Granted	5792844	OLIGONUCLEOSIDE LINKAGES CONTAINING ADJACENT NITROGEN ATOMS
ISIS-3141	US	Granted	6214551	OLIGONUCLEOSIDE LINKAGES CONTAINING ADJACENT NITROGEN ATOMS
ISIS-0713	US	Granted	5489677	OLIGONUCLEOSIDE LINKAGES CONTAINING ADJACENT OXYGEN AND NITR OGEN ATOMS
ISIS-1968	US	Pending		OLIGONUCLEOSIDE LINKAGES CONTAINING ADJACENT OXYGEN AND NITROGEN ATOMS
ISIS-2906	US	Granted	6420549	OLIGONUCLEOTIDE ANALOGS HAVING MODIFIED DIMERS
ISIS-5081	US	Pending		OLIGONUCLEOTIDE ANALOGS HAVING MODIFIED DIMERS
GLIS-0032	CA	Granted	2071483	OLIGONUCLEOTIDE ANALOGS WITH NOVEL LINKAGES
ISIS-1198	US	Granted	6235886	OLIGONUCLEOTIDE AND NUCLEOTIDE AMINE ANALOGS
ISIS-4508	US	Granted	6495671	OLIGONUCLEOTIDE AND NUCLEOTIDE AMINE ANALOGS, METHODS OF SYNTHESIS AND USE
ISIS-5025	US	Pending		OLIGONUCLEOTIDE AND NUCLEOTIDE AMINE ANALOGS, METHODS OF SYNTHESIS AND USE
GLIS-0049	US	Granted	5486603	OLIGONUCLEOTIDE HAVING ENHANCED BINDING AFFINITY
ISIS-1014	US	Granted	5783682	OLIGONUCLEOTIDE MIMICS HAVING NITROGEN-CONTAINING LINKAGES
ISIS-3138	US	Granted	6271357	OLIGONUCLEOTIDE MIMICS HAVING NITROGEN-CONTAINING LINKAGES
ISIS-4729	US	Granted	5023243	OLIGONUCLEOTIDE THERAPEUTIC AGENT AND METHOD OF MAKING
ISIS-2954	US	Granted	6528631	OLIGONUCLEOTIDE-FOLATE CONJUGATES

GLIS-0063	US	Pending		OLIGONUCLEOTIDES AND THEIR ANALOGS CAPABLE OF PASSIVE CELL MEMBRANE PERMEATION
ISIS-1169	US	Pending		OLIGONUCLEOTIDES BEARING ALKYLAMINO AND ALKYLENEGLYCOL SUBSTITUENTS
ISIS-3758	US	Granted	6656730	OLIGONUCLEOTIDES CONJUGATED TO PROTEIN-BINDING DRUGS
ISIS-4921	AU	Granted	763518	OLIGONUCLEOTIDES CONJUGATED TO PROTEIN-BINDING DRUGS
ISIS-4922	CA	Pending		OLIGONUCLEOTIDES CONJUGATED TO PROTEIN-BINDING DRUGS
ISIS-4923	EP	Pending		OLIGONUCLEOTIDES CONJUGATED TO PROTEIN-BINDING DRUGS
ISIS-4942	JP	Pending		OLIGONUCLEOTIDES CONJUGATED TO PROTEIN-BINDING DRUGS
ISIS-5246	US	Pending		OLIGONUCLEOTIDES CONTAINING 2’-O-MODIFIED PURINES
ISIS-5426				OLIGONUCLEOTIDES CONTAINING 2’-O-MODIFIED PURINES
ISIS-2014	US	Granted	5587469	OLIGONUCLEOTIDES CONTAINING N-2 SUBSTITUTED PURINES
ISIS-3310	US	Granted	6369209	OLIGONUCLEOTIDES HAVING A-DNA FORM AND B-DNA FORM CONFORMATIONAL GEOMETRY
ISIS-4877	AU	Granted	762212	OLIGONUCLEOTIDES HAVING A-DNA FORM AND B-DNA FORM CONFORMATIONAL GEOMETRY
ISIS-4878	CA	Pending		OLIGONUCLEOTIDES HAVING A-DNA FORM AND B-DNA FORM CONFORMATIONAL GEOMETRY
ISIS-4879	EP	Pending		OLIGONUCLEOTIDES HAVING A-DNA FORM AND B-DNA FORM CONFORMATIONAL GEOMETRY
ISIS-4898	JP	Pending		OLIGONUCLEOTIDES HAVING A-DNA FORM AND B-DNA FORM CONFORMATIONAL GEOMETRY
ISIS-4949	US	Pending		OLIGONUCLEOTIDES HAVING A-DNA FORM AND B-DNA FORM CONFORMATIONAL GEOMETRY
ISIS-0727	CA	Granted	2121144	OLIGONUCLEOTIDES HAVING CHIRAL PHOSPHORUS LINKAGES
ISIS-2260	US	Granted	5852188	OLIGONUCLEOTIDES HAVING CHIRAL PHOSPHORUS LINKAGES
ISIS-3306	US	Granted	6239265	OLIGONUCLEOTIDES HAVING CHIRAL PHOSPHORUS LINKAGES
ISIS-5033	US	Pending		OLIGONUCLEOTIDES HAVING CHIRAL PHOSPHORUS LINKAGES
HYBN-227.0CA	CA	Pending		OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0JP	JP	Pending		OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.0US	US	Granted	5856462	OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
HYBN-227.1US	US	Pending		OLIGONUCLEOTIDES HAVING MODIFIED CpG DINUCLEOSIDES
ISIS-5067	US	Pending		OLIGONUCLEOTIDES HAVING MODIFIED NUCLEOSIDE UNITS
ISIS-5067US	US	Pending		OLIGONUCLEOTIDES HAVING MODIFIED NUCLEOSIDE UNITS
ISIS-5067WO	WO	Pending		OLIGONUCLEOTIDES HAVING MODIFIED NUCLEOSIDE UNITS
ISIS-5068	US	Pending		OLIGONUCLEOTIDES HAVING MODIFIED NUCLEOSIDE UNITS
ISIS-5068US	US	Pending		OLIGONUCLEOTIDES HAVING MODIFIED NUCLEOSIDE UNITS
ISIS-5068WO	WO	Pending		OLIGONUCLEOTIDES HAVING MODIFIED NUCLEOSIDE UNITS
ISIS-2012	US	Granted	5587361	OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CH IRAL PURITY
ISIS-2298A	KR	Granted	257972	OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CH IRAL PURITY
ISIS-2299	AU	Granted	698739	OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CH IRAL PURITY

ISIS-2301	EP	Pending		OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CH IRAL PURITY
ISIS-2319	JP	Pending		OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CH IRAL PURITY
ISIS-4499	JP	Pending		OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CH IRAL PURITY
ISIS-4500	JP	Pending		OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CH IRAL PURITY
ISIS-2300	CA	Pending		OLIGONUCLEOTIDES HAVING PHOSPHOROTHIOATE LINKAGES OF HIGH CHIRAL PURITY
ISIS-3890	US	Granted	6440943	OLIGONUCLEOTIDES HAVING SITE SPECIFIC CHIRAL PHOSPHOROTHIOATE INTERNUCLEOSIDE LINKAGES
ISIS-3895	EP	Pending		OLIGONUCLEOTIDES HAVING SITE SPECIFIC CHIRAL PHOSPHOROTHIOATE INTERNUCLEOSIDE LINKAGES
ISIS-3914	JP	Pending		OLIGONUCLEOTIDES HAVING SITE SPECIFIC CHIRAL PHOSPHOROTHIOATE INTERNUCLEOSIDE LINKAGES
ISIS-0746	JP	Granted	2693643	OLIGONUCLEOTIDES HAVING SUBSTANTIALLY CHIRALLY PURE PHOPHORO THIOATE LINKAGES
ISIS-0728	EP	Granted	655088	OLIGONUCLEOTIDES HAVING SUBSTANTIALLY CHIRALLY PURE PHOSPHOROTHIOATE LINKAGES
ISIS-0732	FR	Granted	655088	OLIGONUCLEOTIDES HAVING SUBSTANTIALLY CHIRALLY PURE PHOSPHOROTHIOATE LINKAGES
ISIS-0733	GB	Granted	655088	OLIGONUCLEOTIDES HAVING SUBSTANTIALLY CHIRALLY PURE PHOSPHOROTHIOATE LINKAGES
ISIS-0734	DE	Granted	692 32 699.5	OLIGONUCLEOTIDES HAVING SUBSTANTIALLY CHIRALLY PURE PHOSPHOROTHIOATE LINKAGES
ISIS-0743	CH	Granted	655088	OLIGONUCLEOTIDES HAVING SUBSTANTIALLY CHIRALLY PURE PHOSPHOROTHIOATE LINKAGES
GLIS-0142	US	Granted	6495672	OLIGONUCLEOTIDES INCLUDING 2-AMINOPYRIDINE AND 2-PYRIDONE C-NUCLEOSIDES UNITS
ISIS-3889	US	Pending		OLIGONUCLEOTIDES INCORPORATING BOTH 2-AMINOADENINE AND 5-SUBSTITUTED PYRIMIDINES
ISIS-4977	EP	Pending		OLIGONUCLEOTIDES INCORPORATING BOTH 2-AMINOADENINE AND 5-SUBSTITUTED PYRIMIDINES
NVIS-0005	EP	Granted	586520	OLIGONUCLEOTIDES MODIFIED WITH AMIDE BACKBONES
NVIS-0009	FR	Granted	586520	OLIGONUCLEOTIDES MODIFIED WITH AMIDE BACKBONES
NVIS-0010	DE	Granted	692 30 935.7	OLIGONUCLEOTIDES MODIFIED WITH AMIDE BACKBONES
NVIS-0011	GB	Granted	586520	OLIGONUCLEOTIDES MODIFIED WITH AMIDE BACKBONES
NVIS-0019	CH	Granted	586520	OLIGONUCLEOTIDES MODIFIED WITH AMIDE BACKBONES
NVIS-0021	HU	Granted	221806	OLIGONUCLEOTIDES MODIFIED WITH AMIDE BACKBONES
NVIS-0022	IE	Pending		OLIGONUCLEOTIDES MODIFIED WITH AMIDE BACKBONES
ISIS-1669	US	Granted	5506212	OLIGONUCLEOTIDES WITH SUBSTANTIALLY CHIRALLY PURE PHOSPHOROT HIOATE LINKAGES

ISIS-0868	US	Granted	6448373	PHOSPHATE LINKED OLIGOMERS FORMED OF MONOMERIC DIOLS AND PROCESSES FOR PREPARING SAME
ISIS-1010	US	Granted	5637684	PHOSPHORAMIDATE AND PHOSPHOROTHIOAMIDATE OLIGOMERIC COMPOUNDS
ISIS-1935	JP	Granted	2972344	PHOSPHORAMIDATE AND PHOSPHOROTHIOAMIDATE OLIGOMERIC COMPOUNDS
ISIS-4790	US	Pending		PHOSPHOROTHIOATE MONOESTER MODIFIED OLIGOMERS
ISIS-5192	WO	Pending		PHOSPHOROTHIOATE MONOESTER MODIFIED OLIGOMERS
ISIS-2953	US	Granted	6242589	PHOSPHOROTHIOATE OLIGONUCLEOTIDES HAVING MODIFIED INTERNUCLEOSIDE LINKAGES
ISIS-4718	US	Pending		PHOSPHOROTHIOATE OLIGONUCLEOTIDES HAVING MODIFIED INTERNUCLEOSIDE LINKAGES
ISIS-5059	US	Pending		POLYALKYLENEAMINE-CONTAINING OLIGOMERS
GLIS-0019	US	Granted	5399676	PREPARATION OF OLIGONUCLEOTIDES WITH INVERTED POLARITY AND USES THEREOF
GLIS-0020	US	Granted	5527899	PREPARATION OF OLIGONUCLEOTIDES WITH INVERTED POLARITY AND USES THEREOF
GLIS-0022	US	Granted	5721218	PREPARATION OF OLIGONUCLEOTIDES WITH INVERTED POLARITY AND USES THEREOF
GLIS-0024	AU	Granted	641219	PREPARATION OF OLIGONUCLEOTIDES WITH INVERTED POLARITY AND USES THEREOF
GLIS-0026	EP	Pending		PREPARATION OF OLIGONUCLEOTIDES WITH INVERTED POLARITY AND USES THEREOF
ISIS-5139	US	Pending		PREPARATION OF PHOSPHOROTHIOATE OLIGOMERS
HYBN-199.0US	US	Granted	6140482	PRIMARY PHOSPHORAMIDATEINTERNUCLEOSIDE LINKAGES AND OLIGONUCLEOTIDES CONTAINING SAME
GLIS-0105	US	Granted	6005096	PYRIMIDINE DERIVATIVES (as amended)
GLIS-0144	US	Pending		PYRIMIDINE DERIVATIVES AND OLIGONUCLEOTIDES CONTAINING SAME
GLIS-0114	US	Granted	6028183	PYRIMIDINE DERIVATIVES AND OLIGONUCLEOTIDES CONTAINING SAME
GLIS-0100	US	Granted	5502177	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0102	EP	Granted	719272	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0103	JP	Pending		PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0104	US	Granted	5763588	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0116	US	Granted	6007992	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0127	US	Granted	6414127	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0137	US	Granted	6617437	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0139	CA	Pending		PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0140	JP	Pending		PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0141	EP	Pending		PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0147	US	Pending		PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0157	FR	Granted	719272	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0158	DE	Granted	719272	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0159	GB	Granted	719272	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0160	CH	Granted	719272	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS

ISIS-1325	US	Granted	6060592	PYRIMIDINE NUCLEOSIDE COMPOUNDS AND OLIGONUCLEOSIDE COMPOUNDS CONTAINING SAME
ISIS-1874	CA	Granted	2180978	PYRROLIDINE-CONTAINING MONOMERS AND OLIGOMERS
ISIS-3147	US	Granted	6271358	RNA-TARGETED 2'MODIFIED OLIGONUCLEOTIDES THAT ARE CONFORMATIONALLY PREORGANIZED
ISIS-3972	EP	Pending		RNA-TARGETED 2'MODIFIED OLIGONUCLEOTIDES THAT ARE CONFORMATIONALLY PREORGANIZED
ISIS-0460	US	Granted	5681941	SUBSTITUTED PURINES AND OLIGONUCLEOTIDE CROSS-LINKING
ISIS-1897	EP	Pending		SUBSTITUTED PURINES AND OLIGONUCLEOTIDE CROSS-LINKING
ISIS-2536	US	Granted	5811534	SUBSTITUTED PURINES AND OLIGONUCLEOTIDE CROSS-LINKING
ISIS-3152	US	Granted	6232463	SUBSTITUTED PURINES AND OLIGONUCLEOTIDE CROSS-LINKING
ISIS-4943	US	Pending		SUGAR MODIFIED OLIGONUCLEOTIDES
ISIS-3154	US	Granted	6399754	SUGAR MODIFIED OLIGONUCLEOTIDES (as amended)
ISIS-0385	AU	Granted	661662	SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0404	JP	Granted	2104052	SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0407	US	Granted	5670633	SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-2042	JP	Pending		SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT & MODULATE GENE EXPRESSION
ISIS-0387	CA	Pending		SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT AND MODULATE GEN E EXPRESSION
ISIS-0388	EP	Pending		SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT AND MODULATE GENE EXPRESSION
ISIS-2708	US	Granted	6307040	SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT AND MODULATE GENE EXPRESSION
ISIS-4789	US	Pending		SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT AND MODULATE GENE EXPRESSION
ISIS-5207				SUGAR SURROGATE-CONTAINING OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATION
ISIS-3454	US	Granted	6093807	SUGAR-MODIFIED 7 - DEAZA 7 - SUBSTITUTED OLIGONUCLEOTIDES
ISIS-3683	US	Pending		SYNTHETIC METHODS AND INTERMEDIATES FOR TRIESTER OLIGONUCLEOTIDES
ISIS-3103	US	Granted	6300319	TARGETED OLIGONUCLEOTIDE CONJUGATES
ISIS-4799	US	Granted	6525031	TARGETED OLIGONUCLEOTIDE CONJUGATES
ISIS-5092	US	Granted	6660720	TARGETED OLIGONUCLEOTIDE CONJUGATES
ISIS-0784	US	Granted	5578718	THIOL-DERIVATIZED NUCLEOSIDE
ISIS-1673	EP	Pending		THIOL-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1690	JP	Granted	3256236	THIOL-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-4100	US	Granted	6265558	THIOL-DERIVATIZED NUCLEOSIDES AND OLIGONUCLEOSIDES
ISIS-1992	US	Granted	5852182	THIOL-DERIVATIZED OLIGONUCLEOSIDES
ISIS-2661	US	Granted	6114513	THIOL-DERIVATIZED OLIGONUCLEOSIDES
GLIS-0025	CA	Granted	2071536	TRIPLE HELIX FORMATION IN OLIGONUCLEOTIDE THERAPY

HYBN-151.0US	US	Granted	5693773	TRIPLEX-FORMING ANTISENSE OLIGONUCLEOTIDES HAVING ABASIC LINKERS THAT TARGET NUCLEIC ACIDS COMPRISING MIXED SEQUENCES OF PURINES
ISIS-1163	US	6000000	5629152	TRISUBSTITUTED BATA-LACTAMS AND OLIGO BETA-LACTAMAMIDES
HYBN-178.0AT	AT	Granted	187645	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0AU	AU	Granted	3893095	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0BE	BE	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0CA	CA	Granted	2203652	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0CH	CH	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0CN	CN	Granted	1170367	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0DE	DE	Granted	69513998	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0DK	DK	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0EP	EP	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0ES	ES	Granted	2141393	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0FR	FR	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0GB	GB	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0GR	GR	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0IE	IE	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0IT	IT	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0JP	JP	Pending		USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0LU	LX	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0MC	MC	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0NL	NL	Granted	788366	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0NO	Norway	Granted	971905	USE OF 2'-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION

HYBN-178.0PT	PT	Granted	788366	USE OF 2’-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION
HYBN-178.0SE	SE	Granted	788366	USE OF 2’-SUBSTITUTED OLIGONUCLEOTIDES TO DOWN-REGULATING GENE EXPRESSION

Isis Current Chemistry Patents (June 2007 Updates)

Isis Docket Number	Country	Status	Application Number	Title
CORE0030US.P1	US	FILED	11/679,159	BACKBONE MODIFICATIONS TO MODULATE OLIOGONUCLEOTIDE TARGETING IN VIVO
ISIS-5772	US	FILED	11/283,119	OLIGONUCLEOTIDES HAVING A-DNA FORM AND B-DNA FORM CONFORMATIONAL GEOMETRY

Isis Future Chemistry Patents (as at June 27, 2007)

Isis Docket Number	Country	Status	Application Number	Title
CHEM0019AU	AU	FILED	2004270741	GAPPED OLIGOMERIC COMPOUNDS HAVING LINKED BICYCLIC SUGAR MOIETIES AT THE TERMINI
CHEM0019CA	CA	FILED	2538174	GAPPED OLIGOMERIC COMPOUNDS HAVING LINKED BICYCLIC SUGAR MOIETIES AT THE TERMINI
CHEM0019EP	EP	FILED	4788694	GAPPED OLIGOMERIC COMPOUNDS HAVING LINKED BICYCLIC SUGAR MOIETIES AT THE TERMINI
CHEM0019JP	JP	FILED	2006-526330	GAPPED OLIGOMERIC COMPOUNDS HAVING LINKED BICYCLIC SUGAR MOIETIES AT THE TERMINI
CHEM0019WO	WO	INACTIVE	PCT/US2004/029650	GAPPED OLIGOMERIC COMPOUNDS HAVING LINKED BICYCLIC SUGAR MOIETIES AT THE TERMINI
CHEM0020AU	AU	FILED	2004320622	CHIMERIC GAPPED OLIGOMERIC COMPOUNDS
CHEM0020CA	CA	FILED	TBD	CHIMERIC GAPPED OLIGOMERIC COMPOUNDS
CHEM0020EP	EP	FILED	4754188.3	CHIMERIC GAPPED OLIGOMERIC COMPOUNDS
CHEM0020JP	JP	FILED	2007-515019	CHIMERIC GAPPED OLIGOMERIC COMPOUNDS
CHEM0020USA	US	FILED	11/569,941	CHIMERIC GAPPED OLIGOMERIC COMPOUNDS
CHEM0020WO	WO	INACTIVE	PCT/US2004/017522	CHIMERIC GAPPED OLIGOMERIC COMPOUNDS
CHEM0022EP	EP	FILED	4754153.7	POSITIONALLY MODIFIED SIRNA CONSTRUCTS
CHEM0022USA	US	FILED	11/569,939	POSITIONALLY MODIFIED SIRNA CONSTRUCTS
CHEM0022WO	WO	INACTIVE	PCT/US2004/017485	POSITIONALLY MODIFIED SIRNA CONSTRUCTS
CHEM0023US	US	FILED	11/251,564	OLIGOMERIC COMPOSITIONS AND METHODS
CHEM0026US.L	US	FILED		PYRROLIDINYL GROUPS FOR ATTACHING CONJUGATES TO OLIGOMERIC COMPOUNDS
CHEM0026USA	US	FILED	11/574,396	PYRROLIDINYL GROUPS FOR ATTACHING CONJUGATES TO OLIGOMERIC COMPOUNDS
CHEM0026WO	WO	INACTIVE	PCT/US2005/031269	PYRROLIDINYL GROUPS FOR ATTACHING CONJUGATES TO OLIGOMERIC COMPOUNDS
CHEM0027US	US	FILED	11/627,964	6-MODIFIED BICYCLIC NUCLEIC ACID ANALOGS
CHEM0027US.P1	US	FILED	11/747,042	COMPOUNDS AND METHODS FOR SYNTHESIS OF BICYCLIC NUCLEIC ACID ANALOGS
CHEM0027WO	WO	INACTIVE	PCT/US2007/061183	6-MODIFIED BICYCLIC NUCLEIC ACID ANALOGS
CHEM0029US	US	FILED	11/747,057	5’-MODIFIED BICYCLIC NUCLEIC ACID ANALOGS

Isis Docket Number	Country	Status	Application Number	Title
CHEM0029US.L	US	EXPIRED	60/747,059	5’-MODIFIED BICYCLIC NUCLEIC ACID ANALOGS
CHEM0029WO	WO	FILED	PCT/US2007/68690	5’-MODIFIED BICYCLIC NUCLEIC ACID ANALOGS
CHEM0030US.L	US	INACTIVE	60/820,431	BICYCLIC CYCLOHEXOSE NUCLEIC ACID ANALOGS
CHEM0035US.L	US	FILED	60/890,079	5’-SUBSTITUTED-2’-F MODIFIED NUCLEOSIDES AND OLIGOMERIC COMPOUNDS PREPARED THEREFROM
CHEM0036US.L	US	FILED	60/871,397	OLIGOMERIC COMPOUNDS HAVING A MODIFIED HEMIMER MOTIF
CHEM0037US.L	US	FILED	60/895,019	BICYCLIC CYCLOHEXITOL NUCLEIC ACID ANALOGS
CORE0026EP	EP	FILED	4788713.8	CHIMERIC OLIGOMERIC COMPOUNDS COMPRISING ALTERNATING REGIONS OF NORTHERN AND SOUTHERN CONFORMATIONAL GEOMETRY
CORE0026US	US	FILED	10/936,273	CHIMERIC OLIGOMERIC COMPOUNDS COMPRISING ALTERNATING REGIONS OF NORTHERN AND SOUTHERN CONFORMATIONAL GEOMETRY
CORE0026WO	WO	INACTIVE	PCT/US2004/029821	CHIMERIC OLIGOMERIC COMPOUNDS COMPRISING ALTERNATING REGIONS OF NORTHERN AND SOUTHERN CONFORMATIONAL GEOMETRY
CORE0030EP	EP	FILED	4788853.2	ANTISENSE OLIGONUCLEOTIDES OPTIMIZED FOR KIDNEY TARGETING
CORE0030US	US	FILED	10/946,498	ANTISENSE OLIGONUCLEOTIDES OPTIMIZED FOR KIDNEY TARGETING
CORE0030WO	WO	INACTIVE	PCT/US2004/030785	ANTISENSE OLIGONUCLEOTIDES OPTIMIZED FOR KIDNEY TARGETING
CORE0051AU	AU	FILED	2005286738	ENHANCED ANTISENSE OLIGONUCLEOTIDES
CORE0051CA	CA	FILED	2580504	ENHANCED ANTISENSE OLIGONUCLEOTIDES
CORE0051EP	EP	FILED	5798891.7	ENHANCED ANTISENSE OLIGONUCLEOTIDES
CORE0051JP	JP	FILED	TBD	ENHANCED ANTISENSE OLIGONUCLEOTIDES
CORE0051US	US	FILED	11/231,243	ENHANCED ANTISENSE OLIGONUCLEOTIDES
CORE0051WO	WO	INACTIVE	PCT/US2005/033837	ENHANCED ANTISENSE OLIGONUCLEOTIDES
CORE0070US.L	US	FILED	60/852,894	ANTISENSE COMPOUNDS
GLIS-0172	US	FILED	10/921,734	PYRIMIDINE DERIVATIVES FOR LABELED BINDING PARTNERS
GLIS-0173	US	ABANDONED	11/064,374	2’ MODIFIED OLIGONUCLEOTIDES
HYBN-175.1CA	CA	FILED	2473906	COOPERATIVE OLIGONUCLEOTIDES
HYBN-175.1EP	EP	FILED	3732025.6	COOPERATIVE OLIGONUCLEOTIDES
HYBN-175.1JP	JP	ABANDONED	2003-562339	COOPERATIVE OLIGONUCLEOTIDES
ISIS-5213US.C1	US	FILED	11/457,703	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-5213US.C2	US	FILED	11/457,715	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-5475	US	GRANTED (Reissue Patent)	10/925,348	METHODS AND COMPOSTIONS COVERING CHIMERIC OLIOMERS (GAPMERS) HEMIMERS AND [HAVING (Sp)n-(Rp)m-(Sp)p] WHERE THE CONFIGURATION
ISIS-5481	US	FILED	10/859,825	CHIMERIC OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
ISIS-5553	AU	FILED	2003228477	OLIGOMERIC COMPOUNDS HAVING MODIFIED PHOSPHATE GROUPS
ISIS-5554	CA	FILED	2482440	OLIGOMERIC COMPOUNDS HAVING MODIFIED PHOSPHATE GROUPS
ISIS-5555	EP	FILED	3726231.8	OLIGOMERIC COMPOUNDS HAVING MODIFIED PHOSPHATE GROUPS
ISIS-5582	US	FILED	10/510,667	OLIGOMERIC COMPOUNDS HAVING MODIFIED PHOSPHATE GROUPS

Isis Current Motif and Mechanism Patents (June 2007 Updates)

Isis Docket Number	Country	Status	Patent Number	Title
CORE0005US.L	US	Pending		OLIGOMERIC COMPOUNDS FOR USE IN GENE MODULATION
CHEM0004US.P1	US	Pending		CROSS-LINKED OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0004WO	WO	Pending		CROSS-LINKED OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0005US.P1	US	Pending		CONJUGATED OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0005WO	WO	Pending		CONJUGATED OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0008US.P1	US	Pending		OLIGOMERIC COMPOUNDS HAVING MODIFIED BASES FOR BINDING TO ADENINE AND GUANINE AND THEIR USE IN GENE MODULATION
CHEM0009US.P1	US	Pending		SUGAR AND BACKBONE-SURROGATE-CONTAINING OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATION
ISIS0002-108	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-5203	US	Pending		OLIGOMERIC COMPOUNDS HAVING MODIFIED BASES FOR BINDING TO CYTOSINE AND URACIL OR THYMINE AND THEIR USE IN GENE MODULATION
ISIS-5301	US	Pending		2’-SUBSTITUTED OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATIONS
ISIS-5312	US	Pending		MODIFIED OLIGONUCLEOTIDES FOR USE IN RNA INTERFERENCE
ISIS-5313	US	Pending		2’-FLUORO SUBSTITUTED OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATIONS
ISIS-5314	US	Pending		2’-METHOXY SUBSTITUTED OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATIONS
ISIS-5326	US	Pending		MODIFIED OLIGONUCLEOTIDES FOR USE IN RNA INTERFERENCE
CHEM0004US	US	Pending		CROSS-LINKED OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0007US	US	Pending		NON-PHOSPHOROUS-LINKED OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0007US.P1	US	Pending		NON-PHOSPHOROUS-LINKED OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0008US	US	Pending		OLIGOMERIC COMPOUNDS HAVING MODIFIED BASES FOR BINDING TO ADENINE GUANINE AND THEIR USE IN GENE MODULATION
CHEM0009US	US	Pending		SUGAR AND BACKBONE-SURROGATE-CONTAINING OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATION
CHEM0012US	US	Pending		STRUCTURAL MOTIFS, AND OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATION
CHEM0012US.P1	US	Pending		STRUCTURAL MOTIFS AND OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
ISIS-2197	US	Granted	5898031	OLIGORIBONUCLEOTIDES FOR CLEAVING RNA
ISIS-2483	JP	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-2484	US	Granted	6107094	OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA

ISIS-5207	US	Pending		SUGAR SURROGATE-CONTAINING OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATION
ISIS-0002-104	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-0002-105	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-0002-106	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-0002-107	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS0002-503	WO	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-2465	EP	Granted		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-2465EP.D1	EP	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-2465EP.D2	EP	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-4313	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-4313US.C2	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-4313US.P2	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
ISIS-5027	US	Pending		OLIGORIBONUCLEOTIDES AND RIBONUCLEASES FOR CLEAVING RNA
CORE0015US.L	US	Pending		PROBE DESIGN FOR THE DETECTION OF RNAs IN CELL EXTRACTS, CELLS, AND TISSUES
CORE0016US.L	US	Pending		OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN MODULATION OF SMALL NON-CODING RNAS
CORE0016US.L2	US	Pending		OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN MODULATION OF SMALL NON-CODING RNAS
CORE0016US.L3	US	Pending		OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN MODULATION OF SMALL NON-CODING RNAS
CORE0016WO	WO	Expired		OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN MODULATION OF SMALL NON-CODING RNAS
CORE0016US	US	Pending		OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN MODULATION OF SMALL NON-CODING RNAS
ISIS0003-500	WO	Pending		HUMAN RNASE III AND COMPOSITIONS AND USES THEREOF
ISIS-5030	US	Pending		HUMAN RNASE III AND COMPOSITIONS AND USES THEREOF
ISIS-5030.D1	US	Pending		HUMAN RNASE III AND COMPOSITIONS AND USES THEREOF
ISIS-5030EP	EP	Pending		HUMAN RNASE III AND COMPOSITIONS AND USES THEREOF
ISPH-0522	US	Pending		HUMAN RNASE III AND COMPOSITIONS AND USES THEREOF
ISPH-0522.D2	US	Pending		HUMAN RNASE III AND COMPOSITIONS AND USES THEREOF
ISIS-0207	AU	Granted	654816	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURES
ISIS-0209	CA	Granted	2082044	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURE
ISIS-0210	EP	Granted	529008	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURE
ISIS-0214	FR	Granted	529008	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURE
ISIS-0215	DE	Granted	69131848	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURES
ISIS-0216	GB	Granted	529008	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURES

ISIS-0223	CH	Granted	529008	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURES
ISIS-0226	JP	Granted	2800848	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURES
ISIS-1124	IL	Pending		PSEUDO-HALF-KNOT FORMATION BY HYBRIDIZATION OF ANTISENSE OLIGONUCLEOTIDE TO TARGET RNA'S SECONDARY STRUCTURE
ISIS-1130	EP	Pending		PSEUDO-HALF-KNOT FORMATION BY HYBRIDIZATION OF ANTISENSE OLIGONUCLEOTIDE TO TARGET RNA'S SECONDARY STRUCTURE
ISIS-1149	JP	Granted	3113280	PSEUDO-HALF-KNOT FORMATION BY HYBRIDIZATION OF ANTISENSE OLIGONUCLEOTIDE TO TARGET RNA'S SECONDARY STRUCTURE
ISIS-1241	US	Granted	5512438	INHIBITING RNA EXPRESSION BY FORMING A PSEUDO-HALF-KNOT RNA AT THE TARGET'S RNA SECONDARY STRUCTURE USING ANTISENSE OLIGONUCLEOTIDES
ISIS-1420	US	Granted	5866698	MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURE
ISPH-0270	EP	Pending		MODULATION OF GENE EXPRESSION THROUGH INTERFERENCE WITH RNA SECONDARY STRUCTURE
ISIS-5323	WO	Pending		2'-FLUORO SUBSTITUTED OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATIONS
ISIS-5324	WO	Pending		2' METHOXY SUBSTITUTED OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATIONS
CHEM0013US.L	US	Pending		2'-SUBSTITUTED OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATIONS
ISIS-5321	WO	Pending		MODIFIED OLIGONUCLEOTIDES FOR USE IN RNA INTERFERENCE
ISIS-5322	WO	Pending		COMPOSITIONS COMPRISING ALTERNATING 2'-MODIFIED NUCLEOSIDES FOR USE IN GENE MODULATION
ISIS-5325	US	Pending		COMPOSITIONS COMPRISING ALTERNATING 2'-MODIFIED NUCLEOSIDES FOR USE IN GENE MODULATION
CORE0001US.L	US	Pending		MODULATION OF THE RNA INTERFERENCE PATHWAY
CORE0001US	US	Pending		MODULATION OF THE RNA INTERFERENCE PATHWAY
CORE0001WO	WO	Expired		MODULATION OF THE RNA INTERFERENCE PATHWAY
CORE0004US	US	Pending		ISOFORM-SPECIFIC TARGETING OF SPLICE VARIANTS
CORE0004WO	WO	Expired		ISOFORM-SPECIFIC TARGETING OF SPLICE VARIANTS
CORE0027US	US	Pending		EFFICIENT REDUCTION OF TARGET RNA's BY SINGLE- AND DOUBLE-STRANDED OLIGOMERIC COMPOUNDS
CORE0027WO	WO	Pending		EFFICIENT REDUCTION OF TARGET RNA's BY SINGLE- AND DOUBLE-STRANDED OLIGOMERIC COMPOUNDS
ISIS-1962	US	Pending		CHIMERIC OLIGONUCLEOTIDES FOR MODULATING GENE EXPRESSION
ISPH-0328	CA	Pending		COMPOSITIONS AND METHODS FOR ANTISENSE INHIBITION OF PROTEIN TRANSLATION
ISPH-0332	NZ	Granted	332999	COMPOSITIONS AND METHODS FOR ANTISENSE INHIBITION OF PROTEIN TRANSLATION
ISPH-0384	US	Granted	6232296	INHIBITION OF COMPLEMENT ACTIVATION AND COMPLEMENT MODULATION BY USE OF MODIFIED OLIGONUCLEOTIDES

ISPH-0760	US	Pending		INHIBITION OF COMPLEMENT ACTIVATION AND COMPLEMENT MODULATION BY USE OF MODIFIED OLIGONUCLEOTIDES
ISPH-0327	AU	Granted	712228	COMPOSITIONS AND METHODS FOR ANTISENSE INHIBITION OF PROTEIN TRANSLATION
CORE0026US.L	US	Pending		CHIMERIC OLIGOMERIC COMPOUNDS COMPRISING ALTERNATING REGIONS OF NORTHERN AND SOUTHERN CONFORMATIONAL GEOMETRY
ISIS-1399	EP	Granted	691853	ANTISENSE OLIGOS WHICH INTERFERE WITH MRNA CAP ACTIVITY AND INHIBIT TRANSLATION
ISIS-1401	BE	Granted	691853	ANTISENSE OLIGOS WHICH INTERFERE WITH MRNA CAP ACTIVITY AND INHIBIT TRANSLATION
ISIS-1403	FR	Granted	691853	ANTISENSE OLIGOS WHICH INTERFERE WITH MRNA CAP ACTIVITY AND INHIBIT TRANSLATION
ISIS-1404	DE	Granted	69430740.8	ANTISENSE OLIGOS WHICH INTERFERE WITH MRNA CAP ACTIVITY AND INHIBIT TRANSLATION
ISIS-1405	GB	Granted	691853	ANTISENSE OLIGOS WHICH INTERFERE WITH MRNA CAP ACTIVITY AND INHIBIT TRANSLATION
ISIS-1415	CH	Granted	691853	ANTISENSE OLIGOS WHICH INTERFERE WITH MRNA CAP ACTIVITY AND INHIBIT TRANSLATION
CORE0030US.L	US	Pending		ANTISENSE OLIGONUCLEOTIDES OPTIMIZED FOR KIDNEY TARGETING DEMONSTRATE INCREASED EFFICACY IN MICE
CHEM0006US	US	Pending		POLYCYCLIC SUGAR SURROGATE-CONTAINING OLIGOMERIC COMPOUNDS AND COMPOSITIONS FOR USE IN GENE MODULATION
CORE0029US.L	US	Pending		DOUBLE STRANDED COMPOSITIONS COMPRISING A PHOSPHOROTHIOATE RNA REGION AND A 3’-ENDO REGION FOR USE IN GENE MODULATION
CORE0029US.L2	US	Pending		DOUBLE STRANDED COMPOSITIONS COMPRISING AN RNA REGION AND A 3’-ENDO REGION FOR USE IN GENE MODULATION
ISIS-4730	US	Granted	5919619	OLIGONUCLEOTIDE THERAPEUTIC AGENT AND METHODS OF MAKING SAME
ISIS-4502	US	Pending		OLIGONUCLEOTIDE THERAPEUTIC AGENT AND METHODS OF MAKING SAME
CHEM0002US.L	US	Pending		OLIGONUCLEOTIDES HAVING MODIFIED NUCLEOSIDE UNITS
CHEM0014US.L	US	Pending		CHIMERIC OLIGOMERIC COMPOUNDS AND THEIR USE IN GENE MODULATION
CHEM0001US	US	Pending		MODIFIED OLIGONUCLEOTIDES FOR USE IN GENE MODULATION
CHEM0001WO	WO	Pending		MODIFIED OLIGONUCLEOTIDES FOR USE IN GENE MODULATION
ISIS-0816	AU	Granted	669353	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-0841	US	Granted	5623065	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-2002	US	Granted	5955589	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-2454	US	Granted	5856455	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-3153	US	Granted	6146829	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-4291	US	Granted	6326199	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-4387	EP	Pending		GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-4852	US	Pending		GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-5213	US	Pending		GAPPED 2’ MODIFIED OLIGONUCLEOTIDES

ISIS-0818	CA	Granted	2126691	GAPPED 2’ MODIFIED OLIGONUCLEOTIDES
ISIS-0819	EP	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0821	BE	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0822	DK	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0823	FR	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0824	GB	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0825	DE	Granted	69232032	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0827	IE	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0831	NL	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0834	SE	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0835	CH	Granted	618925	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0838	JP	Granted	3131222	GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-4383	JP	Pending		GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-0839	KR	Pending		GAPPED 2’ MODIFIED PHOSPHOROTHIOATE OLIGONUCLEOTIDES
ISIS-2825	KR	Granted	188858	GAPPED 2’-MODIFIED MACROMOLECULES
ISIS-4288	US	Pending		GAPPED OLIGOMERS HAVING SITE SPECIFIC PHOSPHOROTHIOATE INTERNUCLEOSIDE LINKAGES
ISIS-2003	US	Pending		GAPPED OLIGONUCLEOTIDES
HYBN-198.0AT	AU	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0BE	BE	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0CA	CA	Pending		INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0CH	CH	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0DE	DE	Granted	696 28 864.8	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0DK	DK	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0EP	EP	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0EPD1	EP	Pending		INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0ES	ES	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0FI	FI	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0FR	FR	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0GB	GB	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0GR	GR	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0IE	IE	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0IT	IT	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0JP	JP	Pending		INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0NL	NL	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0PT	PT	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0SE	SE	Granted	1019428	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.0US	US	Granted	5652356	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.1US	US	Granted	5973136	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
HYBN-198.2US	US	Granted	5773601	INVERTED CHIMERIC AND HYBRID OLIGONUCLEOTIDES
ISIS-1203	NZ	Granted	256787	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1204	AU	Granted	668604	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1207	EP	Granted	672193	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1211	FR	Granted	672193	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE

ISIS-1212	GB	Granted	672193	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1223	CH	Granted	672193	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1206	CA	Granted	2145664	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1226	JP	Granted	2818031	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1229	US	Granted	5952490	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE
ISIS-1213	DE	Granted	693 32 206.3	OLIGONUCLEOTIDES HAVING A CONSERVED G4 CORE SEQUENCE

Isis Current Mechanism and Motif Patents (June 2007 Updates)

Isis Docket Number	Country	Status	Filing Date
CORE0005EP	EP	FILED	6/18/2004
CORE0005USA	US	FILED	5/5/2006
CHEM0021EP	EP	FILED	
CHEM0021USA	US	FILED	
CHEM0021WO	WO	INACTIVE	
CORE0005WO	WO	INACTIVE	
CORE0026EP	EP	FILED	
CORE0027EP	EP	FILED	
CORE0036US	US	FILED	
CORE0041US	US	FILED	
CORE0043EP	EP	FILED	
CORE0043USA	US	FILED	
CORE0043WO	WO	INACTIVE	
CORE0052US.L	US	EXPIRED	
CORE0052US.L2	US	EXPIRED	
CORE0055AU	AU	FILED	
CORE0055CA	CA	FILED	
CORE0055EP	EP	FILED	
CORE0055JP	JP	FILED	
CORE0055US.C1	US	FILED	
CORE0055US.C10	US	FILED	
CORE0055US.C2	US	FILED	
CORE0055US.C3	US	FILED	
CORE0055US.C4	US	FILED	
CORE0055US.C5	US	FILED	
CORE0055US.C6	US	FILED	
CORE0055US.C7	US	FILED	
CORE0055US.C8	US	FILED	
CORE0055US.C9	US	FILED	
CORE0055USA	US	FILED	
CORE0055WO	WO	INACTIVE	
CORE0056AU	AU	FILED	
CORE0056CA	CA	FILED	
CORE0056EP	EP	FILED	
CORE0056JP	JP	FILED	
CORE0056US.C1	US	FILED	
CORE0056US.C2	US	FILED	
CORE0056US.C3	US	FILED	
CORE0056US.C4	US	FILED	
CORE0056USA	US	FILED	
CORE0056WO	WO	INACTIVE	
CORE0060WO2	WO	FILED	

CORE0066WO	WO	FILED
CORE0068WO	WO	FILED
ISIS-2965EP.D1	EP	FILED
ISIS-2965EP.D2	EP	FILED
ISIS-5482	US	FILED
ISIS-5586	US	FILED
ISIS-5737	AU	FILED
ISIS-5738	CA	FILED
ISIS-5739	EP	FILED
CORE0054US.L	US	EXPIRED
CORE0053US.L	US	EXPIRED

Our Ref. No.	CaseType	Application No.	Patent No.	Status	Country	Title
NUCL-006	PCT	2004263832	2004263832	Granted	Australia	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	PI0411219.9		ExamReq	Brazil	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	2528510		Published	Canada	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	200480022894.9		Abandoned	China (People's Republic)	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	04776661.3		Pending	European Patent Convention	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	DIV	10180048.0		Published	European Patent Convention	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	DIV	10180047.2		Published	European Patent Convention	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	5572/DELNP/2005		Published	India	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	172268		Abandoned	Israel	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	2006-533810		ExamReq	Japan	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	DIV	2011-148461		Pending	Japan	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	ORD	PCT/US2004/019229		Expired	Patent Cooperation Treaty	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	200507781-3	117818	Granted	Singapore	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	DIV	200704437-3		Published	Singapore	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	10/560377		Published	United States of America	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PRO	60/478,076		Expired	United States of America	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	PCT	13/065601		Pending	United States of America	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-006	CON	13/234698		Pending	United States of America	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	PCT	2005319306		Allowed	Australia	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	PCT	2592099		Published	Canada	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	PCT	05854816.5	EP1833967	Allowed	European Patent Convention	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING

NUCL-010	DIV	10010655.8		Abandoned	European Patent Convention	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	EPP	05854816.5	EP1833967	Allowed	France	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	EPP	05854816.5	EP1833967	Allowed	Germany	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	PCT	2007-548393		Abandoned	Japan	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	ORD	PCT/US2005/046162		Expired	Patent Cooperation Treaty	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	EPP	05854816.5	EP1833967	Allowed	United Kingdom	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	PRO	60/638,294		Expired	United States of America	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING
NUCL-010	PCT			Not Filed	United States of America	CONSERVED HBV AND HCV SEQUENCES USEFUL FOR GENE SILENCING

Our Ref. No.	Country	Application No.	Patent No.	Status	Application Title
RIB-001.3AT1	Austria	EP 02003683	E297.463	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AT2	Austria	05002454.6-2107	E418.60	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AU	Australia	2000032713	778474	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AU1	Australia	2005201044	2005201044	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3AUD2	Australia	2008202208		Opposed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CA	Canada	2,359,180	2,359,180	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CH1	Switzerland	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CH2	Switzerland	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CY1	Cyprus	EP 02003683	CY05/1101016	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3CY2	Cyprus	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE0	Germany	50000414.5-08	1144623	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE1	Belgium	EP 02003683	EP 1214945 B1	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE1	Germany	50010528.6-08	1214945	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE2	Belgium	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DE2	Germany	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DED1	Germany	10066235.8	10066235.8	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DED2	Germany	10066344.3		Pending	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DED3	Germany	10066382.6		Pending	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DEUTM	Germany	20023125.1	DE20023125 U1	RegUtilMode	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DK1	Denmark	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3DK2	Denmark	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE

RIB-001.3EPD1	Europe	02003683.6	1214945	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3EPD2	Europe	05002454.6	1550719	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3EPD3	Europe	06025389.5		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3EPD4	Europe	10011217.6		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3ES1	Spain	EP 02003683	ES2243608	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3ES2	Spain	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FI1	Finland	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FI2	Finland	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FR1	France	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3FR2	France	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GB1	United Kingdom	EP 02003683	EP1214945	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GB2	United Kingdom	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GR1	Greece	EP 02003683	3054579	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3GR2	Greece	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IE	Ireland	EP 00910510	1144623 B9	Revoked	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IE1	Ireland	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IE2	Ireland	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IT1	Italy	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3IT2	Italy	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD10	Japan	2009-285706		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD3	Japan	2007-186341		Appealed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD4	Japan	2007-186340		Appealed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE

RIB-001.3JPD5	Japan	2007-186339		ExamReq	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD7	Japan	2009-002825		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3JPD9	Japan	2009-285705		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LI1	Liechtenstein	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LI2	Liechtenstein	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LU1	Luxembourg	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3LU2	Luxembourg	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3MC1	Monaco	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3MC2	Monaco	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3NL1	Netherlands	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3NL2	Netherlands	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3PT1	Portugal	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3PT2	Portugal	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3SE1	Sweden	EP 02003683	EP 1214945 B1	GrantedInOp	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3SE2	Sweden	05002454.6-2107	EP1550719	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON1	US	11/982325		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON2	US	11/982305		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON3	US	11/982425		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON4	US	11/982441		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON5	US	11/982345		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USCON6	US	11/982434		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USD1	US	10/382395		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE

RIB-001.3USD2	US	10/383099		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USD3	US	10/382768		Allowed	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3USD4	US	10/612179		Published	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3WO	PCT	PCT/DE00/00244		CompletedNt	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-001.3ZA	South Africa	ZA 20015909	2001/5909	Granted	METHOD AND MEDICAMENT FOR INHIBITION THE EXPRESSION OF A DEFINED GENE
RIB-002.1DE	Germany	10100586.5-09	DE10100586 C1	Granted	INHIBITING GENE EXPRESSION IN CELLS, USEFUL FOR e.g., TREATING TUMORS, BY INTRODUCING DOUBLE-STRANDED COMPLEMENTARY OLIGORNA HAVING
RIB-002.4	US	12/894018		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4AT	Austria	02710786.1	E328.075	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4AU	Australia	2002229701	2002229701	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4CH	Switzerland	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4CY	Cyprus	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4DE	Germany	50206993.7-08	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4EP	Europe	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4GB	United Kingdom	EP 02710786	EP 1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4IE	Ireland	02710786.1	1352061	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4JP	Japan	2002-556740	4210116	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4JPD1	Japan	2002-556739	4209678	Granted	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4LI	Liechtenstein	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4LU	Luxembourg	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4TR	Turkey	02710786.1	1352061	GrantedInOp	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-002.4US	US	10/384,339	7,829,693	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE

RIB-002.4WO	PCT	PCT/EP02/00152		CompletedNt	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A TARGET GENE
RIB-006.1DE	Germany	02702247.4-2405/1349	50214866.9-08	Allowed	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1EP	Europe	02702247.4	EP1349927	GrantedInOp	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1EPD1	Europe	10002422.3		Pending	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1EPD2	Europe	10011812.4		Published	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1ES	Spain	02702247	ES2204360	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1FR	France	EP 02702247	EP1349927	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1GB	United Kingdom	02702247.4-2405/1349	EP1349927	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1HKD1	Hong Kong	11100629.6		Published	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1HKD2	Hong Kong	11111936.1		Pending	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1NL	Netherlands	EP 02702247	EP1349927	Granted	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.1WO	PCT	PCT/EP02/00151		CompletedNt	METHOD FOR INHIBITING THE EXPRESSION OF A TARGET GENE AND MEDICAMENT FOR TREATING A TUMOR DISEASE
RIB-006.2US	US	10/384,260	7,473,525	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.2US	US	12/276,270		Pending	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4AU	Australia	2005284729		Allowed	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4CA	Canada	2580560		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4EP	Europe	05797892.6		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4EPD1	Europe	11004902.0		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4HK	Hong Kong	07114036.0		Published	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4US	US	10/941663	7767802	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4USCIP2	US	11/229183	7423142	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4USCON2	US	12/961337		Allowed	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES

RIB-006.4USD1	US	12/175,938	7,868,160	Issued	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-006.4WO	PCT	PCT/US2005/033309		CompletedNt	COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF ANTI- APOPTOTIC GENES
RIB-008.2DE	Germany	DE 10163098	DE10163098	Granted	METHOD FOR INHIBITING THE REPLICATION OF VIRUSES
RIB-008.3USCIP	US	10/384,512	7,348,314	Issued	METHOD TO INHIBIT THE REPLICATION OF VIRUSES
RIB-008.3USCON	US	11/959,936	7,745,418	Issued	METHOD TO INHIBIT THE REPLICATION OF VIRUSES
RIB-008.3USCON1	US	12/631689		Published	METHOD TO INHIBIT THE REPLICATION OF VIRUSES
RIB-011.2WO	PCT	PCT/EP02/11973		CompletedNt	USE OF DOUBLE STRAND RIBONUCLEIC ACID FOR TREATING AN INFECTION WITH A POSTIVE-STRAND RNA-VIRUS
RIB-012.2EP	Europe	02779511.1		Appealed	USE OF A DOUBLE-STRANDED RIBONUCLEIC ACID FOR SPECIFICALLY INHIBITING THE EXPRESSION OF A GIVEN TARGET GENE
RIB-012.2EPD1	Europe	10011813.2		Published	USE OF A DOUBLE-STRANDED RIBONUCLEIC ACID FOR SPECIFICALLY INHIBITING THE EXPRESSION OF A GIVEN TARGET GENE
RIB-012.2WO	PCT	PCT/EP02/11969		CompletedNt	USE OF A DOUBLE-STRANDED RIBONUCLEIC ACID FOR SPECIFICALLY INHIBITING THE EXPRESSION OF A GIVEN TARGET GENE
RIB-012.3US	US	10/384,463	7,763,590	Issued	COMPOSITIONS AND METHODS FOR INHIBITING THE EXPRESSION OF A MUTANT GENE
RIB-012.3USCON1	US	13/177316		Published	COMPOSITIONS AND METHODS FOR INHIBITING THE EXPRESSION OF A MUTANT GENE
RIB-012.3USD1	US	12/817009	7994309	Allowed	COMPOSITIONS AND METHODS FOR INHIBITING THE EXPRESSION OF A MUTANT GENE
RIB-013.1WO	PCT	PCT/EP02/11972		CompletedNt	DRUG FOR TREATING A FIBROTIC DISEASE THROUGH RNA INTERFERENCE
RIB-014.1WO	PCT	PCT/EP02/12221		Expired	SMAD7 INHIBITORS FOR THE TREATMENT OF CNS DISEASES
RIB-015.2US	US	10/349,320	7,196,184	Issued	DOUBLE-STRANDED RNA (dsRNA) AND METHOD FOR USE FOR INHIBITING EXPRESSION OF A FUSION GENE
RIB-015.2USCON1	US	12/912616		Published	DOUBLE-STRANDED RNA (dsRNA) AND METHOD FOR USE FOR INHIBITING EXPRESSION OF A FUSION GENE
RIB-015.2USD1	US	11/656,349	7,846,907	Allowed	DOUBLE-STRANDED RNA (dsRNA) AND METHOD FOR USE FOR INHIBITING EXPRESSION OF A FUSION GENE
RIB-015.3WO	PCT	PCT/EP03/00604		Expired	METHOD FOR INCREASING THE EFFICIENCY OF AN INHIBITOR OF TYROSINE KINASE ACTIVITY
RIB-016.1DE	Germany	10302421.2-41		Published	DOUBLE-STRANDED RIBONUCLEIC ACID WITH IMPROVED ACTIVITY
RIB-016.2AT	Austria	E367441	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2AU	Australia	2004206255	2004206255	Issued	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID

RIB-016.2AUD1	Australia	2008203538		Pending	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2BE	Belgium	04704041.5	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2CA	Canada	2513809	2513809	Allowed	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2CH	Switzerland	04704041.5	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2CY	Cyprus	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2DE	Germany	602004007620.1-08	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2DK	Denmark	04704041.5	DK/EP 1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2EP	Europe	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2EPD1	Europe	07010839.4		Published	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2ES	Spain	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2FR	France	04704041.5-1521	EP1587926B1	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2GB	United Kingdom	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2HK	Hong Kong	08105048.3		Published	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2HU	Hungary	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2IE	Ireland	04704041.5	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2IT	Italy	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2LI	Liechtenstein	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2LU	Luxembourg	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2NL	Netherlands	04704041.5-1521	EP1587926B1	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2PT	Portugal	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2SE	Sweden	04704041.5-1521	EP1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2SI	Slovenia	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID

RIB-016.2TR	Turkey	04704041.5-1521	1587926	Granted	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2US	US	10/543048		Appealed	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-016.2WO	PCT	PCT/US2004/001461		CompletedNt	LIPOPHILIC DERIVATIVES OF DOUBLE-STRANDED RIBONUCLEIC ACID
RIB-017.1EPUS	US	60/479,354		Converted	SiRNA WITH INCREASED STABILITY IN SERUM

EXHIBIT B

IN-LICENSES COVERING ALNYLAM PATENT RIGHTS

B.1. In-Licenses Covering Base Alnylam Patent Rights

Co-Exclusive License Agreement between Garching Innovation GmbH and Alnylam Pharmaceuticals, Inc., (effective December 20, 2002) and Amendment (effective 8 July, 2003).

Amended and Restated Strategic Collaboration and License Agreement effective as of April 28, 2009, between Isis Pharmaceuticals, Inc. and Alnylam Pharmaceuticals, Inc.

B.2. In-Licenses Covering Additional Alnylam Patent Rights Stanford

Co-Exclusive License Agreement between THE BOARD OF TRUSTEES OF THE LELAND Stanford JUNIOR UNIVERSITY and Alnylam Pharmaceuticals, Inc., (effective September 17, 2003)

Cancer Research Technology Limited

Exclusive License Agreement between CANCER RESEARCH TECHNOLOGIES LIMITED and Alnylam Pharmaceuticals, Inc., (effective July 18, 2003)

EXHIBIT C

RESEARCH COLLABORATION PLAN

[Reserved.]

EXHIBIT D

PRESS RELEASE

Contacts:
Alnylam Pharmaceuticals, Inc.
Cynthia Clayton
Vice President, Investor Relations and
Corporate Communications
617-551-8207

Arrowhead Research Corporation
Michael Levitan
The Trout Group, LLC
646-378-2920
ir@arrowres.com

Amanda Sellers (Media)
Spectrum
202-955-6222 x2597

Alnylam and Arrowhead Form Collaboration and Licensing Agreement

– Arrowhead Receives License from Alnylam to Develop RNAi Therapeutic Toward Hepatitis B Virus (HBV) –

– Alnylam Gains Access to Arrowhead's Dynamic Polyconjugate (DPC) Delivery Technology for "Alnylam 5x15" Target –

Cambridge, Mass. and Pasadena, Calif., January 5, 2012 – Alnylam Pharmaceuticals, Inc. (Nasdaq: ALNY), a leading RNAi therapeutics company, and Arrowhead Research Corporation, (Nasdaq: ARWR) a nanomedicine company with development programs in RNAi and obesity, announced today that they have entered into a collaboration and joint licensing agreement.

Alnylam has granted Arrowhead a license under its intellectual property that enables the discovery, development, and commercialization of an RNAi therapeutic targeting the hepatitis B virus (HBV). Alnylam is eligible to receive from Arrowhead milestone payments and royalties on sales of product resulting from the license. In addition, Alnylam has received a license from Arrowhead to utilize their Dynamic Polyconjugate (DPC) delivery technology for an RNAi therapeutic product. Alnylam expects to deploy this technology for an undisclosed target in its "Alnylam 5x15" pipeline which is focused on genetically defined targets and diseases. Arrowhead is eligible to receive from Alnylam milestone payments and royalties on sales of product resulting from the license. No additional financial details were disclosed.

"We view Arrowhead's DPC technology as a promising emerging delivery approach, with the potential to complement our existing delivery platform which currently includes lipid nanoparticles and our siRNA conjugate platform," said Laurence Reid, Ph.D., Senior Vice President and Chief Business Officer of Alnylam. "In addition, by granting Arrowhead a license for their HBV program, we are enabling their efforts with access to Alnylam intellectual property which we believe is critical for the development and commercialization of RNAi therapeutics. We look forward to continuing to work with Arrowhead, who is already a partner and licensee of Alnylam."

"This license from Alnylam is an important step for us as we expand our pipeline to include our first DPC-enabled candidate targeting hepatitis B," said Christopher Anzalone, Ph.D., President and CEO of Arrowhead. "With over 350 million carriers world-wide, HBV represents a large underserved medical need, and one that RNAi and DPCs are well-suited to address. We are also very pleased to grant Alnylam the first commercial license to our DPC technology for one of their genetically defined disease targets. We believe DPCs represent one of the most promising delivery approaches for the systemic delivery of RNAi therapeutics, and we look forward to a close collaboration to help Alnylam bring a DPC-enabled candidate to the clinic."

About RNA Interference (RNAi)

RNAi (RNA interference) is a revolution in biology, representing a breakthrough in understanding how genes are turned on and off in cells, and a completely new approach to drug discovery and development. Its discovery has been heralded as "a major scientific breakthrough that happens once every decade or so," and represents one of the most promising and rapidly advancing frontiers in biology and drug discovery today which was awarded the 2006 Nobel Prize for Physiology or Medicine. RNAi is a natural process of gene silencing that occurs in organisms ranging from plants to mammals. By harnessing the natural biological process of RNAi occurring in our cells, the creation of a major new class of medicines, known as RNAi therapeutics, is on the horizon. Small interfering RNAs (siRNAs), the molecules that mediate RNAi and comprise Alnylam's RNAi therapeutic platform, target the cause of diseases by potently silencing specific mRNAs, thereby preventing disease-causing proteins from being made. RNAi therapeutics have the potential to treat disease and help patients in a fundamentally new way.

About DPC Technology

Dynamic Polyconjugate (DPC) technology is a systemic siRNA delivery platform that enables polymer-based formulation chemistry to efficiently target gene silencing complexes to specific cells. As the DPCs attach to and enter the target cells, they respond to the environmental cues provided by the cell to disassemble and release the active siRNA molecule. This unique chemistry mimics the natural viral targeting and disassembly process. Pre-clinical studies show that DPCs are highly efficacious for delivery to the liver.

About "Alnylam 5x15™"

The "Alnylam 5x15" strategy, launched in January 2011, establishes a path for development and commercialization of novel RNAi therapeutics to address genetically defined diseases with high unmet medical need. Products arising from this initiative share several key characteristics including: a genetically defined target and disease; the potential to have a major impact in a high unmet need population; the ability to leverage the existing Alnylam RNAi delivery platform; the opportunity to monitor an early biomarker in Phase I clinical trials for human proof of concept; and the existence of clinically relevant endpoints for the filing of a new drug application (NDA) with a focused patient database and possible accelerated paths for commercialization. This strategy leverages Alnylam's clinical progress on siRNA delivery, including definitive human proof-of-concept data for systemic delivery. By the end of 2015, the company expects to have five such RNAi therapeutic programs in advanced clinical development. These include ALN-TTR for the treatment of transthyretin-mediated amyloidosis (ATTR), ALN-PCS for the treatment of severe hypercholesterolemia, ALN-HPN for the treatment of refractory anemia, ALN-APC for the treatment of hemophilia, and one additional program from the company's ongoing discovery efforts that will be designated at or around the end of 2011. Alnylam intends to focus on developing and commercializing certain products arising under the "Alnylam 5x15" strategy itself in the United States and potentially certain other countries; the company will seek development and commercial partners for other core products both in the United States and in other global territories.

About Alnylam Pharmaceuticals

Alnylam is a biopharmaceutical company developing novel therapeutics based on RNA interference, or RNAi. The company is leading the translation of RNAi as a new class of innovative medicines with a core focus on RNAi therapeutics for the treatment of genetically defined diseases, including ALN-TTR for the treatment of transthyretin-mediated amyloidosis (ATTR), ALN-PCS for the treatment of severe hypercholesterolemia, ALN-HPN for the treatment of refractory anemia, and ALN-APC for the treatment of hemophilia. As part of its "Alnylam 5x15™" strategy, the company expects to have five RNAi therapeutic products for genetically defined diseases in advanced stages of clinical development by the end of 2015. Alnylam has additional partner-based programs in clinical or development stages, including ALN-RSV01 for the treatment of respiratory syncytial virus (RSV) infection, ALN-VSP for the treatment of liver cancers, and ALN-HTT for the treatment of Huntington's disease. The company's leadership position on RNAi therapeutics and intellectual property have enabled it to form major alliances with leading companies including Merck, Medtronic, Novartis, Biogen Idec, Roche, Takeda, Kyowa Hakko Kirin, and Cubist. In addition, Alnylam and Isis co-founded Regulus Therapeutics Inc., a company focused on discovery, development, and commercialization of microRNA therapeutics; Regulus has formed partnerships with GlaxoSmithKline and Sanofi. Alnylam has also formed Alnylam Biotherapeutics, a division of the company focused on the development of RNAi technologies for application in biologics manufacturing, including recombinant proteins and monoclonal antibodies. Alnylam's VaxiRNA™ platform applies RNAi technology to improve the manufacturing processes for vaccines; GlaxoSmithKline is a collaborator in this effort. Alnylam scientists and collaborators have published their research on RNAi therapeutics in over 100 peer-reviewed papers, including many in the world's top scientific journals such as *Nature*, *Nature Medicine*, *Nature Biotechnology*, and *Cell*. Founded in 2002, Alnylam maintains headquarters in Cambridge, Massachusetts. For more information, please visit www.alnylam.com.

About Arrowhead Research Corporation

Arrowhead Research Corporation is a clinical stage nanomedicine company developing innovative therapies at the interface of biology and nanoengineering. Arrowhead's world-class capabilities and intellectual property covering nucleic acid delivery, siRNA chemistry, and tissue targeting allow it to design and develop therapeutic agents for a wide range of diseases. The company's lead products include CALAA-01, an oncology drug candidate based on the gene silencing RNA interference (RNAi) mechanism, and Adipotide™, an anti-obesity peptide that targets and kills the blood vessels that feed white adipose tissue. Arrowhead is leveraging its proprietary Dynamic Polyconjugate™ (DPC), Liposomal Nanoparticle (LNP), and RONDEL™ delivery platforms to support its own pipeline of preclinical and clinical candidates and to secure external partnerships and collaborations with biotech and pharmaceutical companies. For more information, please visit www.arrowheadresearch.com.

Alnylam Forward-Looking Statements

Various statements in this release concerning Alnylam's future expectations, plans and prospects, including without limitation, statements regarding Alnylam's views with respect to the potential for RNAi therapeutics and DPC technology, and Alnylam's expectations regarding its "Alnylam 5x15" product strategy, constitute forward-looking statements for the purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including, without limitation, Alnylam's ability to discover and develop novel drug candidates, successfully demonstrate the efficacy and safety of its drug candidates, including those utilizing DPC technology, the pre-clinical and clinical results for its product candidates, which may not support further development of product candidates, actions of regulatory agencies, which may affect the initiation, timing and progress of clinical trials, obtaining, maintaining and protecting intellectual property, obtaining regulatory approval for products, competition from others using technology similar to Alnylam's and others developing products for similar uses, as well as those risks more fully discussed in the "Risk Factors" section of its most recent quarterly report on Form 10-Q on file with the Securities and Exchange Commission. In addition, any forward-looking statements represent Alnylam's views only as of today and should not be relied upon as representing its views as of any subsequent date. Alnylam does not assume any obligation to update any forward-looking statements.

Arrowhead Forward-Looking Statements

This news release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. These statements are based upon our current expectations and speak only as of the date hereof. Our actual results may differ materially and adversely from those expressed in any forward-looking statements as a result of various factors and uncertainties, including the future success of our scientific studies, our ability to successfully develop drug candidates, the timing for starting and completing clinical trials, rapid technological change in our markets, and the enforcement of our intellectual property rights. Arrowhead Research Corporation's most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q discuss some of the important risk factors that may affect our business, results of operations and financial condition. We assume no obligation to update or revise forward-looking statements to reflect new events or circumstances.

EXHIBIT E

ALNYLAM CRT ADDITIONAL PATENT RIGHTS

Our Ref. No.	Country	Application No.	PatNumber	ApplicationStatus	Title
CRT-001AU1	Australia	200114065 B2	774285	Granted	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001AT1	Austria	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001BE1	Belgium	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001CA1	Canada	2391622		ExamReq	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001CY1	Cyprus	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001DK1	Denmark	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001EP1	Europe	00976188.3	EP1230375B1	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001FI1	Finland	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001FR1	France	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001DE1	Germany	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001DE1	Greece	00976188.3	1230375	Granted	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001HK1	Hong Kong	03100785.6	1050378	Granted	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001IE1	Ireland	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001IL1	Israel	149666		Pending	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001IT1	Italy	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001JP1	Japan	2001-538524		Pending	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001JPD1	Japan			Not Filed	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001LV1	Latvia	00976188.3	EP1230375B1	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001LI1	Liechtenstein	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001LU1	Luxembourg	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001MX1	Mexico	PA/a/2002/005013		Allowed	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001MC1	Monaco	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001NL	Netherlands	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001NZ	New Zealand	519325	519325	Granted	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001NZ1	Norway	20022359		Pending	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001PL	Poland	P356698		Pending	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001PL1	Poland	P388605		Pending	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001PT1	Portugal	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001SG1	Singapore	200203380-1	89569	Granted	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001ZA1	South Africa	2002-3816	2002/3816	Granted	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001ES	Spain	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001SE	Sweden	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001CH	Switzerland	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001TR1	Turkey	00976188.3	1230375	Granted	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001GB0	United Kingdom			Expired	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001GB1	United Kingdom	00976188.3	1230375	GrantedInOp	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001US1	US	10/150426		Published	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001USCON1	US	11/933121		Published	INHIBITING GENE EXPRESSION WITH DSRNA
CRT-001USCON2	US	11/933,153		Published	INHIBITING GENE EXPRESSION WITH DSRNA

EXHIBIT F

ALNYLAM STANFORD ADDITIONAL PATENT RIGHTS

Our Ref. No.	Country	Application No.	Patent No.	Status	Title
STN 001.4US1	US	10/259226		Published	METHODS AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF VIRAL GENE EXPRESSION IN MAMMALS
STN 001.4USCON1	US	12/368,082		Pending	METHODS AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF VIRAL GENE EXPRESSION IN MAMMALS
STN 001.4USCON2	US	12/576052		Appealed	METHODS AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF VIRAL GENE EXPRESSION IN MAMMALS
STN-001.1USPRO1	US	60/307,411		Expired	METHODS AND COMPOSITIONS FOR IN VIVO DELIVERY OF A NAKED RIBONUCLEIC ACID INTO A TARGET CELL
STN-001.2USPRO1	US	60/360,664		Expired	METHODS AND COMPOSITIONS FOR IN VIVO DELIVERY OF A NAKED RIBONUCLEIC ACID INTO A TARGET CELL
STN-001.3AU	Australia	2002326410		Accepted	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3AUD1	Australia	2009200231		Pending	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3CA	Canada	2,454,183		Published	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3EP	Europe	02761123.5		Published	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3EPD1	Europe	10178509.5		Published	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3HK	Hong Kong	04108019.6		Published	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3JP	Japan	2003-515539		Published	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3JPD1	Japan	2007-511489		Pending	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3JPD2	Japan	2010-249697		Published	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3WO	PCT	PCT/US02/22869		CompletedNt	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-001.3US	US	10/200002		Appealed	METHOD AND COMPOSITIONS FOR RNAi MEDIATED INHIBITION OF GENE EXPRESSION IN MAMMALS
STN-003AU	Australia	2005240118		Opposed	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003AUD1	Australia			Pending	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003CA	Canada	2564503		Pending	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003EP	Europe	05749437.9		Pending	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003IL	Israel	178679		Pending	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL

STN-003WO	PCT	PCT/US2005/015264		CompletedNt	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003US	US	11/122,328	7,307,067	Allowed	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003USCON1	US	12/950672		Published	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003USCON2	US	11/953,705	7,838,504	Granted	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL
STN-003USPRO1	US	60/568,358		Converted	METHODS AND COMPOSITIONS FOR REDUCING VIRAL GENOME AMOUNTS IN A TARGET CELL

Exhibit 31.1

CERTIFICATION PURSUANT SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Christopher Anzalone, Chief Executive Officer of Arrowhead Research Corporation, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arrowhead Research Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 12, 2014

/s/ CHRISTOPHER ANZALONE

Christopher Anzalone
Chief Executive Officer

Exhibit 31.2

CERTIFICATION PURSUANT SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Kenneth A. Myszkowski, Chief Financial Officer of Arrowhead Research Corporation, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arrowhead Research Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 12, 2014

/s/ Kenneth A. Myszkowski

Kenneth A. Myszkowski,
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Christopher Anzalone, Chief Executive Officer of Arrowhead Research Corporation (the "Company"), certify, pursuant to Rule 13(a)-14(b) or Rule 15(d)-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, that (i) the Quarterly Report on Form 10-Q of the Company for the quarterly period ended June 30, 2014, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (ii) the information contained in such Quarterly Report on Form 10-Q fairly presents in all material respects the financial condition and results of operations of the Company.

Date: August 12, 2014

/s/ CHRISTOPHER ANZALONE

Christopher Anzalone
Chief Executive Officer

A signed original of these written statements required by 18 U.S.C. Section 1350 has been provided to Arrowhead Research Corporation and will be retained by Arrowhead Research Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

CERTIFICATION PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Kenneth A. Myszkowski, Chief Financial Officer of Arrowhead Research Corporation (the "Company"), certify, pursuant to Rule 13(a)-14(b) or Rule 15(d)-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, that (i) the Quarterly Report on Form 10-Q of the Company for the quarterly period ended June 30, 2014, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (ii) the information contained in such Quarterly Report on Form 10-Q fairly presents in all material respects the financial condition and results of operations of the Company.

Date: August 12, 2014

/s/ Kenneth A. Myszkowski

Kenneth A. Myszkowski
Chief Financial Officer

A signed original of these written statements required by 18 U.S.C. Section 1350 has been provided to Arrowhead Research Corporation and will be retained by Arrowhead Research Corporation and furnished to the Securities and Exchange Commission or its staff upon request.